Since there is no excess of the 11-11 class, it can clearly be seen that there is no tendency for the two extra chromosomes to disjoin from each other. Scoring was done at very early anaphase; therefore the frequency of sporocytes with one or two univalents is probably somewhat high.

Because of the apparent lack of homology between A and B chromosomes, it was felt that this might not be a completely valid test; therefore, the following situation was also studied:

B. Double trisomic plants.
Five plants were studied which were trisomic for chromosome 6, and contained two normal chromosomes 4 plus one chromosome 4 containing inversion 4a. Data on disjunction of chromosomes at anaphase I are presented below:

Anaphase Disjunction of Chromosomes (Number of chromosomes going to each pole)				
11-11	12-10	10-11 + 1 Lagging Univalent	10-10 + 2 Lagging Univalents	Not able to score
202	217	219	44	129

In these plants, there is an excess of the 10-12 class, which is not in agreement with what would be expected on Grell's hypothesis. Therefore, one must conclude that there is apparently little or no distributive pairing in maize under the conditions studied. Further tests with additional combinations are in progress.

These data appear to be in conflict with those found by Michel (see the Minnesota report in this newsletter). However they may be reconciled if (a) pairing at diakinesis does not necessarily result in disjunction of the non-homologously paired chromosomes from each other at anaphase or (b) the chromosomes analyzed in Michel's study contained small regions of homology, resulting in pairing. Further work will be necessary to resolve these differences.

David Weber

6. Conversion at the B locus.

It was reported in the 1963 Newsletter that a light-colored plant had appeared in the selfed progeny from a plant presumed homozygous for B Pl. This was originally thought to represent a converter allele at the Pl locus. Evidence now indicates that it is the B locus which is involved. Preliminary indication came from crosses with dilute purple (b Pl) and sun red (B pl) stocks. When

crossed to B, convertor plants heterozygous for b segregated in a 1:1 ratio for light and intense purple. A parallel cross with Pl, using pl heterozygotes, gave no segregation. Linkage data which implicates the B locus were obtained in the following manner. The convertor (Ws Lg Gl B') was crossed to a chromosome 2 tester (ws_3 lg_1 gl_2 b). Since a chromosome 2 tester stock carrying B was not available, these F_1 plants were crossed to Ws Lg Gl B and the progeny were first classified phenotypically as either intense purple (B/b) or light (B'/B') and then progeny-tested for the segregation of the chromosome 2 markers, ws_3, lg_1, and gl_2.

	Intense purple		Light purple	
n.c.o.	ws lg gl	316	Ws Lg Gl	330
c.o. I	Ws lg gl	42	ws Lg Gl	44
c.o. II	Ws Lg gl	66	ws lg Gl	70
c.o. III	Ws Lg Gl	77	ws lg gl	125
c.o. I-II	ws Lg gl	1	Ws lg Gl	0
c.o. I-III	ws Lg Gl	2	Ws lg gl	10
c.o. II-III	ws lg Gl	7	Ws Lg gl	6

Σ = 1096
ws-lg = 9.04%
lg-gl = 14.79%
gl-b = 20.73%

Certain stocks were reported to be nonresponsive to convertor action since offspring grown in Florida during the winter of 1963 were quite dark. Both plant color and cob color were affected. Seeds from the same ears grown in the field in Indiana the following summer gave plants which were light in color. Subsequent crosses of these plants to B have yielded only light-colored progeny. The Florida effect must have been due to some environmental modification of phenotype and has not reoccurred. All B alleles tested so far have been converted. Tests of some B alleles derived from South American lines are now being made.

The original light-colored stock has been maintained for five generations through selfing and back-crossing to B. All progeny have been light purple. The F_5 self when crossed to B yields only light-colored offspring.

Both in behavior and in phenotype this system parallels that described by Coe (P.N.A.S. 45: 828). The two convertors are phenotypically indistinguishable in the field.

Dorothy Stroup