

Pasztor, Linda M. University of Oregon, Eugene, Oregon. A tandem metacentric which generates unstable rings.

fashion and ring loss, as evidenced by the presence of gynandromorphs, is relatively infrequent. It was, then, of considerable interest when gynandromorphs were found with a very high frequency in the progeny of a tandem metacentric compound X chromosome.

The tandem metacentric was recovered when females of the constitution $Y^{SX} \cdot Y^L$, $In(1)EN$, $Y^S B f v y \cdot Y^L y^+ / XY^L \cdot Y^S$, $y Y^L \cdot Y^S y^+$ were irradiated with 3,000 r (Lucchesi, J. C., S. Mills and R. Rosenbleth, DIS 1965). In the course of experiments designed to determine which, if any, fertility factors were present adjacent to the centromere of these compound X chromosomes, it was recognized that gynandromorphs occurred with a high frequency in one line of a TM stock. Only loss of the ring chromosomes regularly generated by the TM could account for

Chromosomes which are circular in shape present fascinating problems in chromosome behavior. With the exception of X^C , w^{VC} , ring chromosomes in *D. melanogaster* have generally appeared to behave in a regular

the gynandromorphs.

In that fertility factors adjacent to the centromere were found to be absent and homozygosity for vermilion has not been observed, it is proposed that the structure of the TM is $Y^{SX} \cdot X$, $In(1)EN$, $Y^S B f w y \cdot y$.

Subsequent studies of this stock revealed that gynandromorphs constitute from 26% to 46% of the female ring-bearing class (Gynandromorphs/((Ring/Rod) + Gynandromorphs)). Further evidence of ring loss is the extremely low *c* value (Novitski, E. and L. Sandler, Genetics, 1956) of .15. Ring-bearing males were not recovered.

In contrast to these data are those obtained from another stable line of the same origin. Gynandromorphs constitute from .05% to 1.9% of the female ring-bearing class (as computed above) and a *c* value of .65 is calculated. Ring-bearing males comprise about 45% of the total rings recovered.

It was later discovered that ring-bearing males could be recovered (Fig. 1) when Y^{BS} was introduced by way of the male parent; this chromosome apparently covers a deficiency found in the newly generated rings. This ring class is somewhat depressed: about 34% of the total rings found are in this group. Most recently, however, it has been revealed that they may also be recovered by the use of Y^{suw-f^+} . It should be noted that, although the viability of the rings is good in males, when these males are tested their offspring show high frequencies of gynandromorphs with ring loss (Hinton, Genetics, 1955) about .42.

Because the phenomenon of a tandem metacentric which regularly produces unstable rings has not been reported previously, it is believed that experiments now in progress to characterize the behavior of these chromosomes may be of general genetic significance. It should be pointed out also that this stock is an extremely valuable and effective one for experiments in which numbers of gynandromorphs are desired.

