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"Morphogenetic Death" in Embryonic Development

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Cellular death during active growth and morphogenesis is a neglected aspect of the study of embryonic development. Investigations on the chick embryo, however, have shown that the distribution of necrotic cells in the appendages is correlated with, and possibly causally related to, morphogenetic changes which result in the emergence of the definitive limb contours.

It has been of some interest, therefore, to determine whether cellular deaths may be likewise correlated with morphogenetic events in the differentiation of the fish embryo. Accordingly, eggs of the minnow, *Fundulus heteroclitus* were obtained and studied with respect to their suitability for further pursuit of this problem.

For one phase of the analysis, the de-chorionated embryos were treated with 1:10000 solutions of Nile Blue in sea water. This dye selectively stains, among others, degenerating cells. Extensive zones of deeply stained cells, presumably necrotic, were found associated with various embryonic foldings; e.g., the limb buds, junction of body wall and yolk sac, otic vesicles, etc. The distribution of these cells was recorded by means of color photographs for further study.

For more detailed analysis and confirmation of the nature of the cells distinguished by the dye, embryos of various developmental stages were preserved for sectioning and histological study.

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Urea Excretion and Diving in the Seal (*Phoca vitulina* L.)

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Experiments on the effects of feeding and diving upon the renal function of the seal were carried out. It was found that the large increase in urea excretion which occurs in seals 3-5 hours after feeding is not due to renal tubular regulation of the urea excretion but can be accounted for by the increases in plasma urea concentration, glomerular filtration rate and urine flow. The urea/inulin clearance ratio in the seal decreases markedly with increasing tubular reabsorption of water. A maximum urea U/P