



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.

Goldstein, E., T.Berry and E.Novitski.
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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



has become joined) may have occurred in the telomere region.

To test this supposition, a telomere-specific clone was obtained from Prof. Ed Strobel at Purdue. This plasmid which contains a 1.25 kb fragment of the cDm 356 repeat unit inserted into pBR 322 was hybridized in situ with polytene chromosomes of a line carrying compounds of both the second and the third chromosomes. Hybridization at the junction between the tip of 2L and the base of 2R was obvious (see Figure), suggesting that some telomeric material may still be present at this juncture.

On the other hand, in our relatively few good preparations, we did not see any clear cases of hybridization at the corresponding juncture of the 3L tip and the base of 3R. This may mean that there was no such hybridizing material present interstitially on the third chromosome, or that with our techniques it was not demonstrable.

Gonzalez, F. University of Valencia, Espana. Non-effect of light conditions as a selective force for an eye colour mutant of *Drosophila melanogaster*.

Analyzing natural populations of *Drosophila melanogaster* a greater amount of eye colour mutants was found among flies captured in a cellar than among those captured in a close vineyard (Najera & Mensua 1982). To investigate the possible effect of light intensity

on eye mutant alleles, the following experience was carried out.

Two isofemale strains captured in a cellar near Requena (Valencia) were used. One strain (2/63) had normal eyes whilst the other (2/54A) was the eye mutant 'cardinal' (cd: 3-75.7). Both strains had been kept in the laboratory for 4 years at 25±1°C and 60±5% relative humidity in 250 ml bottles supplied with 50 ml of food.

Three light environments were chosen to simulate light conditions existing in the cellar where flies were captured: (i) normal (fluorescent) laboratory light, (ii) semi-darkness, covering the cultures with red and blue filters simultaneously, and (iii) complete darkness, using a black box.

Three different cultures were initiated with the following gene frequencies:

	<u>allele 2/63 (+/+)</u>	<u>allele 2/54A (cd/cd)</u>
Culture A	0.5	0.5
Culture B	0.2	0.8
Culture C	0.8	0.2

Two replicates for each initial composition and light environment were made.

Cultures were kept for six months in the above mentioned conditions by a weekly serial transfer system. After this time, gene frequencies were estimated according to the method of Cotterman (1954). Table 1 shows the results obtained averaging the two replicates, as no significant differences between them were observed.

Table 1. Gene frequencies of cardinal allele.

Light regime	Culture A	Culture B	Culture C
Normal	0.3936	0.4497	0.3917
Semi-darkness	0.4858	0.3787	0.4354
Darkness	0.3949	0.4510	0.3983

Table 2. Analysis of variance of results shown in Table 1.

Source of variation	d.f.	SS	MS	F
Initial compos.	2	5.92x10 ⁻⁴	2.96x10 ⁻⁴	0.1274 ^{ns}
Light conditions	2	8.22x10 ⁻⁴	4.11x10 ⁻⁴	0.1768 ^{ns}
Error	4	9.29x10 ⁻³	2.32x10 ⁻³	
Total	8	1.07x10 ⁻²		

ns = non-significant

Table 2 shows the analysis of variance performed with these results. As can be seen, there are no significant differences either among light environments or among initial compositions. Thus, it can be affirmed that after six months all the populations have approached to an equilibrium point, with a frequency for the allele 2/54A around 0.42.

This result leads to the conclusion that light intensity is not a factor responsible for the greater presence of eye colour mutants in the inner of a cellar than in its outer.

References: Cotterman, C.W. 1954, Estimation of gene frequencies in nonexperimental populations, in: Statistics and Mathematics in Biology (ed: O.Kempthorne et al.), Iowa State College Press;