

Ghosh, M. and A.S. Mukherjee. University of Calcutta, India. Nucleolar chromatin thread (NCT) in hybrids of *Drosophila*.

been performed with the hybrids of *Drosophila* and some important conclusions have been drawn from these investigations. Patterson & Stone (1952) reported that there are numerous exam-

ples of interspecific hybridization in the genus *Drosophila* where the sex ratio is normal. Ohno (1969) from his study demonstrated that the dominance for NOR activity ordinarily is the same in the reciprocal crosses, although a strong maternal influence is often found. Mitrofanov and Sidorova (1981) reported that there are also deviations from Haldane's rule (1922) in interspecific *Drosophila* hybrids. Based on these above mentioned ideas our present investigation was performed to examine the NCTs in hybrids obtained from crosses between different species of *Drosophila*.

For this purpose four species of *Drosophila* viz., *Drosophila melanogaster*, *D. simulans*, *D. pseudoobscura* and *D. persimilis* were selected and four sets of crosses were designed. Cross I: virgin females of *D. melanogaster* X males of *D. simulans*; Cross II: virgin females of *D. simulans* X males of *D. melanogaster*; Cross III: virgin females of *D. pseudoobscura* X males of *D. persimilis*; Cross IV: virgin females of *D. persimilis* X males of *D. pseudoobscura*.

Cytological squash preparations following aceto-carminic aceto-orcein staining method of salivary gland cells of the hybrids from each cross were made.

From the cytological preparations it is evident that all four principal types of NCTs are present in the F_1 hybrids as they are in the parents. A maternal influence is observed in the production of NCTs in most of the F_1 hybrids examined. It is clear from the data (Fig. 1) that when parental flies were *D. melanogaster* ♀ and *D. simulans* ♂, all females of F_1 do not show the frequency of NCT as in the *D. melanogaster* female. On the other hand, when the parental female was *D. simulans* only male offsprings are generated and they show the frequency of NCT as in *D. simulans*. But in the cases of crosses III and IV, i.e., *D. pseudoobscura* (♀,♂) X *D. persimilis* (♂,♀) progenies of both sexes were obtained unlike the crosses I and II and there also a maternal influence is observed (Fig. 2).

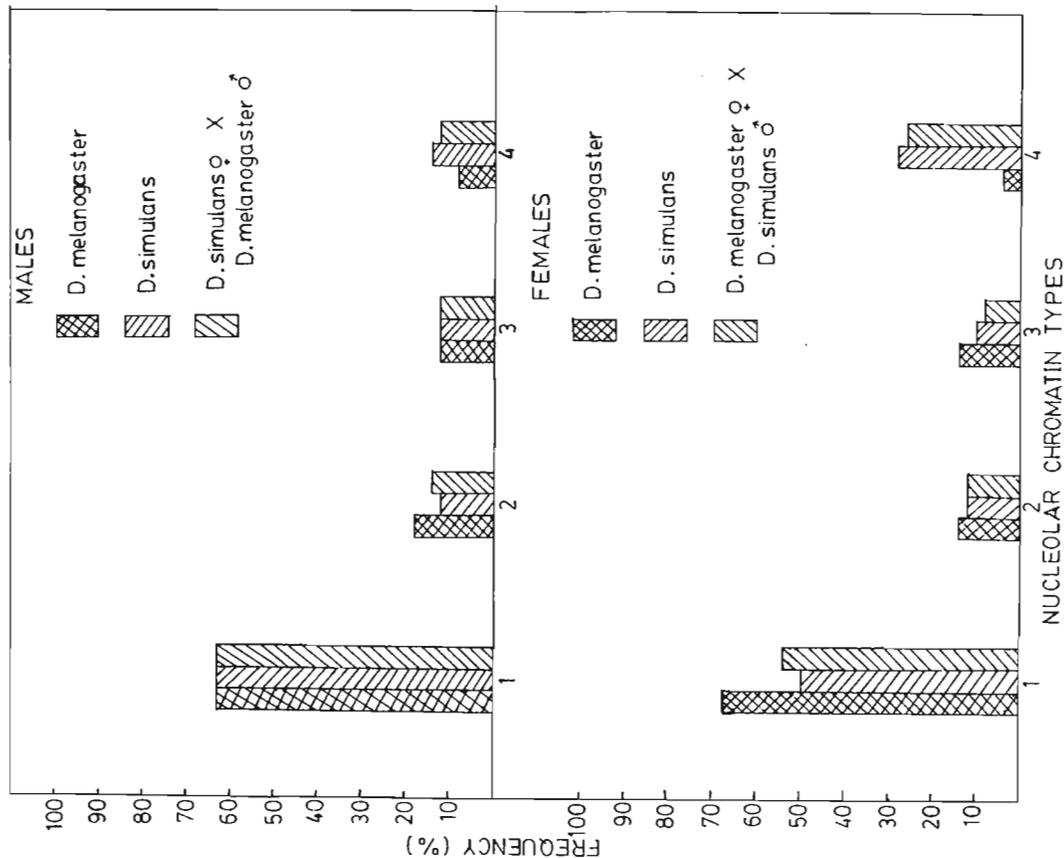


Fig. 1. Histogram showing the frequency distribution of different NCT types in male and female F_1 hybrids obtained from crosses between *D. melanogaster* (♂,♀) and *D. simulans* (♀,♂).

