expression of Wc (white cap) in contrast to Wh (lemon endosperm) was not clearly distinguishable in the testcross ears, but some variation in the endosperm color was suspected, so separations were made of 10 darker yellow and 10 lighter yellow from each ear. The plants were classified for bk_2, which shows about 25% recombination with Wc. The darker yellow class showed a +:bk ratio of 55:36, the lighter class 46:41. In addition, among the class chosen as possible yellow exceptions (for progeny test as above) the ratio was 16:7. The separation of Wc from Wh is by no means perfect, but Wc kernels seem to be slightly more yellow. This agrees with earlier impressions of Wh versus Wc classification.

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6. Dominant dilute aleurone color factor on chromosome 7.

A factor with dilute expression has been located near in on chromosome 7; it is tentatively designated In^D. Progeny from $\frac{o_2 + gl}{+ In^D +} \times \frac{o_2 + gl}{}$ were as follows:

$\frac{+ In^D +}{}$	$\frac{o + gl}{}$	$\frac{+ + gl}{}$	$\frac{o\ In^D +}{}$	$\frac{+ In^D\ gl}{}$	$\frac{o + +}{}$	$\frac{+ + +}{}$	$\frac{o\ In^D\ gl}{}$
109	111	4	5	5	4	0	0

$o_2 - In^D = 0.04$ $\qquad$ $In^D - Gl = 0.04$

The expression of In^D is quite clear, even in the presence of o_2. Homozygotes have very faintly pigmented aleurone tissue. In homozygous pr, the aleurone color is a unique lavender. No plant color effect can be detected.

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7. The development of pigments in germinating colorless seeds.

Germinating seeds of c_1 tester synthesize anthocyanin pigments in the aleurone tissue. The pigments look similar to those of A_1A_2CR genotype, yet less concentrated. There are some variations among c_1 kernels from different sources, in the sense of quantity and quality. Certain lines can develop very strong and uniform pigmentation while certain others develop little or none. Plant color genes, B and Pl, may control

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.

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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