

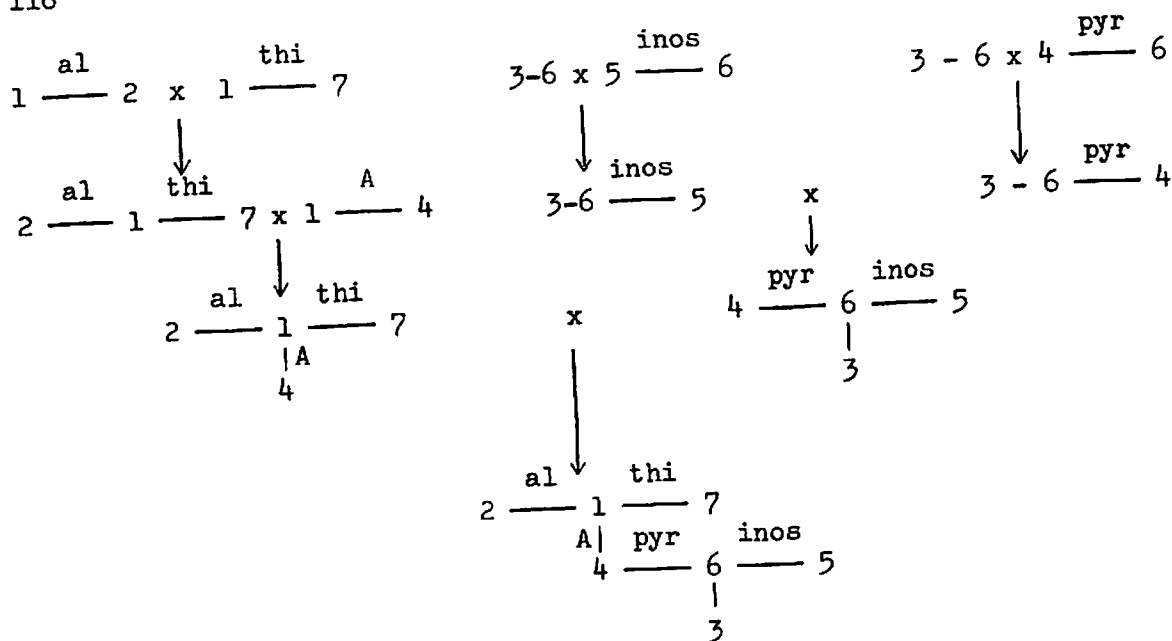
If only a few florets or single tassel branches are being collected, perforated sheets of tagboard can be used. These can be perforated to any desired size. One we use is $1\frac{3}{4}$ " x $2\frac{3}{4}$ ". These can be folded and stapled tightly close to the branch or so as to enclose the florets. It is best to use aluminum staples, since steel ones rust in alcohol.

C. R. Burnham

8. Synthesis of a 7-chromosome (complete) interchange in *Neurospora crassa*: a comparative study with maize.

The cytogenetic behavior of interchanges in *Neurospora crassa* is similar to maize. Since the equivalent to maize backcross data can be obtained in 3-4 weeks, we are using *Neurospora* to obtain more immediate answers to questions pertinent to higher plants, specifically maize. The study briefly reported here was prompted by the near development of a maize stock which has every chromosome involved in an interchange such that the heterozygote forms a ring-of-20 chromosomes (Burnham, see note in this News Letter). Burnham (J. Amer. Soc. Agron. 38:702-707, 1946) outlined the potential advantages of such a stock in maize for the rapid establishment of inbred lines. The amount of crossing over in such a complex of chromosomes is of utmost importance to its proposed use. Since several years will be required to obtain this information in maize, it was decided to synthesize and study a multiple-interchange strain of *Neurospora*.

The first stage of this study, the synthesis of a 7-chromosome (complete) interchange of *Neurospora*, was initiated in February, 1968, and is now complete. This strain produces a ring-of-14 chromosomes when crossed with wild type. Each step in the synthesis has been documented genetically and cytologically. The general scheme of synthesis was as follows:



The arabic numerals specifying an interchange denote linkage groups. Four of the seven linkage groups have been assigned to their respective chromosomes. Each single interchange strain, except the 3-6, carried a closely or completely linked gene which marked the presence of the interchange. The interchanges were combined through crossing over in a differential segment in a common chromosome in all cases except for the 4-chromosome interchange involving 3, 4, 5, and 6. In this case, the 3-6-5 and 3-6-4 interchanges were combined through random chromosome segregation, since they form two rings of four chromosomes when crossed. In general, the percent of aborted spores paralleled that expected in maize for comparable interchange complexes.

Information is currently being obtained on the frequency of recombination for the 7-chromosome interchange and its various constituent interchanges.

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