had been obtained from data collected for the loss of markers I Sh_1 Bz Wx, it nevertheless allowed a forecast of the relative loss of other endosperm markers. The forecast was verified for A_1, Pr, R, Su and Sh_1 (Faberge). An independent verification of the forecast may be obtained by comparing the calculated and observed loss rate of markers when they are situated on chromosome arms with changed pachytene lengths. This condition may be provided in stocks with suitable chromosomal translocations.

A number of such translocation stocks were selected and made homozygous. Four of such homozygous stocks with proper genetic background were used for experiments. Two of the stocks (I and II) had increased length of the 9th chromosome short arm, one stock (III) had increased length of the 10th chromosome long arm and one stock (IV) had decreased length of the 4th chromosome short arm. Fresh pollen from each stock was collected, cleaned and irradiated with 1 Kr of γ-rays and crossed on to appropriate testers. With each sample of pollen, a sample of pollen from an appropriate control stock was also irradiated and test-crossed.

Stocks I and II showed complete and partial loss of markers by formation of breakage-fusion-bridge cycles for the 9th chromosome short arm linked markers in 3.43% and 3.40% of kernels, respectively, whereas in the control only 0.57% kernels showed loss of markers. The figure for the control is comparable to figures found in the literature. It seems that changed arm length in stocks I and II did bring about change in the expected direction in the loss rate of markers on them. There was very little seed set from stock III and nothing could be scored. Stock IV showed whole or partial loss of kernel markers in 4.78% cases but no comparison could be made as the control had no seed set. The known loss rate in the normal type is 1.0%. It is difficult to compare these data with those from other sources because of different genetic backgrounds of the stocks and possible differences in the dosimetry. In our experiments, though the translocation and normal stocks were irradiated together, eliminating any difference in dose, the genetic background of the stocks was not the same. For a proper comparison of loss rate a reference marker in the normal position should be used as a control. We are preparing double tester stocks for that purpose.

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6. Inhibitor of aleurone colour.

A comparison has been made of aleurone colour inhibiting capacities of inhibitors from different sources. While the inhibiting capacities of I^{Coe} and $I^{Coop.}$ are roughly similar, $I^{Trombay}$ inhibits pigmentation to a lesser extent when tested against a common tester (color indices 2.31, 2.16 and 3.54 respectively). $I^{Trombay}$ is apparently allelic to I^{Coe} as borne out by linkage tests and by segregation pattern of kernels from a testcross of $I^{Coe}/I^{Trombay}$ heterozygotes. With our ACR tester (originally obtained from Prof. R. A. Brink), all inhibitors effect complete inhibition only when transmitted through the female. When

transmitted through the male, inhibition is only partial. It might be considered that such a behavior of $\underline{I}^{Coe}$ and $\underline{I}^{Trombay}$ is due to a gene-dose effect. However, the isolation of a variant of $\underline{I}^{Trombay}$ which gives very little inhibition through the female would cast a doubt on such an explanation. Schwartz (Genetics Today 2:131-135, 1965) has discussed the inadequacies in explaining the action of several gene loci in terms of gene dose.

With a low frequency, the cross $\underline{I}^{Trombay}\ \underline{I}^{Trombay}$ x AACCRR yields colored or mottled kernels. To date 25 such kernels have been obtained from over 35,000 kernels scored (120 cobs). Out of these 25 kernels, only one was a genuine case of mutation from the dominant to the recessive colorless form. The remaining kernels did not indicate any germinal change.

The frequency of colored kernels is somewhat higher when $\underline{I}^{Trombay}/\underline{I}^{Coe}$ is pollinated by ACR. One hundred and twenty kernels have been obtained from 57,057 kernels scored (207 cobs). Thirty-four of the 120 kernels when crossed by ACR gave smoky kernels ranging in number from 5% - 60% of the total, suggesting a possible change in the expression of the inhibitors.

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7. Stability of Ds at the A_1 locus.

No change has been detected in the expression of Ds at the A_1 locus after pollen or seed of an A_1 Ds no Ac stock was subjected to the following treatments:

Treatment	No. Analyzed	Observations
1. U. V. irradiation of pollen	12,300	All kernels colorless
2. P^{32} injected i) 30 days after sowing ii) at the time of flowering near tassel node. Pollen used.	21,665	All kernels colorless
3. Desiccated A_1 Ds no Ac seeds heated to 90°C., 100°C. and 110°C. for 15, 30 and 45 minutes and then chilled rapidly. Plants grown.	406	All kernels colorless

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