

changed by the mitotic stimulus and is not, as proposed by Wolpert ('60), the region of the cell that fails to receive the stimulus.

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#### TIME RELATIONS OF THE CLEAVAGE STIMULUS IN Echinarachnius parma

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The time relations of the cleavage stimulus were studied by centrifugal relocation of the mitotic apparatus at different times in the division cycle and by bringing parts of the surface which would not normally become furrow into the stimulus area. It was found that the position of the furrow is determined 10 minutes before cleavage begins. When the mitotic apparatus is relocated, a secondary furrow appears 10 minutes later, indicating the total time required for stimulus and response. Surface pushed into the stimulus region produces a furrow in about 5 minutes. A single mitotic apparatus can stimulate more than one furrow. Its stimulus activity persists for about 20 minutes.

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#### CYTOKINETIC INHIBITION BY ULTRAVIOLET RADIATION

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Experiments have been made on cleaving zygotes of Echinarachmus parma, in which one of the gametes was exposed to ultraviolet radiation. In one series of studies the pre-fertilization recovery of indicated unfertilized eggs was shown to occur by a much lesser degree than has been demonstrated for *Abacia* eggs.

Zygotes in which either the sperm or eggs has been irradiated were placed in sea water containing  $1.7 \mu\text{c. H}^3\text{-thymidine/ml}$ . These were exposed to the  $\text{H}^3\text{-thymidine}$  environment in 10 minute pulses beginning with fertilization through the third cleavage. In zygotes in which eggs had been exposed to cause a substantial delay in cleavage, the uptake of  $\text{H}^3\text{-thymidine}$  as determined from radioautographs was not delayed.  $\text{H}^3\text{-thymidine}$  uptake for second cleavage occurs previous to and during the first cleavage.

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