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1. On the use of the TB-3a translocation to localize the lethal effects of the interaction of the mutant etched allele and M^{et}.

In M.G.C.N.L. 40:39-42, 1966, I reported on a system of zygotic lethality involving the interaction of the recessive etched allele of chromosome 3 and the previously unreported modifier, M^{et}. Individuals homozygous for the modifier, $M^{et}M^{et}$, and heterozygous for the etched locus produce no etched kernels as a result of selfing or testcrossing by standard etched testers. The elimination of etched individuals was demonstrated to be postzygotic in nature by genetic and histological tests. At that time we had in hand at least circumstantial evidence that the elimination of etched individuals was based on the existence of two or more "doses" of the modifier, M^{et}, in endosperm tissues and was totally independent of the modifier genotype of the embryo.

In order to verify that this is the actual situation, we turned to the use of the TB-3a translocation. Previous studies have indicated that the dominant allele of the etched locus (Et) overcomes the lethality conditioned by the interaction of et and the modifier M^{et}. It was reasoned that a TB-3a stock, lacking the mutant etched allele but homozygous for the modifier, could be established and used to vary the "doses" of et in the endosperm and embryo as a result of post-meiotic non-disjunction of the B-centromere (see Table 1.) Such a test should allow us to localize the lethal effect of this system of genic interaction in either the endosperm or embryo.

TB-3a tester stocks of the appropriate modifier genotype have been established and some crossing was done this past summer. The analysis of the data from these crosses is incomplete as of this writing because further field testing is necessary.

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2. On the nature of the interaction of M^{et} and the mutant etched allele.

During the course of the establishment of the TB-3a stocks discussed above, new information on the nature of the interaction of et and M^{et} has become available.

Crosses designed to introduce the modifier (M^{et}) into the TB-3a background are expected to produce kernels which develop into either of three types of plants with respect to their chromosome three constitution: (1) normal 3/3, (2) hypoploid $3/3^{B}$, and (3) hyperploid $3/3^{B}/B^{3}/B^{3}$.