The occurrence of intermediate alleles of dilute phenotype suggests a qualitative change of a single (S) element. On this basis, these mutants are expected to originate as the result of gene mutation, or noncrossover mutation, and not involve unequal crossing-over. At the present time, four of the dilute mutants that were marked for the determination of unequal-crossing-over were all of the non-crossover type, but the number of mutants analyzed is too small to be statistically significant. Each of these non-crossover mutants was derived from R^r Cornell.

However, if it is postulated that R^r Cornell possesses a single (S) element, it is rather difficult to explain on this basis the occurrence of compound intermediate alleles from the same R^r allele, such as the spotted-dilute mutants. These mutants, which exhibit a combination of stippled-like spots on a fairly dilute background, could arise as the effect of single changes of (S) from a multiple S.S.S... complex. Alternatively, they could represent unstable R alleles. It is noteworthy that four, or possibly five, of the seven spotted-dilute mutants analyzed were also non-crossovers as were four of the mutants of intermediate seed-color.

Several additional intermediate alleles have been found in last summer's detassel plot and will be analyzed this summer.

L. J. Stadler
M. H. Emmerling