Watson, W. A. F. State University, Leiden, Netherlands. Repair of premutational damage in spermatocytes as sampled from Drosophila pupae.

Earlier work (Sobels 1965, Mut. Res. 2: 168-191) showed that post-treatment with O_2, as compared to post-treatment with N_2 favors repair of genetic damage induced by irradiation under anoxia in spermatids and spermatocytes sampled from adult flies. Attempts to show that this repair occurred when pupae were irradiated, were unsuccessful when the same experimental procedure was followed. The results reported here show that when 24 hour pupae are pre-treated for 6 hours with N_2, irradiated in N_2 with 2500R X-rays, and post-treated with either N_2 or O_2 for two hours, then in the first one-day brood there is a consistent and significant decrease in mutation frequency (as measured by recessive lethals in a ring-X chromosome) after post-treatment with O_2. The results are given in Table 1. They show that the similar results obtained from earlier broods of adult flies did not originate from artefacts in the sampling technique, and support Sobels' conclusion that there is a repair system operating at this stage of development.

Table 1: Frequencies of recessive sex-linked lethals induced by 2500 R in one one-day brood from 24 hour male pupae of the genetic constitution $X^{C2}y$ B/sc^8,Y after post-treatment with N2 or O2.

Expt. No.	Post-treatment	No. chromosomes tested	% lethals
1	N_2	487	6.37
	O_2	466	3.64
2	N_2	304	6.25
	O_2	371	4.31
3	N_2	924	7.25
	O_2	836	5.26
4	N_2	614	6.35
	O_2	562	4.80

Total chromosomes tested = 4564
$P < 0.006$ (two-sided test) using combination of 2 x 2 contingency tables

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Mayeda, K. Wayne State University, Detroit, Michigan. Study of penetrance of the tu-h phenotype.

In the course of studying the penetrance of the tu-h phenotype in the tu-h stock maintained at this laboratory, the effect of parental age was investigated. Single pair matings of tu-h female by tu-h male were made and left in the vials for twenty-four hours. The female was then separated from the male and transferred to new vials every twenty-four hours for 14 consecutive days. The male was given a new virgin female every twenty-four hours for 14 consecutive days, the females being transferred to new vials every twenty-four hours as before. The penetrance of the trait was measured in the offspring and is presented in Table 1.

The results of these experiments indicate that there is a correlation between penetrance of the trait and the age of the female. Average penetrance in the offspring of twenty-four hours old females is 67% when all ages of males are combined. As it can be seen from the table, the penetrance gradually increases as the female becomes older. However, there seems to be no correlation between paternal age and penetrance. Further investigations are being conducted to determine if the increase in penetrance in the offspring of older females is due to lack of competition for food in the larval stages.