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1. A new chlorophyll-deficiency mutant.

Among the progeny of a cross between an inbred sweet corn and a strain of South American maize, a chlorophyll-deficiency plant was found. Its leaves and stalk were light green. When this plant grew to two months old, yellow and white stripes appeared on the leaves. These characteristics became more pronounced as the stage of growth advanced. The plant was later in maturing than its sibs.

For a test of the inheritance of this variegated character, this plant was crossed on a standard inbred strain of Wilbur's flint possessing green leaves and stalk. The F_1 plants from this cross were all green. In contrast, plants in the selfed progeny of the mutant showed the similar leaf and stalk characteristics as those of the parent, even though the degree of variegation varied from plant to plant. The F_2 plants from selfing the F_1 of the cross were classified as follows: 5 chlorophyll deficient plants: 77 green. This ratio fits well the F_2 ratio expected for a pair of duplicate genes. A study of the chromosome constitution of this mutant is being carried on.

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2. A preliminary report on the fourth chromosome male gametophyte factor in teosintes.

The fourth chromosome male gametophyte factor (alleles ga_1 , Ga_1 , Ga_1^S) in maize has been extensively studied but its occurrence in teosintes has not been reported. This factor has assumed an important role in evolution, because it acts as an isolating barrier between individuals or between populations of plants. During the last few years it was noted that a crossing barrier exists between maize and some of the teosintes. When pollen from an inbred strain of Wilbur's flint was applied to the silks of the teosintes, seed set was scant. It seemed possible that the crossing barrier between maize and these teosintes might well be the fourth chromosome male gametophyte factor. During the last two years a preliminary test on this factor in teosintes was made. Three varieties of Guatemalan teosinte and six varieties of Mexican teosinte were employed. From three to five plants of each variety were crossed by the maize tester of genotype ga_1/ga_1 . Pollen of each teosinte was crossed to two plants of the maize tester having genotype Ga_1^S/Ga_1^S . The number of female gametes tested for each teosinte variety varied from 42 to 154. Even though these numbers used do not seem large enough to provide adequate evidence for any definite conclusion, they do disclose certain indications concerning