

a 40 hour period after fertilization increases to 3,000 cells, with a proportional increase in DNA; this is associated with differentiation to the pluteus form.

Various agents added to the embryonic environment have caused specific modification in development. The effects, which vary with the drug, include 1) block in cleavage; e.g. actidione is extremely active, 2) general toxicity to the embryo occurring at various stages of development and directly correlated with drug concentration, e.g. nitrogen mustard, actinomycins, and 3) developmental block at specific stages in development, irrespective of drug concentration, e.g. antimetabolites - 6-mercaptopurine, 8-azaguanine, diazo-oxo-norleucine, fluorinated and brominated pyrimidines. Some are effective at 10^{-9} M/L. The action of the antimetabolites is prevented by the addition of specific metabolites.

This system appears to be useful in screening substances for specific growth inhibiting effects, in obtaining clues to their mechanism of action, in determining the effects of drugs on DNA synthesis and function in embryonic development, and in applying tritium labelled tracers to localize drugs.

Growth Patterns in Ceramiaceae

Eva Konrad

University of Pennsylvania

A study of photomicrography and acetocarmine staining of the growth patterns in *Plumaria elegans* and *Antithamnion floccosum* showed that the formation of apical cells resulted from equal divisions. Alternation of oblique apical crosswalls, as in *Callithamnion*, was not observed. Apical parts may be dissociated by treatment with pectinase, trypsin or versene.

The mentioned *Plumularia* and *Antithamnion* species are not previously described from the area, and were found in Anemone Cave tidepools. *Corallina officinalis*, vs. *profunda* and *spatulifera*, were both found in many tidepools on the mainland shore inside the Thrumcap.

Sea Urchin Sperm Metabolism

William G. Lindsay, Jr.

University of Pennsylvania

The oxidative metabolism of *Echinarachinius parma* sperms was further studied utilizing a recording, open oxygen-electrode technique with a polyethylene-enclosed diffusion electrode. This method is rapid and reproducible.

The sperms readily utilize glucose, succinate, β -hydroxybutyrate and α -glycerophosphate; less readily glycerol and lactate. The induced respira-