

to occur. As division advanced, this element persisted. But at anaphase I, it failed to divide. Hence it is expected to appear in only one of the two daughter cells after the first division. Its genetic significance and the manner by which it is transmitted from one generation to the other are under investigation.

Y. C. Ting

UNIVERSITY OF ILLINOIS
Urbana, Illinois
Department of Agronomy

1. Induction of monoploidy.

From field observations in the nursery it has been found that Coe's "Mexican Flour High Haploid Strain" (hereafter abbreviated as CMHH) yields monoploid plants with a frequency running as high as 4-5% on selfing. The derivation of a monoploid inducing strain based on the properties exhibited by CMHH, and carrying the seedling color markers as used by Chase, would depend for its ease on the number and type of factors involved in the high incidence of monoploidy in CMHH, and for its usefulness on the manner in which the high incidence of monoploidy is induced, i. e. (1) whether the male or female gamete is the one which is transmitted, and (2), whether factors carried by the transmitted gamete affect the frequency with which it develops into a monoploid plant.

F₁'s from the cross CMHH ($A_1 b pl R^B Lg_2/A_1 b pl R^B Lg_2$) X $a_1 B Pl R^f lg_2/a_1 B Pl R^f lg_2$ were grown, and populations derived from them observed, as listed in the table below. Monoploids were scored on the basis of phenotypic appearance in the field, and checked several times during the growing season.

Population	No. of families grown	Total no. of plants	Total no. of mono-ploids	Total no. of lg_2 mono-ploids	No. of families with the following percentage of monoploids (to the nearest per cent)				
					0	1	2	3	4
1. F ₂	7	880	5	0	5	0	1	1	0
2. (CMHH X F ₁) ⊗	3	259	6	1	0	2	0	1	0
3. CMHH X F ₁ ♂	4	300	4	0	0	2	2	0	0
4. CMHH X F ₁ ♀	7	560	13	5	2	0	3	1	1

Diploid liguleless plants were segregating in the expected manner, and none were found in the last two populations listed. Liguleless monoploids appeared in two of the three populations where the female parent was heterozygous for the locus, and in one of these, the male parent did not carry lg_2 at all. From this last cross it may be concluded that only the female complement is transmitted in the monoploids derived from the CMHH strain.

If it were simply a matter of the male gametes carrying a certain factor the presence of which results in the failure of double fertilization with a certain frequency, then the frequencies observed in lines (1) and (3) of the table should check more closely. Cytoplasmic differences between the female parents should not exist here, since the cytoplasm of the F₁ came from CMHH. On the other hand, when CMHH was used as the male parent, the frequency of monoploidy was strikingly higher.

The small size of the individual families does not permit speculation on whether the high incidence of monoploidy observed is due mainly to the effects of one gene in the male gamete.

Tests are now underway to score the efficiency of monoploid induction by the derivatives of the above populations on unrelated material.

Wolf Prensky

2. Wanted:

Seedling character mutants (liguleless, glossy, dwarf, midribless) found in highly inbred lines.

Wolf Prensky

UNIVERSITY OF ILLINOIS
Urbana, Illinois
Department of Botany

1. Noncrossover derivatives from serial duplications.

The available evidence indicates that noncrossover alpha derivatives from the beta: alpha A^b complex in maize are the result of an intrachromosomal event. Critical evidence that the homologue is not involved is the occurrence of noncrossover alphas from hemizygotes deficient for the a_1 region. Since there is evidence that the members of the A^b complex are serial duplications, it seemed appropriate to determine whether similar derivatives occur from other serial duplications.

The Bar duplication in *Drosophila melanogaster* provides an opportunity for such a test, and offers the possibility of cytological analysis of any derivatives obtained. Deficiency B^{263-20} was used for the *Drosophila* tests in heterozygotes with Bar marked with forked and fused. B^{263-20} includes the forked locus, thus permitting no crossovers between f and B . Unfortunately, however, band 7 of the Bar region is not included in the deficient piece and may allow for pairing of the Bar segments to give crossover wild type derivatives.

Heterozygous females $Df + \underline{fu}/f \underline{B} \underline{fu}$ were crossed with males from a number of stocks carrying different autosomal markers to produce progenies for analysis. As the deficient chromosome is lethal in males, only $f \underline{B} (\underline{fu})$ males are expected.

However, among approximately 70,000 males scored, 17 $f +^B$ individuals were found. Of the 15 which thus far have been analyzed genetically, all have segregated the autosomal marker introduced by their father, and 14 have transmitted $f +^B$ to their grandsons. Of these 14, four are noncrossovers for the \underline{fu} marker and ten are recombinants for \underline{fu} .

Stocks of the four noncrossover derivatives and of the crossovers are now being grown for cytological study.

Two other experiments with Bar are now being set up. First, we are attempting to obtain with X-rays a deficiency which includes all of the Bar duplication bands, so that crossover derivatives, and particularly close-distance multiple crossovers can, as in the case of A^b in maize, be positively ruled