Thus, the effect of Ds in reducing the grade of variegation in p^{vv}/p^{wr} heterozygotes if, indeed, it is real, is much less than that of a tr-Mp or an Ac. Furthermore, the effect of Ds occurs later in ontogeny than does that of tr-Mp, since Ds caused no apparent reduction in the frequency of somatic mutations occurring sufficiently early to give rise to mutant sectors one-half kernel, or larger, in size.

Elwin R. Orton

11. Diffuse.

Diffuse (Df) was previously described (Jour. Hered. 45:47 - 50; M. N. L. 32) as a dominant pattern gene that partially inhibits pericarp pigment produced by the p^{RR} allele. More recent findings indicate that this explanation is inadequate.

p^{RR}/p^{RR}, Df/df ears often exhibit colorless or near-colorless sectors of variable size in addition to a fine patchwork of colored, lightly colored, and colorless areas. For the initial tests of heritability of the colorless phase of Df, kernels were selected from both large (100 kernels or more) colorless and dark-diffuse areas on the same ear, and then grown separately so that levels of expression could be compared on a progeny basis. The seven colorless sectors tested all gave offspring indistinguishable from those derived from the dark-diffuse areas. In 1957 a family from a similar colorless sector gave colorless offspring, whereas the plants from the dark-diffuse kernels on the same ear yielded only dark-diffuse. This finding prompted further testing of colorless sectors for heritability of the irregularly expressed colorless phase.

An additional ten colorless sectors were tested in the same manner in 1958, but these sectors were much smaller (less than 30 kernels) than those previously tested. All families from these colorless sectors produced colorless and near-colorless offspring; the dark-diffuse areas gave only dark-diffuse ears. It seems that the plants obtained from kernels in the smaller sectors possess, or at least exhibit, the colorless phase of Df. In contrast, plants obtained from the kernels in the larger colorless sectors, do not show the colorless phase.

In the two cases in which the kernels from entirely colorless Diffuse ears, derived in the previous generation from colorless sectors, were progeny tested some of the resultant ears had the dark-diffuse phenotype, whereasothers were very lightly pigmented, but none were colorless, as were the immediate parents.

Df has now been found to be a partial inhibitor of aleurone pigmentation also. When pollen from Df/df plants is placed on silks of A C R plants the resultant ears contain 5 - 10% smoky kernels, with the remainder self-colored. The smoky kernels when grown all prove to be Diffuse, whereas the self-colored kernels give rise to both Diffuse and non-Diffuse plants. The Df expression in the pericarp of plants grown from these

smoky kernels is frequently of the colorless phase.

The relationship between inhibition of aleurone pigmentation, size of the colorless sectors, and the transmission of the colorless phase is yet to be determined.

I. M. Greenblatt

12. Removal of pericarp with HCl.

Satisfactory removal of the pericarp from dried corn kernels has been accomplished by treatment with hydrochloric acid. The kernels from which the pericarp is to be removed are placed in a 10% HCl solution, and then heated in a boiling water bath for approximately 8 minutes. They are then transferred to a fine meshed wire basket, and washed under a strong stream of cold water. The force of the water removes the pericarp loosened by the acid. Treatment with acid does not affect the aleurone markedly except to convert purple pigments, when present, to a bright red. This technique is helpful in large-scale scoring for both endosperm and aleurone characteristics when the pericarp would otherwise interfere.

J. Kermicle
I. M. Greenblatt

Addendum:

DEKALB AGRICULTURAL ASSOCIATION, INC.
DeKalb, Illinois

1. Culture of haploid cells.

Current work of others on tissue and cell culturing suggests that it may be possible to effect a radical improvement in the monoploid method. The aim of work we now have in progress is the development of true breeding strains (homozygous diploids or the equivalent) of corn and other species directly from isolated cells of the haploid phase (either spores, gametophytic cells or gametes) freed from the parent tissue. The attempt is being made to grow these cells through the proembryonic and embryonic stages in basic synthetic media suplemented with growth stimulating substances and to induce somatic doubling of the chromosome complement at some stage prior to formation of the meiocytes.

Permission to cite above note not required.

S. S. Chase
B. Trotsis