the chromosome through the male vs. the female parent. Because of pollen competition, the isochromosome is transmitted mainly through the female parent and cannot undergo nondisjunction. The finding of the isochromosome suggests that selection of chromosome abnormalities is possible. In addition, the highly effective mutagen, ethyl methane sulfonate, might allow screening of point mutations. While a 9^{B} 9^{B} B^{9} male was used in the present experiment to encourage chromosome abnormalities, a 9^{B} 9^{B} B^{9} B^{9} parent would be suitable with EMS.

Reference:

Roman, H., 1949. (Abstract). Records of the Genetics Society of America, no. 18, p. 112.

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2. An unselected "mutant" affecting nondisjunction.

This summer, a series of crosses were made between an inbred TB-9b stock and the F_2 of two inbred c sh wx testers. The F_2 plants were segregating for many different traits, but were homozygous for c sh wx. Plants selected from the TB-9b line were hyperploid ($9^{c\ sh\ wx}$ $9^{B^{Wx}}$ $B^{9^{C\ Sh}}$ $B^{9^{C\ Sh}}$). Of several hundred ears produced in the cross (c sh wx ♀ X TB-9b ♂) all were typical except one. The abnormal ear contained an extremely high rate of C-c multiple sectored kernels. Classification of the ear was as follows:

C Wx =	78
C/c Wx =	35
C wx =	27
C/c wx =	15
c Wx =	103
c wx =	5

of the total colored seeds, 50/155 are variegated. The ear with this high proportion of sectored kernels was produced in a cross (1818 X 1819J) in which one pollen shedding from a TB-9b plant was crossed onto 10-15 ears of the F_2 c sh wx. Since only one ear was abnormal, the "mutation" must be attributed to the female parent. This "mutation" is interesting because it affects B^{9} stability, but is not located on the B-9b translocation. If the "mutation" acts by inducing nondisjunction of the B^{9}, it is acting at the wrong time (during endosperm

development) and without the aid of the 9^B chromosome (note effect on C wx kernels). The immediate question is whether the "mutation" is real or the product of a rare combination of genes from the F_2 segregation. The answer is not yet known.

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1. Genes for spikelet bearing two fertile pistillate flowers.

The cultivated varieties and hybrids of maize normally develop a pistillate inflorescence bearing spikelets with a single fertile flower. The second flower present in the spikelet aborts at an early stage. A few varieties with a fertile second flower and a spikelet producing two grains have been described.

In 1966, we isolated from a plot sown with an open pollinated variety some plants having ears with two kernels in each spikelet. From the preliminary morphological and genetical analysis of this character the following conclusions have been drawn:

1) The appearance of two kernels per spikelet is associated with the development of a second flower with functional pistil. The homozygous mutant ear has about 90% of spikelets with two flowers.
2) In the F_1 ears obtained from crosses between mutant plants and normal inbred lines, some spikelets (5% or less) located at the top part of the ear bear two fertile flowers. This suggests that at least one of the factors controlling the character is partially dominant.
3) The phenotype of the F_2 ears is variable. About 50% of the ears are normal (group 4), 40% show intermediate phenotypes classifiable into at least two groups (groups 3 and 2), and 10% fully express the mutant phenotype (group 1).