

contaminants (which would be Bz V) could be detected, the percentage of Bz V gametes was much lower. This suggests that some of the Bz V recombinants detected in 1960 were due to contamination.

Table 1  
The assortment of outside markers in Wx recombinants from the cross Bz wx<sup>90</sup> V / bz wx<sup>Co8</sup> v for 1960 and 1963

	1963		1960	
	No.	%	No.	%
Bz v	18	62	63	58
bz v	9	31	27	25
Bz V	1	3.4	15	14
bz V	<u>1</u>	3.4	<u>3</u>	2.7
	29		108	

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### 3. The location of the waxy mutant H21.

One of the waxy alleles with which we originally worked was wx<sup>H21</sup>. On the basis of recombinational frequencies (Wx) in intercrosses with C, 90, B, and a, it was felt that the most probable order was C, 90, H21. It has since been shown by conventional genetic analyses that C (Coe) is located distally to 90 as (Bz) C 90 (V).

A similar analysis has now been made for H21. Pollen from plants of the F<sub>1</sub> Bz wx<sup>H21</sup> V; ae was used to  

$$\frac{bz \ wx^{Co8} \ v}{ae}$$

pollinate the tester stock bz wx<sup>Co8</sup> v ae. Tassel collections were also made for estimates of Wx frequency by our standard pollen scoring techniques.

In a total population of 1,571,000 pollen grains from 9 plants, 776 Wx were detected or  $49 \times 10^{-5}$ . This compares with  $46 \times 10^{-5}$  estimated for the cross between C and H21 in our original experiments.

Due to poor germination and dry weather, the conventional analysis yielded a total population of only 21,698. Of these 9 ( $41 \times 10^{-5}$ ) were apparently Wx, ae seeds. Of the nine apparent recombinants, 8 were carrying the bz marker and 1 Bz indicating a location for H21 distal to C contrary to earlier hypothesis.

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#### 4. Location of miniature seed (mn) on chromosome 2.

Crosses were made between a series of translocation stocks in which waxy (wx) was used as a marker for the chromosomal interchanges and a miniature seed (mn) Wx stock. These  $F_1$  plants were then selfed, and the miniature seeds checked with iodine solution for waxy endosperm.

Slightly lower than expected ratios (25%) of waxy were obtained with all translocations except T 2-9 b. Progenies involving T 2-9 b, which has break points on the short arm of chromosome 2 at .18 and on the long arm of chromosome 9 at .22, gave 1.2% waxy seeds. It is therefore apparent that miniature seed is located on Chromosome 2.

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#### 1. Further studies on trivalent frequency in an array of maize chromosome 2-Tripsacum interchange chromosome constitutions.

An attempt was made to synthesize additional 21 chromosome constitutions combining the available primary and secondary maize chromosome 2-Tripsacum interchange chromosomes in various ways. A number of the plants derived repeated constitutions which have been reported earlier (Genetics 51: 23-40. 1965), and showed metaphase I trivalent frequencies very similar to those described before. Four previously unknown 21 chromosome constitutions were also derived. Metaphase I trivalent frequencies from microsporocyte samples of three of these four constitutions were approximately consistent with expectation from previous findings in that: 1. a constitution fitting into the general category