'tooth' setae making up the biting edges of these appendages are specialized for their function of prehension. Their edges being very thick and relatively flat, with the surfaces sufficiently crenulated to provide a gripping surface. The orientation of the setae, obliquely from their sockets, provides a good clamping surface within the claw of the appendage (figure, D). So here we have adaptions, of shape, surface, the position involved with the prehensile function.

In the very young crayfish these types of tooth setae are present on the edges of the dactyls and propodites of the chelae. 6-week-old specimens have a complete row of from 16–20 tooth setae on the dactyl edge, and a row of 10–12 on the propodite. These setae are still present on the chelae during the first year, but after 1 year they become less prominent, until in large adults they are replaced totally, by rounded cuticular spines. This is but 1 example of setal replacement seen in A. pallipes.

Between copulation and egg-laying, the females of A. pallipes indulge in prolonged periods of preening[2] of the abdominal surfaces and its appendages. This preening is carried out in the main by the third and fourth pereiopods. The main activities are directed to the setae[3] of the pleopods, particularly the future egg bearing setae-oosetae. These setal bundles are combed, and scraped by the tooth setae of the dactyl edges in preparation for their egg bearing role. Just prior to spawning these preening activities become more intense.

A look at the individual tooth setae of these dactyls shows their structure and position to be consistent with their functions of rasping, scraping and combing (figure, B and C). Their edges are relatively sharp, the individual setae emerging more or less vertically from their sockets, and the surfaces of these setae are raised in rasp-like fashion. The end result is a close combing edge, composed of rasping teeth. It is the drawing of these edges over and through the bundles of setae, which clear them of detritus and enables egg attachment to take place.

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Importance of G₂ for the cytokinesis of plant cells: Specific blocking by deoxyguanosine

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Summary. The modalities of the deoxyguanosine blocking effect on meristematic root cells of Allium sativum L. reveals that, during G_2 phase, fundamental processes leading to cytokinesis take place.

In the course of a previous study, deoxyguanosine (DGR) proved to be a potent inhibitor of Allium sativum L. meristematic root cells cytokinesis[1]. At a 2×10^{-6} M/ml concentration, it causes the formation of binucleate cells after a 6-h-treatment. Such a time lag entitles us to assume that the effect of DGR preceded cytokinesis. We have therefore tried to determine the kinetics of those binucleate cells[2], and in so doing we have brought to light the importance of G_2 phase in the foregoing of cytokinesis.

Through a newly developed technique[2], we are able to use DGR during the all-length of each specific phase of the mitotic cycle: a) First we treat for 1 h with methyl 3, hydroxy 6 quinazoline dione 2–4 (MHQD) (2.5×10^{-7} M/ml). We immediately obtain about 20% of binucleate cells, obviously at the beginning of G_1, knowing that MHQD in no way alters the duration of mitotic cycle[3,4]. b) Then we can treat with DGR that cell population

sample as it goes through G_1 (4 h), S (11 h), G_2 (5 h) or M (3 h), with a view to finding out tetranucleate cells.

When DGR acts during G_1, S or M, cytokinesis is never inhibited. Therefore 1 initial binucleate cell, after a double mitosis, gives birth to 1 binucleate cell plus 2 mononucleate cells. Only when DGR acts during G_2 can we observe the appearance of tetranucleate cells (or trinucleate cells, when the 2 central nuclei merge). We must point out that DGR is a strong mitodepressor; so that we never find as many double mitosis as initial binucleate cells. For example, numbering the cells in 5 meristems, we have found 7 tetranucleate cells and 24 trinucleate ones and 15 cells of the same nature but with partial cytokinesis. It is to be noticed that DGR does not modify the duration of G_1 and M, but it considerably lengthens S and G_2; these delays cannot be linked with cytokinesis inhibition[2].

So it is clear that DGR has a specific action during G_2 inducing a cytokinesis inhibition. From now on it is possible to discriminate between 2 kinds of cytokinesis-inhibitors: those which extemporaneously alter the constituent of phragmoplast (such as MHQD) and those which disturb one or several processes foregoing mitosis. At present it is difficult to pinpoint the specially affected process (s).

Other puric or pyrimidic components having no similar effect, we can exclude any action upon nucleic acids. On the other hand, because of the part played by GTP in the synthesis of proteins and of some polyosides, we are entitled to assume that inhibition takes place on the Golgi apparatus.
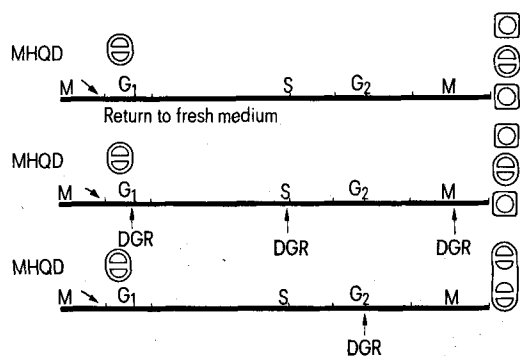
Evolution of an MHQD binucleate cell after return on a fresh medium and treatment by DGR during different phases.

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