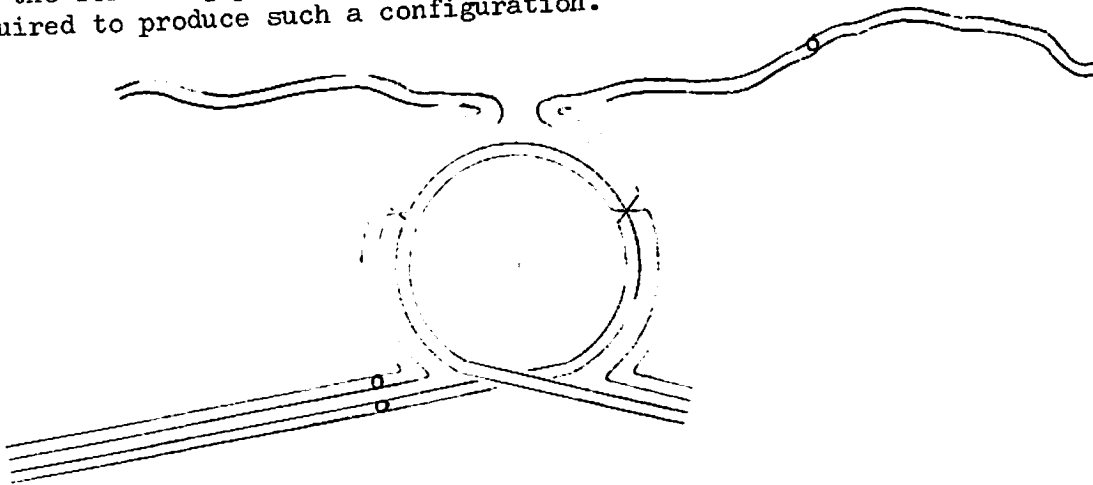


Differences in the values observed in the two classes of offspring were not statistically significant. Since both extra chromosomes should be found as univalents in essentially 100 per cent of the cells, this is a very sensitive test. The results are in agreement with the previous studies by this author, and favor the conclusion that distributive pairing does not occur in Zea mays.

David Weber

3. Evidence that recombination can involve both chromatids of one chromosome with chromatids of two differing chromosomes.

A very interesting configuration was observed in  $2N+4+1B$ ,  $In^{4a}/N/N$  plants at anaphase I. Two cells were seen in which 3 chromosomes were joined by 2 bridges and 2 acentric fragments were released. The fragments were clearly smaller than B univalent chromosomes, and could not have been mistaken for them. Unless one hypothesizes chromosome breakage and reunion, the following pairing configuration and crossover positions would be required to produce such a configuration.



This exceptional anaphase demonstrates that recombination occurs at the four-strand stage (as earlier shown by single bridges and fragments in diploid plants containing a heterozygous paracentric inversion). It also shows that recombination can involve both chromatids of one chromosome with chromatids of two different chromosomes. Genetic evidence for the latter point comes from triploid Drosophila, but the author is unaware of any similar cytological demonstration of this point.

David Weber

4. On nonhomologous recombination.

The present study was initiated because a genetic system in Zea mays was available in which a well-marked segment was frequently involved in nonhomologous pairing and in which an efficient test for recombination between nonhomologous segments could be made. Nonhomologous recombination is defined as recombination between dissimilar nucleotide sequences.

Frances Clark Beard isolated a transposition from 3S into 9L. The transposed segment is about 1/4 the length of 9S. The cytogenetic behavior of