centromere misdivision may be the primary factor in production of derivatives of the B^9 chromosome. Experiments are underway to test the validity of this idea.

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1. <u>The effect of B chromosomes on a chromosome translocation during endosperm development</u>.

In MNL 43: p. 70 it was reported that a chromosome segment of a 1-3 translocation (1L.95; 3L.35) was lost during endosperm growth. This could be detected by following a marked segment ($\underline{A_1}\,\underline{Sh_2}$) on the translocated arm.

In testcrosses of this translocation $\underline{TA_1}\,\underline{Sh_2}/\underline{a_1}\,\underline{sh_2}$ not all the colored-round progeny were sectored since both sectored and non-sectored colored kernels were observed. It was assumed that a second factor was necessary for sectoring behavior and that, from the frequency of sectored and non-sectored kernels, this second factor was assorting independently of the translocation. It was suspected that B chromosomes represented the second factor. This was tested by crossing non-sectored kernels on

the $\underline{a}_1\underline{sh}_2$ testers containing B chromosomes. It is seen from Table 1 that sectoring ear cultures were more frequent among B chromosome containing crosses.

Table 1

Effect of B chromosomes on sectoring behavior among crosses of $\underline{a}_1\underline{sh}_2$ testers with and without B chromosomes by plants with the translocation from non-sectoring kernels

Number of B's	Number of ear cultures with colored round kernels with	
	Sectors**	No sectors
0 B's*	8	20
1-3	41	6
Control (without B's)	3	9

*These are sibs of B containing stocks that were segregating without B's.

**An ear culture was designated as sectored when one kernel showed a sector.

Additional findings from this study:

- the frequency of sectoring is undifferentiated in crosses with male and female originated B chromosomes.
- a dosage effect of B chromosomes was not evident.
- kernels with a sectoring potential (the translocation plus B's) do not always show sectors.

The chromosome segment leading to the sector is limited to the distal portion of the T1-3 chromosome indicating that the sector is a result of a breakage loss rather than of non-disjunction of the whole chromosome.

It is likely that the B chromosomes interact with the knob on the chromosome 3 portion of the T1-3 chromosome.

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