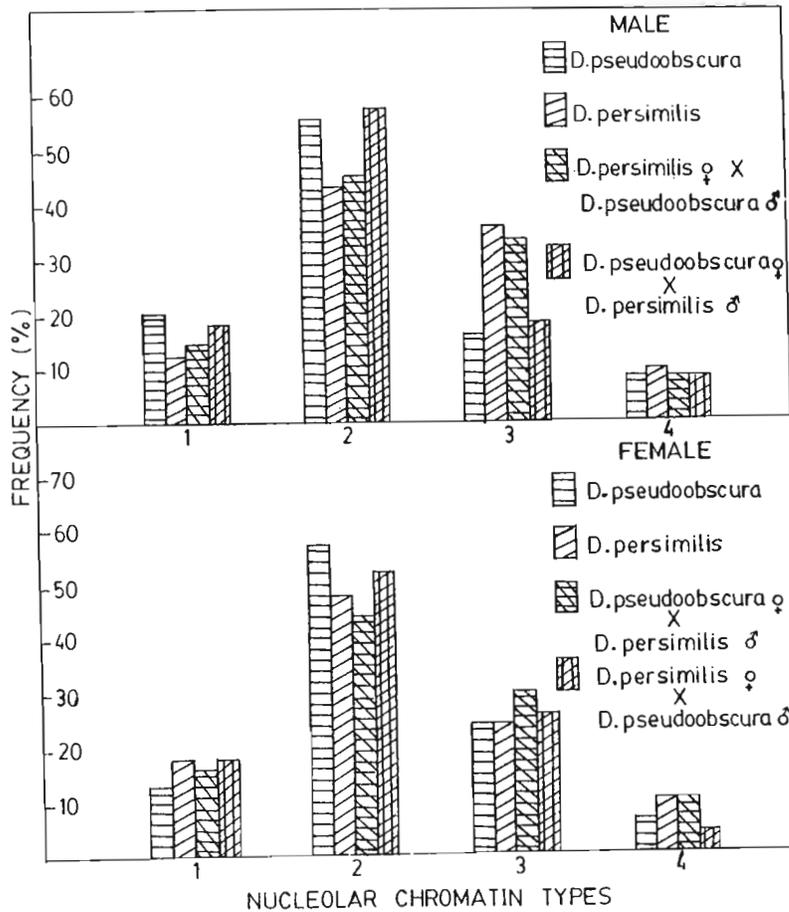


Fig. 2. Histogram showing the frequency distribution of different NCT types in male and female F_1 hybrids obtained from crosses between *D.persimilis* (σ, φ) and *D.pseudoobscura* (φ, σ).

Therefore, from the data it is revealed that (1) in all the cases 4 major types of NCTs are present, (2) only hybrid females in cross I and males in cross II were obtained but there is no variation in the NCT structures; only variation in frequency was observed, (3) both males and females were obtained in the hybrid progenies from crosses III IV, (4) a maternal influence over the frequencies of NCTs was observed in a general way.

References: Haldane, J.B.S. 1922, *J.Genet.* 12:101-109; Mitrofanov, V.G. & N.V.Sidorova 1981, *Theor.Appl.Genet.* 59:17-22; Ohno, S. 1969, in: *Heterospecific genome interaction* (V.Defendi, ed.), Wistar Institute Press, Philadelphia, pp. 137-150; Patterson, J.T. & W.S.Stone 1952, in: *Evolution in the Genus Drosophila*, The MacMillan Co., New York, pp. 386-387.

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Evidence for the presence of telomeric material in the junction of 2L and 2R in entire compound two chromosomes.

The entire compound autosomes, in which chromosomes arms are attached end to end to form a double length chromosome arm, exhibit a genetic behavior as well as a cytological appearance in the polytenes that suggests that no essential genes have been lost in their manufacture. This has given rise to the speculation (Novitski et al. 1981, *Am.J.Human Genet.* and 1981 *Genetics*) that the distal break on one arm (to which the proximal break on another

