(i) There is a very high proportion of non-concordant changes of *I*. *C*, in general, yields concordant changes.

(ii) The mutation rate of *I* and *i* must be much lower than *C* to *c*.

All the observations are suggestive that *I* and *C* may occupy different loci and may in fact have a functional relationship that is yet to be clarified.

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3. The basis of somatic instability in maize.

Various mutagenically-effective treatments for the Sh_2 locus failed to produce any back mutation of the closely-linked A_1 *Ds* marker complex. Nor were any *Ac*-like elements generated (Maize News Letter 42:6-7). An excision-repair model is proposed to explain the stability of *Ds* (mutations) in the absence of *Ac* and its high mutability in the presence of *Ac*. According to this model, *Ds* is considered to be a mutation that produces a specific kink in the chromosome. The *Ds* mutation can occur once or more than once in a structural gene and also anywhere in the genome. The presence of this kink is specifically recognized by the product of *Ac*. The product of *Ac* may be visualized as an excision enzyme concerned with monitoring the fidelity of the chromosomes and excising the *Ds*-type damage. *Ac* can occur in either active or inactive phase and probably in more than one location. Two major states of *Ds* are assumed to present themselves somewhat differently to the *Ac* excision enzyme. The Dissociation-type state is excised as a chromosome break and the back-mutation type is excised so that it is repairable. Intracistronic recombination and therefore the site-referability of different *Ds* 'insertions' as observed by Nelson (cited in Dawson, G.W.P. 1966. The Physiology of Gene and Mutation Expression. Proc. Symp. Prague 67-70) is also readily explained. Under the present scheme, the phenomenon of transposition cannot be explained as a unique transfer of material substance from one location to the other but rather as the occurrence of a new *Ds* kink at another location (presumably in the wake of chromosomal breakage).

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