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 $\underline{A}^{b}$ 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 $\underline{a}_1$ region. Since there is evidence that the members of the $\underline{A}^{b}$ 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 $+^{fu}/\underline{f}\ \underline{B}\ \underline{fu}$ 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 B (fu) males are expected.

However, among approximately 70,000 males scored, 17 $\underline{f}\ +^{B}$ 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 $\underline{f}\ +^{B}$ to their grandsons. Of these 14, four are noncrossovers for the fu marker and ten are recombinants for 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 $\underline{A}^{b}$ in maize, be positively ruled

out. The other experiment involves the use of ClB/ f B odsy heterozygotes with + B + / f B odsy sibs. Our interest in using the ClB inversion stems from the fact that Inversion 3a heterozygotes in maize produce a high rate of alpha derivatives from A^b.

H. M. Peterson
J. R. Laughnan

2. Pairing of normal and inversion chromosomes in trisomic-3 individuals.

The occurrence in the 1957 nursery of a trisomic-3 individual, whose chromosomes 3 were differentially marked at the a_1 and sh_2 loci, one carrying Inversion 3a, provided an opportunity to determine whether this inversion has an effect on frequency of synapsis in a nucleus which also carries two normal chromosomes.

This trisomic individual, having the constitution A^b sh/ a sh/ Inv. 3a: a Sh, was pollinated by a a sh/ a sh tester plant, and colored non-shrunken kernels were planted for test in 1959. Pollen of twelve of these plants, whose constitution was again that of the parent trisomic, was used on a sh/ a sh tester plants to produce ears for the data presented below:

Trisomic plants used as pollen parents	Number of ears scored	Phenotypic Classes I Colorless, non-shrunken	II Purple, shrunken	III Colorless, shrunken	IV Purple, non-shrunken	Total kernels scored
59-466-1	5	217	455	438	23	1,133
-2	2	100	197	177	2	476
-3	5	281	547	491	9	1,328
-4	4	149	418	386	9	962
-5	5	228	453	460	20	1,161
-6	4	303	505	488	7	1,303
-7	6	307	606	608	20	1,541
-8	5	184	405	364	13	966
-9	5	290	583	579	8	1,460
-10	2	70	232	206	5	513
-11	4	183	464	455	9	1,111
-12	5	337	630	563	11	1,541
Total	52	2,649	5,495	5,215	136	13,495
Per cent		19.6	40.7	38.6	1.0	99.9

Three main classes of kernels were obtained: about 20% colorless non-shrunken, representing primarily those receiving Inv. 3a: a Sh gametes; about 40% purple shrunken (A^b sh); and about 40% colorless shrunken (a sh). The fourth class (to be tested in 1960) may represent the rare functioning of disomic pollen carrying A^b sh and Inv. 3a: a Sh to give trisomic embryos; trisomics Inv. 3a: a Sh/ a sh/ a sh may be included in class I and A^b sh/ a sh/ a sh in class II. This may explain the highly significant difference between classes II and III.