

germinating pigmentation in aleurone tissue in some cases. Since positive lines (which can develop pigment during germination) and negative lines (which cannot) give rise to positive F_1 's, there may be a dominant factor present in these positive lines. The pigmentation is inhibited by \underline{C}^I (with some exceptions), and colored spots are found on the kernels of $\underline{c} \underline{c} \underline{C}^I$ after germination. This is presumed to be caused by chromosome breakage in the short arm of chromosome 9, followed by loss of \underline{C}^I . Neither \underline{a}_1 tester nor \underline{r} tester has the capacity.

Light is essential to the development of germinating pigment in most of the \underline{c}_1 lines, although there are a few strains which can develop pigment in the dark. A short-time (5 minutes), low energy illumination is sufficient to induce detectable amounts of pigment. The effect of light is limited to the stages before the young root stretches out of the pericarp. Red light of around 650 nm is the most effective wave length, and infrared has an inhibiting effect. The mechanism of light induction of germinating pigmentation in aleurone tissue and the genetic factors involved are under study.

Shu-mei Hsu

UNIVERSITY OF MISSOURI
Department of Genetics

and

UNITED STATES DEPARTMENT OF AGRICULTURE
Columbia, Missouri

1. Location of TB-3b with respect to marker loci.

TB-3b, induced originally by X-rays, has now been satisfactorily located; it is situated on the short arm of chromosome 3 proximal to \underline{cr}_1 , \underline{d}_1 , \underline{ra}_2 , and \underline{cl}_1 . The breakpoint is distal to \underline{rt} .

Although dominant genes are not easily located by means of B-type translocations, plants with a poorly expressed corn-grass phenotype were observed to segregate in a progeny of $\underline{cg}/\underline{Cg}$ x TB-3b; these were probably hyperploids of the constitution $3^{Cg} 3^B B^3 cg B^3 cg$ showing modification

of the corn-grass phenotype by dosage effect. Therefore, Cg is apparently distal to the translocation, as would be expected from its map position.

J. B. Beckett

2. Location of TB-5a with respect to marker loci.

A B-type translocation involving the long arm of chromosome 5 has apparently been separated from the X-ray induced translocation complex, involving chromosomes 5, 6, and a supernumerary, reported in MNL 42:132. Pollen sterility has dropped from the original 60-75% to about 30%. It now seems appropriate to name this translocation, so it is designated TB-5a.

The breakpoint of TB-5a lies between v₃ and bv₁, the former being proximal and the latter distal.

Incidental information regarding td (thick-tassel dwarf) and na₂ may be of interest here. Both are proximal to TB-5a and both appear to be closely linked to the translocation. Since bv₁, td, and na₂ plants are all somewhat dwarfed, the stocks were intercrossed to test for allelism; Na₂/na₂ x bv₁ and Td/td x na₂ gave wholly normal progenies. The additional observation that na₂ and td are proximal to TB-5a and that bv₁ is distal makes it evident that the three represent distinct loci.

J. B. Beckett

3. Patterns of nucleolar distribution at the quartet stage of meiosis in tetraploids.

There are two nucleolar organizers located on the short arm of chromosome 6 in each microspore of a quartet formed from meiosis in a tetraploid. They each may form a small nucleolus or they may combine to form one large nucleolus. The greater the proximity of the nucleolar organizers, the greater is the probability that they will function together to form only one nucleolus. Consequently, the presence of only one nucleolus indicates that the short arms of chromosome 6 are close together.

There are six major types of patterns possible in a quartet. They are shown in Table 1. The plane of first division is very difficult