and partly in extension (three generations of selection). The populations were similar in size to those reported in 1971. The results were negative unequivocally--i.e., no differences in types or frequencies of events were found among unselected, twice-selected, and thrice-selected lineages when the pollen was once more treated with high doses of UV.

The tests for increase in transmission frequency of mutants under UV selection, also reported in 1971, have been expanded with negative results also. Those mutants that had significantly higher transmission in the initial tests were tested in numbers averaging three to four times greater, and none was found to show an increase in transmission under UV selection pressure.

E. H. Coe, Jr.

5. Tentative map positions of genes and A-B translocations on chromosome 10.

Following are the results of tests of chromosome 10 genes with TB-10a, TB-10b, and TB-10c (yes = gene uncovered [distal to translocation], no = gene not uncovered):

Gene	TB-10c	TB-10b	TB-10a
oy	yes	no	no
tn_2	yes	no	no
y_9	yes	no	
sr_3	yes	no	no
nl	yes	no	no
zn		no	no
du_1	no	no	no
li		yes	no
bf_2	no	yes	no
ms_{10}		yes	no
g_1	no	yes	yes
r	no	yes	yes
w_2	no	yes	yes
sr_2	no	yes	yes

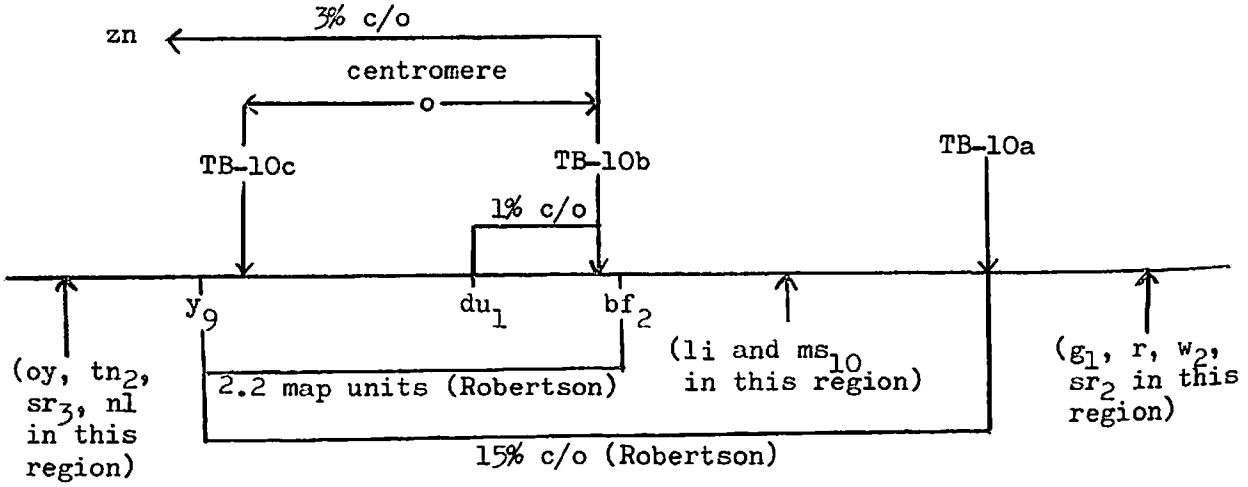
Additional data have been gathered on zn. Two hypoploid plants from a cross of zn by TB-10b were self-pollinated and a total progeny of 5

normal and 70 zn plants was obtained. Since the 10^B chromosome is not transmitted through either egg or pollen, all offspring will be zebra necrotic unless a crossover has occurred. If possible contamination and misclassification are ignored, the crossover percentage between the breakpoint of TB-10b and zn can be calculated. Because the 10^B strands fail to function, the binomial distribution $p^2 + 2p(1-p) + (1-p)^2$ applies, so $(1-p)^2 = 70/75$ or 0.9333 and p = 0.0339 or 3.4% crossing over.

Similar data on the position of du have been obtained. Although du alone is difficult to classify, wx du gives a brittle phenotype that is easier to work with. To generate suitable material, a +/wx TB-10b stock was crossed onto wx du. No "bt" grains appeared on the resulting ears, so du must be proximal to TB-10b. Waxy kernels from this cross were planted and seven hypoploid plants were self-pollinated and outcrossed to wx du females. A total of 8 normal and 401 "bt" kernels were obtained from the selfed hypoploids. Use of the binomial method gives a crossover frequency of 0.98%. From 8 outcrosses of the same 7 hypoploids, 5 normal and 1004 "bt" grains were obtained. Using straightforward calculation in this case, 5/1009 = .0050 = 0.50% crossovers. Reduced pairing near the breakpoint is likely, but the actual map distance is surely not large.

The crossover distance from du to TB-10a was calculated in the same way as for TB-10b. Ninety-six normal and 305 "bt" kernels were obtained from selfing 4 hypoploids, giving 12.8% crossing over. Five outcrosses to wx du gave 76 normal and 439 "bt" kernels, so 14.76% crossing over was obtained.

From the above data, plus Robertson's data (MGCNL 44:81-91), a tentative map of a portion of chromosome 10 can be devised, as shown below:



(Note that crossover data from hypoploids are shown as such and not equated to conventional map distances.)

J. B. Beckett

6. Two virescent mutants on the long arm of chromosome 8.

In 1964, a virescent trait segregated in a stock of Chapalote derived from Beckett Accession 552. In both field and sandbench, virescent seedlings typically greened first at leaf edge and tip, with the color grading smoothly from yellow or light green in the middle to green at the edge. In 1970, +/v-A552 plants were crossed by the A-B translocation set; virescent hypoploids segregated in the progeny of TB-8a.

Recently, among the mutants produced by Neuffer by EMS treatment, a virescent was uncovered by TB-8a in tests with the A-B translocation set. The phenotype is identical to that of v-A552 described above. Neither this mutant (v-E25) nor v-A552 is allelic to v_{16}. It is not unlikely that v-A552 and v-E25 are allelic, but test results are not yet available.

Because our v_{16} stocks are difficult to handle, v-A552 is being used in place of v_{16} as the tester for TB-8a.

In warm sandbench tests, v_{16} can rarely be separated from normal, while v-A552 can usually be classified easily. Conditions in an unheated sandbench favor ready classification of both virescents.

J. B. Beckett

M. G. Neuffer

7. A chlorophyll mutant associated with a_3 located on chromosome 3.

For some years we have had a stock of a_3 that carries a yellow-green or extreme golden type mutant. Crosses of a_3 golden by the A-B translocation series have produced progeny in which a_3 (recessive plant color) was uncovered by TB-3a and the golden mutant was uncovered by TB-3b. Our data confirm Earl Patterson's oral report to the Maize Genetics Conference in 1971 that a_3 is beyond the breakpoint of TB-3a. It is therefore on 3L rather than on chromosome 10 as reported in Emerson, Beadle, and Fraser (1935). Since the golden factor is distal to TB-3b, it lies