

## Research Reports: 1958

mg/100cc early development is retarded and does not continue beyond the blastula stage; 20 - 30 mg/100cc produces a slight retardation of skeletal formation. Addition of 25 mg of tetracycline to 100cc of sea water lowers the pH to approximately 7.5. A similar reduction of the pH of sea water by addition of appropriate amounts of HCl does not affect the skeletal development. Lower concentrations permit gastrulation and skeletal formation to occur at a somewhat reduced rate. Examination of the skeletons of embryos grown in mixtures of 15 mg/100cc show a yellow fluorescence when examined with ultra violet light which indicates the incorporation of tetracycline or a derivative into the growing skeleton.

In view of the marked avidity which tetracyclines have for heavy metals, calcium and magnesium were added to the tetracycline-sea water mixtures. Magnesium had no effect; addition of calcium resulted in a slight improvement in development.

### **The Development of the Skeleton of *E. parma***

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Normal skeletal development in *E. parma* consists of the intra cellular formation of a large crystal, the triradiate spicule. Subsequent development occurs extra cellularly and is brought about by the incorporation of mineral salts into a protein matrix. The primary mesenchyme cells elaborate the matrix and also concentrate and transfer the mineral salts in the region of the growing skeleton.

The accumulation and subsequent transfer of calcium carbonate is correlated with vacuole formation, crystal formation, and other cytological events in the mesenchymal cells. These phenomena are moreover dependent upon the osmotic conditions of the coelomic fluid.

### **The Bromination of Phenol Red by the Dogfish, *Squalus acanthias***

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Introduction of phenol red, determined as homogeneous by paper chromatography, into the uterus of the spiny dogfish in the later stages of pregnancy results within twenty-four hours in a visible different dye. Chromatographic comparison between the new dye and bromphenol blue in four solvent systems showed no significant differences, nor did a comparison of the light absorption characteristics. The quantity of purified dye did not permit complete chemical analysis, but it was determined that bromine not iodine was present. The evidence rather clearly indicates that the uterus of the dogfish can turn phenol red into bromphenol blue. The