Table 1

REPRESENTATIVE DATA SHOWING RELATIVE CONTENT (%) OF DDT AND METABOLITES IN TISSUES AND BODY FLUIDS (Values at each time after DDT injection are means for 2-4 flounder)

	1 hr	4 hr	24 hr	1 wk
Liver*				
DDT	94.8	94.6	92.1	93.6
Polar	0.5	2.0	2.2	2.1
DDD	4.0	2.2	3.3	2.1
DDE	0.7	1.2	2.5	2.1
Plasma*				
DDT	91.2	87.4	96.0	96.9
Polar	4.3	5.2	2.7	1.6
DDD	2.9	3.0	1.4	0.0
DDE	1.6	4.4	0.0	1.6
Urine				
DDT	--**	17.8	27.5	14.8
Polar	--	50.0	58.2	69.8
DDD	--	10.7	7.2	8.9
DDE	--	21.4	7.2	6.7

* Kidney, brain, gonad, and bile were similar to liver and plasma.
**Counts too low to determine per cent composition at 1 hr.

the pesticide present in the fish is DDT itself or DDD (usually almost as toxic as DDT). Second, the lack of metabolism which prevents the production of water soluble, more easily excreted products such as DDA and the high lipid-solubility of the parent DDT combine to yield extremely slow elimination of DDT from flounder. In conclusion, *P. americanus* retains a large fraction of the DDT presented to it (bioconcentration) and is unable to reduce the toxicity of the pesticide retained. Thus, since the flounder has no major lipid depot and holds its pesticide load primarily in muscle, its flesh is potentially dangerous for terminal consumers including man.

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THE RATE OF MOVEMENT OF THE CLEAVAGE STIMULUS IN CLEAVING SAND DOLLAR EGGS *(Echinarachnius parma)*

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Cleavage in animal eggs now appears to be accomplished by the active constriction of a circular band located in the equatorial surface and cortex. The band has distinctive ultrastructural as well as physical properties and its organization is accomplished by the mitotic apparatus. This particular activity of the mitotic apparatus may be considered stimulatory but the nature of the stimulus and the means employed in its transportation within the cell are unknown. These experiments were designed to yield information concerning the stimulus transport system by determining the rate of

movement of the stimulus in the cell.

When the mitotic apparatus of a flattened cell is shifted to an excentric position, the furrow first appears in the cell margin closer to the mitotic apparatus and then later in the more distant margin. The distance from the center of the spindle to the closer and distant margins was measured, as was the time interval between the appearance of the two furrows. The relation between the duration of the time interval and the difference in spindle to margin distances is linear over a spectrum of distance differences. It may be assumed that the time interval between appearance of the close and distant furrows is occasioned by the difference in distance the stimulus must travel. These relations permit calculation of the rate of movement of the stimulus between mitotic apparatus and surface, and in 29 determinations the average rate was 6.2 μ/min.

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RELATIONSHIP BETWEEN THE SECRETION AND RESORPTION OF ELECTROLYTES AND FLUID SECRETION BY THE KIDNEY OF THE EEL *Anguilla rostrata*

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One of the primary roles of the kidney of sea water-acclimated fishes is the excretion of divalent ions while the kidney of fresh water-acclimated forms serves mainly to eliminate excess water. Glomerular filtration rate is abolished in the aglomerular teleost, and is usually lower in marine glomerular fishes compared to fresh water fishes. In anadromous fishes, it is usually higher in the fresh water than in the sea water adapted form. The opposite was found in the catadromous eel (Schmidt-Nielsen and Renfro, this volume). The present report explores the relationship between the secretion and resorption of electrolytes and the fluid secretion.

Urine and plasma samples, obtained in the experiments described, were analyzed for magnesium, calcium, sodium, potassium, and chloride in addition to the determinations of radioactive PEG and inulin.

Serum Na, K, and Cl concentrations of sea water fish were slightly higher than those of fresh water fish, while Ca and Mg concentrations were higher in fresh water fish (Table 1). The osmotic concentration of the urine and the concentrations of the different ions were consistently much higher in sea water than in the fresh water adapted eels (Table 1).

To determine if any of the ions secreted could be responsible for the secretion of fluid into the tubule, the amount of each ion resorbed or secreted by the kidney was plotted against the amount of water resorbed or secreted. In each case a relatively linear relationship was obtained (Figure 1, a, b, c, d, e). This relationship existed between water and all ions analyzed with the exception of the points associated with net Mg secretion in sea water-acclimated eels. This is caused by the more pronounced Mg secretion in sea water- than in fresh water-acclimated eels. The line for the freshwater water-acclimated eels was shifted to the right compared to the line for sea water-acclimated eels. The amount of this shift for Na and for Cl is approximately equal to the average difference in C_{H_2O}