

only 20 gm. of sucrose and 8 gm. of agar. Subcultures of a_2 , C^I , Pr , and pr were successful, and r tester has shown especially vigorous growth (in some cases as high as a 100-fold increase in volume in about six weeks, without transferring). This growth was not consistent throughout the cultures, of course, but was very significant in some. These observations are in conformity with the studies of Tamaoki and Ullstrup (Bull. Torrey Bot. Club, 1958), except that growth of non-sugary material so far is not limited in our cultures, even after six months. The distinctive phenotypic pigments, dark purple in Pr , dark red in pr , intense (almost black) in in and bronze in bz_1 , cultures, are developed. In Pr and pr sub-cultures occasional colorless and pale-colored cell clusters are observed.

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3. Haploid induction.

Properly-marked inducer lines have been recovered from third-generation backcrosses to stock 6 (see MNL 33:77). Although pollen of stock 6 induced as high as $2.35 \pm 0.302\%$ haploids in one gl_1 egg parent, a gl_{10} -marked parent that has a field-corn background gave only $0.98 \pm 0.138\%$. The recovered marked lines vary in induction potential, but include individuals giving $1.18 \pm 0.414\%$ and $1.09 \pm .198\%$ in crosses to gl_{10} (8 haploids in 681 and 30 in 2755, respectively). Seed is available but quite limited in supply.

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4. Anti-inhibitor effect of bz_2 : a correction.

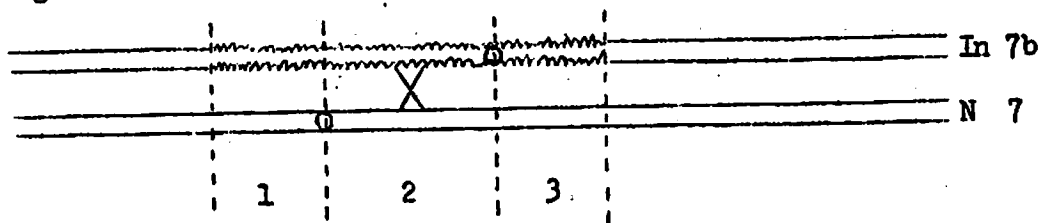
Although the effect was attributed to bz_2 , further tests show that bz_2 itself is not involved in suppression of C^I , but that the bz_2 stocks carry a special C allele and an independent modifier. Further tests are in progress.

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5. Non-homologous crossing over.

The occurrence of non-homologous crossing over is suggested by the presence of reciprocal translocations in the progeny of monoplids. However, it is possible that the crossing over occurs between duplicated segments.

Non-homologous pairing is of frequent occurrence in inversion heterozygotes. In the case of pericentric inversions whose break points are of unequal distances from the centromere, non-homologous pairing leads to an interesting situation.



A crossover in region 2 will lead to the formation of a bridge and a fragment at the first anaphase, something which is not normally expected in a pericentric inversion heterozygote.

Limited data have been obtained using In 7b (S. 32 - L. 30) which is diagrammed above. It is difficult to get an unbiased estimate of the frequency of non-homologous pairing, since not all pachytene figures are analysable. However, with this inversion, which is a relatively short one, non-homologous pairing takes place about a third of the time. Three cases of a bridge and fragment were observed out of a total of 352 anaphases. Unfortunately sporocytes of control plants (normal sibs of the In 7b heterozygotes) are not available, so these data are inconclusive, since there is a possibility that the bridges could have arisen from small paracentric inversions which were not detected.

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1. Epistatic variance for yield in two varieties of corn.

Experiments have been underway at North Carolina State College to obtain estimates of epistatic variance in two open-pollinated varieties, Jarvis and Indian Chief. The genetic material included full-sibs and half-sibs from random inbred parents and non-inbred parents of each variety. The material has been grown in replicated yield tests at two locations for two years, and has given rise to the estimates presented in Table 1.