

cannot be ruled out. It may be concluded that factors of hydranth regeneration largely involve reorientation of the cellular configuration in the available material. A detailed report on the manner of cell disposition and its relation to morphogenesis in hydra will be published elsewhere⁵.

Zusammenfassung. An regenerierenden Süßwasser-polypen (*Hydra vulgaris orientalis*) wurde die Gesamtmenge der Epithelmuskelzellen, der interstitiellen Zellen und der Cnidoblasten bestimmt. Dabei wurden sehr grosse Zellverluste, speziell bei den interstitiellen Zellen,

in geringerem Masse bei den Epithelmuskelzellen festgestellt. Die Zahl der Cnidoblasten nahm dagegen etwas zu.

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A Possible Correlation Between Reverse Mutation and Complementation

Results obtained in *Neurospora crassa* (see FINCHAM¹ for references) indicate that mutants exhibiting intra-locus complementation in a heterokaryon form a protein (C.R.M.) related serologically to the functional enzyme of the wild-type strain. Non-complementing mutants form apparently no C.R.M. Recently CRICK et al.² have suggested that mutations induced by proflavine and the majority of spontaneous mutations (FRESE³) are due to the addition or subtraction of base pairs in the DNA, and result in the formation of no specific protein or to one greatly different from the wild-type.

These results may perhaps indicate that mutants arising by addition-subtraction type mutation would produce no C.R.M., and hence be non-complementing when occurring at loci at which intra-locus complementation is known to occur.

Mutants of the complementing type might be expected to be due to transition type mutations, affecting only one base pair of one triplet (FRESE³), and having only one amino acid difference between C.R.M. and the wild-type enzyme (WITTMANN⁴). If this hypothesis is true, complementing mutants would revert on treatment with mutagens causing transitions, such as base-analogues and nitrous acid.

True non-complementing mutants, besides producing no C.R.M., might be expected not to revert with mutagens causing transitions. Further, if no, or only a grossly altered protein is produced they would not be expected to be leaky or temperature-sensitive mutants. Results obtained by LEUPOLD⁵ and personal communication) for the ad-1 and ad-6 loci of *Schizosaccharomyces pombe* show at least 38 of the 40 incompletely blocked mutants tested to be of the complementing type.

Preliminary results obtained with ten mutants at the ad-1 locus of *Schiz. pombe* indicate that at least five of six complementing mutants will revert after treatment with nitrous acid. Three of the four non-complementing mutants will not do so. The fourth non-complementing mutant responds to nitrous acid treatment. It should be pointed out, however, that classification of a mutant as non-complementing is to some extent uncertain, since a given mutant may complement with very few other mutants at the same locus (CATCHESIDE⁶).

This hypothesis, that non-complementing point mutations producing no C.R.M. will not give true back-mutation on treatment with nitrous acid, and other transition-type mutagens, is open to test at a number of loci in *Neurospora* (CATCHESIDE⁷) *Schizosaccharomyces* and *Salmonella* (HARTMAN, HARTMAN and SERMAN⁸).

Résumé. Les mutants présentant la complémentation intra-allélique sont probablement susceptibles aussi de mutation réversée vraie sous l'effet de l'acide nitreux.

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Presynaptic Inhibition in the Lumbar Cord Evoked from the Brain Stem

It has recently been shown that the presynaptic terminals of primary afferents may be depolarized through spinal reflex actions and that synaptic actions to motoneurons by this mechanism may be inhibited¹. Ia afferents are depolarized from group I afferents predominantly of flexor muscles, the flexor reflex afferents (FRA), on the other hand, from group I afferents and the FRA. Primary afferents may also be depolarized from higher centres, volleys in the pyramidal tract depolarize Ib, cutaneous and high threshold muscle afferents but not Ia afferents².

The present experiments (decerebrate, unanaesthetized cats) have revealed the existence of a brain stem centre from which depolarization can be evoked not only in the above mentioned categories of afferents, which are influenced from the pyramidal tract, but also in Ia afferents.

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