Belyaeva, E.S. Institute of Cytology and Genetics, Novosibirsk, U.S.S.R. Asynapis of homologues in Drosophila melanogaster salivary chromosomes.

The asynapsis of homologues is unevenly distributed along the chromosomes of D. melanogaster (Figure 1). The occurrence rate of chromosomes with conjugation impairment and the distribution of asynapsis does not depend upon the conditions in which the culture was maintained (different food, temperature variations from 12-25°C) and upon how the preparations were obtained (staining for 2 min, squashed preparations in acetocarmine or staining for 12 hours in HCl containing orcein and squashing in lactic acid). The occurrence rate and distribution of asynapsis are the same in different D. melanogaster stocks. In all the wild stocks asynapsis is much more frequent at the base of the X-chromosome. The analysis of the X-chromosome with scute-inversions suggest that asynapsis is not due to the properties of chromosome regions of the X, but rather to close localization with respect to heterochromatin and to the amount of this chromatin (Figures 2 and 3). An exception is X with sc^{v2} inversion, on whose tip a heterochromatic region is transferred, smaller than that in sc^{8} X, but with much more frequent asynapses. If the position of the right break point of the inversion in stock sc^{v2} actually conforms to the generally accepted scheme (Figure 2), then this may be indicative of a qualitative heterogeneity of heterochromatic blocks in the heterochromatin of the X-chromosome and of their specific influence on asynapsis.

The author is indebted to Prof. I.I. Kiknadze for valuable discussions.

Reference: Baker, W.K. 1971, Proc. Nat. Acad. Sci. USA 68:2472-2476.

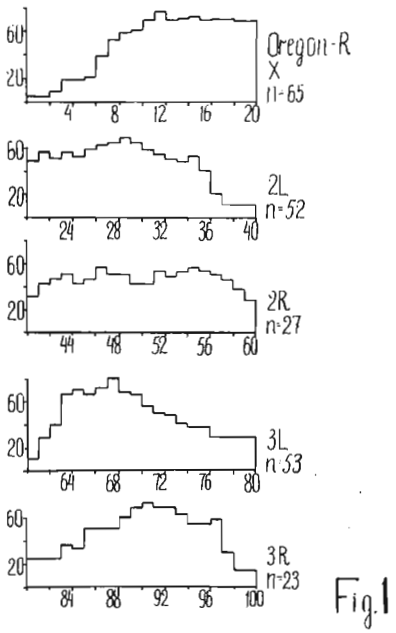

Fig.1

Figure 1. Asynapsis of homologues along chromosome in D. melanogaster (Oregon-R); abscissa - chromosome regions; ordinate - asynapsis frequency in chromosomes with impaired conjugation; n - number of chromosomes studied.

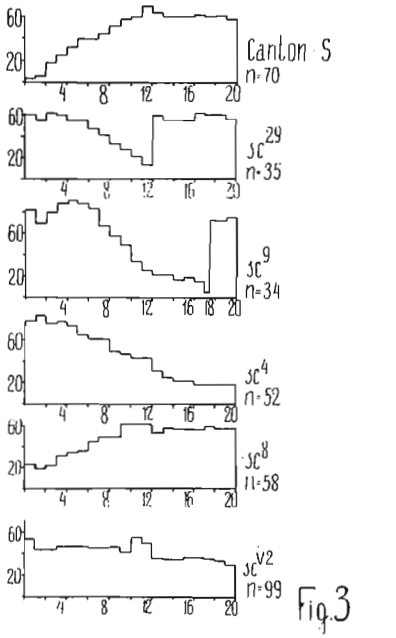

Fig.3

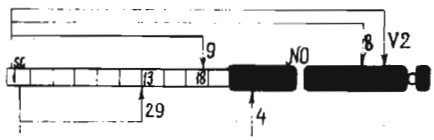

Fig.2

Figure 2. Scheme of the X-chromosome scute inversions. Euchromatic regions are open, heterochromatic regions are closed. NO - nucleolus organizer. (Baker, 1971)

Figure 3. Asynapsis of homologues in X-chromosomes in stock Canton-S and stocks with sc inversions.