This agrees with the order indicated earlier (News Letter #29, p 51).

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3. Big ring.

(a) Production of rings with a large number of chromosmes, progress report.

Thus far, the biggest ring induced by a homozygous line is a ⊙10. The homozygous line, referred to as a permanent ring of 10, has five chromosomes involved in interchanges, i.e. 1-5-6-7-8, the successive steps being obtained by X-rays:

5-7 $\xrightarrow{\text{X-ray}}$ 1-5-6-7 $\xrightarrow{\text{X-ray}}$ 1-5-6-7-8. A second line which will include the other five chromosomes, 3, 2, 4, 9 and 10 is being put together by genetic crossing over. The cross of these two lines will produce 2⊙10.

To develop a line which will induce a ⊙20, Inman's general scheme, of having one interchange in common when two permanent rings of 6 are crossed to produce a ring of 8, two interchanges in common when a ring of 8 is increased to a ring of 10 and so on up is being used.

In addition to the permanent rings of 6 listed (News Letter #32, p. 94), plants heterozygous for the 1-9b + 1-7 (4405), 2-4b + 4-8 (5339), and 4-8 (5339) + 8-9b crossover combinations were identified.

(b) Crossovers in differential segments.

The first results were obtained from tests planned by Dr. Inman to determine the frequency of the complementary crossovers in the differential segments. Progeny of crosses of the two types: T1/T2 x normal and T1/T2 x T1T2 were grown and the frequency of normals determined. There is a possibility that small deficiencies at the break points may be present and yet survive the gametophyte screen. In building rings with more chromosomes by crossing single interchanges, the effect of such deficiencies might be cumulative as more interchanges are added. For T1-7 + 5-7, the values were 20.8 for the T_1T_2 crossover and only 3.7% for the normal complementary type. The results indicate a difference, but appear to be in the opposite direction of what might be expected. Thus far, seed set and pollen fertility appear to be normal on all 10II stocks that are homozygous for two up to four interchanges.

(c) Interdependent rings.

A species with an even-number of pairs and heterozygous for interchanges involving every arm will show 2⊙4 at meiosis. In these the homologous midsegments are not in the same ring (Inman, News Letter #32, 1958, p. 95). Following this a plan was set up using the following interchanges involving 4 chromosome pairs in corn: 1-6a, 1-7 (4405), 5-6c and 5-7 (5179). Of the four permanent rings needed, 1-6 + 5-6, 1-6 + 1-7, 1-7 + 5-7 and 5-6 + 5-7, the last two seem to be established and crossovers for the others will be searched for this summer in the progenies of crosses with standard normals. Of the three crosses that can be made to produce different 2O4 in F_1, one will have the two rings interdependent.

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4. Notes on "Breakage Points for Two Corn Translocation Series" by A. E. Longley, ARS - 34, 1958.

The following is submitted as additional information:

2-6a - this is the one in which I originally observed extensive non-homologous pairing at pachytene. The pachytene "cross" appears more often in the long arm of 6, but the break is in the short arm, not the long arm of 6 as listed.

5-6B - this is not the same as the 5-6b I list in Genetics 35:469. My 5-6b is 5S0.1 - 6 sat.

5-6c - my values for this are 5L.89 6S.00. Tests in the homozygote confirm this position in the short arm of 6, not in the long arm.

6-10b - (Genetics, Ibid. p. 461). This is not the same as the 6-10b listed in ARS-34-4.

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1. Conversion effects at B.

In 1953, two weak-colored plants were observed among approximately 140 plants in the otherwise uniform progeny of a single B pl individual, one from each of two selfed ears of the parent plant. The exceptions were selfed and crossed onto intense. Selfs did not segregate, and