

from three such plants were grown in the greenhouse in 1965. When the seedlings were three weeks old, samples of the root tips were collected and fixed in a 3:1 alcohol-acetic fixative. With the standard squash technique, B-chromosomes in the root tips of each plant were counted. Data were obtained as follows: among 40 plants, one had no B-chromosome; six plants, one B; nine plants, two B's; eight plants, three B's; seven plants, four B's; six plants, five B's; three plants, six B's. Therefore the distribution of B's among the plants of this small population follows, more or less, a standard modular form.

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4. Induced changes in number and structure of maize chromosomes by X-rays.

In the summer of 1964, maize pollen possessing B-chromosomes and other genetic markers was irradiated with X-rays at a dose of 1500r. The rayed pollen was crossed with an inbred maize strain having the factor Gp (good spreading pachytene chromosomes) and other known cytological markers to facilitate pachytene studies of the F_1 hybrids.

Kernels from the above hybrids were grown in the field in the summer of 1965. Up to the present, 126 plants were investigated cytologically. Among these plants, 57 were heterozygous for one translocation (some possible A-B translocation), four have one dicentric chromosome, one is monosomic, and three have a deficiency for one chromosome arm. Studies on the details of these alterations are in progress.

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