pattern. It has now been determined that these alleles, $\underline{P}^{mo}$ (mosaic pericarp), $\underline{P}^{Boyaca}$, and $\underline{P}^{Q36}$, are also non-paramutagenic with a $\underline{P}^{rr}$ allele derived from an old Cornell stock.

Heterozygotes between each of the unstable alleles and $\underline{P}^{rr}$ in the same inbred W9 background were established and then crossed reciprocally with a $\underline{P}^{ww}$ stock. The red and striped ears within each set of reciprocal crosses were compared with each other and with similar heterozygotes with $\underline{P}^{ww}$ which had arisen from a previous heterozygote with $\underline{P}^{\bar{w}w}$. No differences in either the striped pattern or the solid red pericarp color were noted which could be attributed to the peculiar ancestry of the allele in question.

R. I. Brawn

MARQUETTE UNIVERSITY
Milwaukee, Wisconsin

1. Diffuse action in Chocolate pericarp.

Pericarp and aleurone pigment genetics share in common the $\underline{A}_1$ locus as a major conditioner and/or modifier (with one known exception). It was not surprising then to discover that the Diffuse gene (Idf) initially recognized as an inhibitor of pericarp pigment also inhibits aleurone pigments (MNL 33). Subsequent tests also disclosed that the plant pigments of B Pl (either a_1 or A_1) are also susceptible to Idf action (unpublished data). The exception, the subject of this report, is the Chocolate pigment of the pericarp conditioned by the dominant Ch locus on the long arm of chromosome 2. This locus conditions a brownish pigment only in the pericarp. It was of interest therefore to test the inhibitory action of Idf in a Ch background. While there must be some major modifiers of Ch action (an extremely variable phenotype), Idf does not seem to be one of them.

Three levels of Idf action were tested in Ch backgrounds, (1) a high mutable state, (2) a low mutable state, and (3) an active stable state. All three test types provided no detectable reduction in pigment (the mutable forms would have been expected to produce a striping pattern in the pericarp) when compared to non-diffuse (idf) sib segregants serving as controls.

In the pericarp the red pigment conditioned by $\underline{A_1}$, $\underline{P^{rr}}$ and the brown pigment conditioned by Ch apparently both come to expression in individuals carrying all three dominant alleles. Idf-mutable will suppress the red pigment in the typical mutable pericarp pattern of such individuals while not affecting the co-present brown pigments. Inasmuch as the brown pigment conditioned by $\underline{A_1}^{b}$ $\underline{P^{rr}}$ does not develop in the presence of Idf it may be concluded that these two brown pigments are not the same.

Another brown pericarp pigment, recessive bp bp on chromosome 9 is known to interact with $\underline{P^{rr}}$ and thus would be expected to respond to Idf. A direct test of this assumption is now in progress.

Irwin M. Greenblatt

2. Tests for Ac and Spm in Diffuse stocks.

In recent years loci in corn exhibiting high rates of somatic instability have generally been found to involve one or another of the recognized transposable elements. Since the Diffuse gene (Idf) is characterized by a high degree of somatic mutability it is of major interest to determine if one of the now recognized transposable elements is involved in this case.

By utilizing tester stocks (developed by Dr. B. McClintock) Idf was evaluated for Ac and Spm factors. This was accomplished by the following matings:

1. Test for the presence of Ac by using a C-Ds tester.

   C Ds, $\underline{A_1}$, R, idf x c -, $\underline{A_1}$, r, Idf

   If Idf could substitute for Ac a pattern of C ⟶ c breaks would be expected on the resultant kernels. No such C ⟶ c events occurred.

2. Test for the presence of Spm by using a $\underline{c_2}^{mt}$ tester.

   $\underline{c_2}^{mt}/\underline{c_2}$, $\underline{A_1}$, $\underline{C_1}$, R, idf x $\underline{C_2}$, $\underline{A_1}$, $\underline{C_1}$, R, Idf

   In this case if Idf could substitute for Spm one-half of the kernels would exhibit a spotting of dark purple in a dilute purple background. No such spots were observed on seven test ears.