

In summary, the presence of translocations reduced overall single exchange, but multiple exchange was not similarly reduced. In fact, high coincidence values were associated with the presence of a translocation. In addition, in normal samples, coincidental exchange seemed to be more closely associated with directly adjacent regions, in contrast to what has previously been observed. Before definitive statements can be made as to what the above means in terms of mechanism, critical comparisons of double exchange in normal and structurally aberrant populations are needed.

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4. A B-type translocation involving the short arm of chromosome 3.

A new B-type translocation involving the short arm of chromosome 3 was reported last year (News Letter 41:139). The translocation has now been further characterized and can be designated TB-3b.

The segment of chromosome 3 distal to the break carries not only cr_1 and d_1 but also ra_2 . Maize linkage maps usually place ra_2 in the long arm of chromosome 3. Since TB-3b uncovers ra_2 in addition to the 3S markers cr_1 and d_1 , ra_2 appears to reside in 3S instead of 3L.

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5. A translocation complex involving chromosomes 5, 6, and a supernumerary.

Last year it was reported (News Letter 41:139) that the gene pr on the long arm of chromosome 5 appeared to be uncovered by a new A-B translocation. It is now evident that the genes ae , pr , gl_8 , lw_2 , ys_1 , v_2 , and v_{12} are distal to the break and that bt_1 is proximal. Since the gene order is normally given as bt_1 v_3 bv_1 pr , progenies involving v_2 and bv_1 will be tested next summer to locate the breakpoint more precisely.

Preliminary cytological observations indicate the presence of a translocation complex involving chromosomes 5, 6, and a B.

From a cross by pollen from a normal plant, 15 plants were tested for the ability to produce hypoploid sperm (pr test). Eight plants with 60-70% aborted pollen gave about 20% hypoploid endosperms, two plants with 60-70% aborted pollen gave no hypoploid endosperms, and five plants with 10-25% aborted pollen gave no hypoploid endosperms. Therefore, it is still not clear whether the B-type translocation is separable from the remainder of the translocation complex.

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6. Duplications from translocations between homologous chromosomes.

A method for the detection of duplications arising from translocations between homologous chromosomes was presented in a previous issue (MNL 38: 101-105). Further work has been done on this problem.