The recording of data in this experiment was altered somewhat from last year. It was found that with the stocks used, only dilute Sh crossovers could be consistently recognized. These included the $\underline{a}$ $\underline{a^m}$ Sh, $\underline{a}$ $\underline{a}$ Sh and $\underline{a}$-Sh cases which could not be separated one from another. The reciprocal cl sh class including $\underline{a^m}$ sh $\underline{a}$-sh, and $\underline{a^m}$ $\underline{a}$ sh was difficult to recognize because of poor coloration of the sh seeds. Therefore, the data listed in the table below consist of the total $\underline{a}$ Sh crossovers observed on the non-shrunken kernels.

Frequency of crossovers from the cross $\underline{a}$ a sh/$\underline{a^m}$ Sh x $\underline{a^s}$ sh.

	Total Sh seeds	Total $\underline{a}$ Sh co's	Percent
Control	56,087	96	.17 ± .017
EDTA	18,247	42	.23 ± .035
RNAase	5,884	12	.20 ± .058
DNAase	4,400	10	.23 ± .070
	84,618	160	.19

From the above, it can be seen that the apparent differences between treatment and control are not significant. A re-examination of last year's results reveals that it was a mistake to consider 2/3628 as an adequate control.

M. G. Nuffer

8. A dominant striped leaf character located on chromosome 3.

A striped-leaf effect has been found which is inherited as a dominant. It appeared as a single striped seedling in the F_1 of a cross of a multi-Dt x A C R dt. The seedling could be described as having many medium to small, narrow, white and pale green sectors extending to all parts of the leaf and sheath. A cross of this plant by a normal plant gave progeny which segregated 1:1 for the striped phenotype. A selfed ear of the original plant produced 1/4 extreme striped plants which had mostly white tissue and very little green, 1/2 moderately striped plants and 1/4 green. Most of the extreme striped plants failed to survive, but the one that did yielded all striped progeny when crossed to normal. Several of the moderately striped plants produced 1/2 striped progeny and 1/2 normal progeny when crossed to normal individuals. One of the striped plants was crossed to the translocation waxy series and the F_1 backcrossed to homozygous normal waxy. The seeds were separated for waxy and planted.

From these it was determined that the striped effect, tentatively designated Sd, was located on the long arm of chromosome 3. Its position in relation to the known markers on this chromosome is at present uncertain.

M. G. Nuffer

9. Another two-unit mutator system.

The above described plant was unique in another respect. It grew from a colored-colorless mosaic seed selected from an otherwise full colored ear. The mosaic pattern was transmitted to its progeny and proved to be the result of changes at the R locus. The character appears to be a mutable seed color allele (R^m) which changes to r, thus producing colorless patches on an otherwise colored or mottled aleurone. These changes occur only in the presence of another factor (tentatively called M) which is located on chromosome 9 between sh and wx. The three characters Sd, R^m, and M first appeared in a single plant suggesting that they have a common origin. However, they are all on separate chromosomes and a careful check of the parents of the original cross revealed that the A C R dt parent carried Sd without expressing it. Therefore, the appearance of these three characters in a single plant most likely was the result of the chance combination of a mutator factor, M, producing a mutable allele at R, and of a favorable genotype for the expression of Sd.

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1. Serological investigation with the phylogenetical relationship among inbred lines in maize.

Up to the present, many works on the serological classification of various species in the plant kingdom have been carried out by using leaves or seeds of the plant. But, within a species, data on the phylogenetical relationship among races or inbred lines have not been accumulated. Since 1952, work has been done along the latter line by using the protein extracts of maize pollen as an antigen.

Pollen grains collected from the plant were preserved in a dessicato According to need, they were immersed in physiological saline, and centrifuged at 3,000 r.p.m.; the supernatant was used as an antigen. Rabbits were immunized with three intravenous injections of such extracts amounting to 5 to 8.5 cc in total. At the tenth day after the last injection, bleedings were taken, and held in a refrigerator at a temperatur of 2°C. At the next day, antisera were performed, and then, inactivated