

## 8. Modifying factor.

The segregation of white and mosaic seedlings on the same ear indicate that the mutable condition is controlled by a modifying factor that can be separated from the vp-2 locus. This modifier must be closely linked to the vp-2 locus or widely spread in our stocks since most outcrosses of mosaic to standard lines give only mosaic seedlings.

Donald S. Robertson

CARNEGIE INSTITUTION OF WASHINGTON  
Department of Genetics  
Cold Spring Harbor, Long Island, N. Y.

## 1. Continued study of stability of location of Spm.

The mode of operation of the  $a_1^{m-1}$  - Spm system was outlined in the last two issues of this News Letter and evidence was presented indicating that the Spm element undergoes frequent changes in location. To obtain further evidence of the degree of stability of location of Spm, two additional tests were conducted this past summer. Each involved determination of Spm constitution and linkage relations in the progeny of a plant having one Spm whose location was known. In both cases, the location of Spm in the chromosome complement differed from that of other determined locations of it. In one parent plant, Spm was linked with Wx in chromosome 9. In the other parent plant, it was located close to Y in chromosome 6. The history of the first mentioned parent plant is referable to a culture grown in the summer of 1954. The plants in this culture were Wx/wx and either  $a_1^{m-1}/a_1^{m-1}$  or  $a_1^{m-1}/a_1$  in constitution. In one plant of this culture, two independently located Spm elements were present, one of which was linked with wx. When pollen of a plant homozygous for  $a_1^{m-1}$  and wx and having no Spm (standard Spm tester stock) was used on the silks of an ear of this plant, there appeared 130 pale colored kernels (no Spm) and 335 kernels that had  $A_1$  spots in a colorless background (Spm present), indicating the presence in this plant of two independently located Spm elements. From the ratio of Wx to wx in each class (100 Wx : 30 wx in the no Spm class and 123 Wx : 212 wx in the Spm class) it was evident that one of the two Spm elements was located on the wx carrying chromosome of this plant. In order to obtain plants with a single Spm element located in a chromosome 9 carrying Wx, and to test for its stability in this location, 29 plants derived from the variegated, Wx class of kernels on the above described ear were again tested by crossing them with plants that were homozygous for  $a_1^{m-1}$  and wx but in which no Spm was present. The first ear on the main stalk was always used for this test and when possible, other ears of the plant were so used. Among these 29 plants, 1 had no Spm; 20 plants had one Spm but it was not linked with Wx; 4 plants had two Spm elements