1. Further evidence for crossing-over between non-homologous chromosomes during megasporogenesis of haploids.

In the 1954 Maize Genetics Coop News Letter we briefly reported work that strongly suggested crossing-over had occurred between non-homologs during megasporogenesis of haploid maize plants. This supposition was based upon two facts, first, that "bridge-like" configurations appeared with regularity at anaphase I of haploid microsporogenesis, and second, that semi-sterile progeny were found in the progeny of haploid females x normal males.

Since this report, progenies have been grown from the three semisterile individuals found in the population derived from crossing haploid females with normal males. One plant carried a reciprocal translocation involving chromosomes six and seven. Segregation for semi-sterility clearly indicated that the second plant was heterozygous for a reciprocal translocation, although the chromosomes involved in the translocation have not been identified.

Several hundred seeds have been produced by outcrossing haploid females with normal males. Plants arising from these seeds are to be classified for pollen abortion, and the semi-steriles selfed and outcrossed to normal strains. Subsequent cytological studies on these progeny should indicate whether the translocations occur randomly between chromosomes within the genome, or whether they occur only between certain members. Should it be found that exchanges occur only between certain chromosomes, and further, that they occur only within certain segments of those chromosomes, then this would strongly indicate that genetic duplication exists within the genome.

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