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:

	allele 2/63 (+/+)	allele 2/54A (cd/cd)
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	5.92×10^{-4}	2.96×10^{-4}	0.1274^{ns}
Light conditions	2	8.22×10^{-4}	4.11×10^{-4}	0.1768^{ns}
Error	4	9.29×10^{-3}	2.32×10^{-3}	
Total	8	1.07×10^{-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;

Najera, C. & J.L.Mensua 1982, Analisis de la variabilidad de mutantes que afectan a la sintesis de pigmentos oculares de Drosophila melanogaster en poblaciones naturales, XVIII Jornadas de Genetica Luso-Espanolas, Granada, Spain.

Gonzalez, F. and J.Ferre. University of Valencia, Espana. Non-dependence of the eye pigmentation of Drosophila melanogaster on light conditions.

Two different studies to test the possible dependence of pteridinic pigment accumulation in the eyes of Drosophila melanogaster under different light conditions have been carried out.

Fly extracts (40 heads and 5 male bodies) were subjected to two-dimensional thin layer chromatography on cellulose plates. Quantitative estimation of the fluorescence of the separated pteridines was performed in a Perkin-Elmer model MPF-44B spectrophotometer with a thin layer chromatography plate scanner attachment. Neodrosopterin, drosopterin, isodrosopterin, aurodrosopterin, sepiapterin, pterin, biopterin, 7,8-dihydro-acetylhomopterin and xanthurenic acid were measured.

A first study intended to find whether light conditions affected the pigmentation during the development of the eye. Oregon-R flies reared at 25°C were kept in the dark from the 1st larval instar. A control in normal (fluorescent) light was reared simultaneously.

Adult flies were analyzed at 9 and 30 days after eclosion. No difference between flies kept in the dark and control flies was found. Thus, light has no appreciable effect either on the synthesis of eye pigments during the pupal stage or on the amount of pigments retained by the adults.

An eye colour mutant isofemale strain (cd: 3-75.7) captured in a cellar, was reared in different light environments to study the possible selective effects of light upon genes affecting the amount of eye pigments. Three different environments were chosen to simulate light conditions existing in the cellar where flies were captured: (i) normal fluorescent light, (ii) semi-darkness, covering the cultures with red and blue filters simultaneously, and (iii) complete darkness, using a black box.

Cultures were kept at 25±1°C, 60±5% relative humidity, in 250 ml bottles supplied with 50 ml of food. They were maintained by a weekly serial transfer system. After 8 months, nine days old flies were analyzed. No differences among the chromatographic patterns of the three cultures were found. This suggests that selective pressure, if it exists, is too weak to be detected under these conditions.

Gonzalez, A. and J.L.Mensua. University of Valencia, Espana. Inversions in two natural populations of Drosophila melanogaster from cellar and vineyard.

Data about inversions found in two natural populations of Drosophila melanogaster from the locality of Requena (Valencia, Spain) are presented.

The populations studied come from two sites with relatively different environments, above all in regard to alcohol concentration and temperature: inside a cellar and an area of vineyards located 4 Km away from the cellar. Both populations were captured in late October (after the grape harvest).

The possibility of association between lethal chromosomes and inversions in them, was also studied.

One-hundred-and-sixty-one third chromosomes were analyzed for inversions (86 from the cellar and 75 from the vineyard).

Of these 161 chromosomes, 38 from the cellar and 40 from the vineyard were lethal-carrying chromosomes.

For the analysis of inversion, crosses were made with "rucuca" stock which is homozygotic for the standard arrangement in the third chromosome.

Table 1 shows the total frequencies of inversions for the two populations studied. A significantly lower frequency of inversions at the 5% level was observed in the cellar compared to the vineyard.

The types and frequency of inversions per chromosomic arm from the cellar and vineyard populations is shown in Table 2. In accordance with Inoue and Watanabe (1969) the category of the inversions is also mentioned, taking into account their geographic location and frequency.