The number of rod bivalents was smaller than ring bivalents in the pollen mother cells of the diplod flowers while in those of the tetraploid flowers, the ring bivalents were fewer than the rod bivalents. Further, the half-chiasma frequency per chromosome in the bivalents of the tetraploid (1.49) was less than that in the bivalents of the diploid (1.61) and the half-chiasma frequency increases with increase in the number of quadrivalents. Thus the substantial increase in the chiasma frequency in the tetraploid is accountable solely by those chromosomes which form the multivalents.

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1. A new inhibitor of aleurone and plant colour.

Under the title "Pigmented silkscar" (MNL 36:104), we reported that this stock, which was collected locally, inhibited the aleurone pigmentation completely when crossed as the female parent with homozygous colored aleurone stock. In the reciprocal cross, there is only a partial inhibition of pigmentation. Since it is very unlikely that we obtain the pigmented silkscar phenotype again, we wish to disassociate it from the aleurone inhibiting effect. We propose the symbol I_2 (Inhibitor$_2$) to denote the factor(s) responsible for this effect. In addition, the I_2 I_2 stock also seems to possess the capacity to inhibit plant color. The tests made so far are summarized below:

Cross	Average pigmentation grade of kernels or plants	Remarks
A A C C R R X I_2 I_2	2.81/5	Partial inhibition of aleurone color.
I_2 I_2 X A A C C R R	1.00/5	Complete inhibition of aleurone color.
A A B B Pl Pl X I_2 I_2	3.66/5	Partial inhibition of plant color.
A A B B Pl Pl ⊗	4.94/5	
(I_2 I_2 Wx Wx X $\frac{\text{T7-9 wx}}{\text{T7-9 wx}}$) X A A C C R R wx wx	-	I_2 shows linkage with wx. Recombination 18.36%. (Data based on a single cob bearing 98 kernels.)

Table 1

Comparison of Types and Numbers of Kernels Obtained from Crosses Involving Inhibitors, Inhibitor Sources, Different R Alleles and R^rK Combination.

Cross	Number of F_1 kernels scored	Average aleurone pigmentation grade	Remarks
1) AA CC RR x I_2I_2	797	2.97	Local inhibitor
2) AA CC RR x I_1I_1(Coe)	49	2.14	Of common origin
3) AA CC RR x I_1I_1(Coop)	151	1.95	Of common origin
4a) AA CC $R^{d:Pony}$ x I_2I_2	298	1.00	$R^{d:Pony}$
4b) AA CC $R^{d:Catspaw}$ x I_2I_2	111	1.13	$R^{dilute:Catspaw}$ replacing R
5) AA CC R^{sc} x I_2I_2	173	2.03	R^{sc}($R^{self-colored}$) is a mutation of R^{st}
		1.40	($R^{stippled}$) to R^{sc} and is non-paramutagenic
6) AA CC RKRK x I_2I_2	71	1.30	RrK abnormal chromosome 10 knob present.

AA CC RR = Colored aleurone.

The present data suggest that I_2 may be either on chromosome 9 or chromosome 7. However, the recombination value of 18.36% between I_2 and wx is about the same as that between I_1 (C^I) and wx and it would not be surprising if I_1 and I_2 turn out to be allelic.

Comparisons between I_1 and I_2 have been made regarding their expression against a common colored aleurone tester. Various R stocks in a common background have also been tested against I_2. These were included at the suggestion of Prof. R. A. Brink and the seed was kindly made available by him. The data are summarized in Table 1.

The following observations are made:

(1) I_2 seems to have somewhat less capacity to inhibit aleurone pigmentation than either I_1 (Coe) or I_1 (Coop). The differences could be due to differences in the genetic background. If the differences are real, two classes of colored kernels would be expected on test crossing the I_1 I_2 heterozygote on A C R. This test is under preparation.

(2) All the colored aleurone stocks carrying different R alleles are inhibited much more than the standard A C R. The significance of this observation is not clear. One would have anticipated that at least there should have been less inhibition by I_2 against A C R^{sc} than with A C R.

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2. UV--Irradiation of $\widehat{A_1 Ds}$ pollen.

Pollen grains with the genotype $\widehat{A_1 Ds}$ (without Ac) were irradiated with ultraviolet light obtained from a germicidal lamp. The idea was to see if Ds can be "mutated", inactivated or deleted without affecting the A_1 locus. The change so brought about should be detectable as full or partially colored kernels in the cross to an appropriate tester (a_1^s sh_2 or $\widehat{A_1 Ds}$--both with ac). We have now tested 2279 UV--irradiated gametes. Not a single colored kernel has been obtained.

(Seeds for this study were kindly made available by Dr. Barbara McClintock.)

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3. Role of chemical composition in radiosensitivity of seeds.

(a) Protein content: Maize strains differing in their protein content were tested for their radiosensitivity. The low protein (L.P.) strain having only about 5% protein in seeds, was compared with the high protein (H.P.) strain which had about 23% protein. The two strains differ in their rates of growth, L.P. being the slower of the two. Because one of the criteria of radiobiological damage is seedling height in a finite period direct comparison would not be possible. Since differences in protein content between L.P. and H.P. appear to be primarily due to