

### 3. Similarity of M and Ac Mutator Systems.

As reported in the 1954 news letter  $bz^m_2$  was found to mutate in the presence of a separate factor M. Furthermore the behavior of the  $bz^m$ -M combination was found to resemble McClintock's Ds-Ac system. Experiments have been conducted to determine whether  $bz^m_2$  will respond to As and whether M will activate Ds. In the trial made to test the first of these two points, a  $bz^m$  m stock was crossed to an Ac stock and backcrossed to  $bz^m$  m. Half of the pale ( $bz$   $bz$   $bz$ ) seeds on the resulting ears had typical full colored Bz sectors just like those seeds when M and  $bz^m$  are present. The second test consisted of crossing  $bz^m$   $bz^m$ , m m and M m plants by a homozygous  $Bz_2$ , I Ds ac stock. The m m plants crossed in this fashion produced ears with all colorless stable seeds while the Mm plants yielded ears with half colorless stable seeds and half colorless sectorial seeds of the type commonly produced when an I Ds stock is crossed by Ac.

It is quite clear the Ac does activate  $bz^m_2$  just as does M and that M activates Ds just as does Ac. In many other respects Ac and M are so similar that it is concluded that they must be closely related or perhaps identical systems. The independent reporting of Ds-Ac,  $P^{rr}$ -Mp and  $bz^m_2$ -M systems all with strikingly similar characteristics along with the observations of other similar cases in this laboratory leads to the conclusion that this type of behavior is quite prevalent in maize and had long been overlooked until Dr. McClintock's initial discovery.