rates of turnover and incorporation into proteins in 3- as well as 50-day-old flies remain constant within at least two hours after injection. The same results have been reported by Dinamarca and Levenbook (1966) for the blowfly Phormia regina. Of particular interest is our finding that the incorporation rates per mg protein in older adult males amount to only 36.9 to 41.8% of those in the younger ones (see Tab. 1). This is in contrast to the previous report of Clarke and Smith (1966) who found that for D. subobscura the incorporation of ^{14}C-leucine into protein in 60-day-old male flies is about two times higher than in individuals aged 20 days. The difference is obviously due to the fact in our kinetic analysis the pool size was included in the calculation of the incorporation rate, whereas Clarke and Smith determined only the total radioactivity in protein. Similar experiments on protein synthesis in various lethal mutants are now in progress.

Cohen, A., Shamay, E. and Goldschmidt, E.
Laboratory of Genetics, Hebrew University, Jerusalem, Israel. Effect of induced recombination on homozygous viability.

A simple scheme of crosses enabled us to compare the viability of recombinant chromosomes with that of wild type as well as marked nonrecombinant chromosomes, in the third generation after irradiation.

Males of D. melanogaster heterozygous for the recessive markers b cn bw and for their wild type alleles received an X-ray dose of 2,000 r (dose rate 430 r/minute in Exp. A. and 290 r/minute in Exp. B). The males were mated individually to two females homozygous for the three recessive markers and for the dominant marker J (Jammed). Each male was supplied with two fresh females per day for 15 days. A sharp decrease in fertility amd fecundity on the seventh day after irradiation indicates the success of the brood pattern plan. The large majority of recombinants appeared in the broods of days 8 - 15.

Recombinant and non-recombinant males heterozygous for J were mated individually to Cy/Pm females in vials. Males and females of the R_2 generation carrying the Cy chromosome and an irradiated recombinant or non-recombinant chromosome were mated in vials. The percentage of non-Cy flies appearing in the R_3 generation was scored as an estimate of the homozygous viability of the irradiated chromosomes. The frequency of lethals and semi-lethals among recombinant and non-recombinant chromosomes was much lower than observed by Bateman (1968) in a similar experiment after irradiation with only 1,000 r. The difference in the frequency of lethals between recombinant and non-recombinant chromosomes was not significant. The results of the viability tests pooled for days 8 - 10 and for days 11 - 15 of each experiment appear in the following table.

Table 1

Viability	Days 8 - 10 CO	Days 8 - 10 NCO +	Days 8 - 10 NCO mut.	Days 11 - 15 CO	Days 11 - 15 NCO +	Days 11 - 15 NCO mut.	Total CO	Total NCO	Chi Square (1 d.f.) leth. + semi-leth. vs. others
Expt. A.									
0 - 3.3%	6	-	2	2	2	-	8	4	
3.4 - 16.7	-	-	-	-	-	-	-	-	2.507
16.8 - 26.7	3	3	4	1	1	1	4	9	
26.8 +	18	23	13	23	10	17	41	63	
Expt. B.									
0 - 3.3%	5	3	1	1	1	-	6	4	
3.4 - 16.7	-	1	1	-	-	1	-	3	0.478
16.8 - 26.7	4	7	3	4	9	3	8	22	
26.8 +	47	49	56	40	32	35	87	172	

Cross-over and non-crossover chromosomes grouped by viability classes.

For other components of fitness such as fertility and fecundity in heterozygous males of the R_1 generation the recombinant chromosomes were usually superior to the mutant non-recombinants and inferior to the wild type non-recombinants.

Ref: Bateman, A. J. Mutation Res. 5 (1968) 243-257.

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Rathie, K. A. University of Sydney, Sydney, Australia. Faster scoring of a quantitative trait of Drosophila melanogaster.

Scoring abdominal bristle number on one sternite in a stock homozygous for the scute' (sc') gene enabled scoring rates of around 500 flies per hour, nearly double those attainable in a comparable wild-type stock. The increased speed is due to sc' lowering abdominal bristle number markedly (see Table).

Response data in the table come from mass selection lines at 20% selection intensity, there being two sc' and three $+^{sc}$ lines, with 50 and 20 pairs of parents respectively. In each case these lines are continuous selection references for other selection treatments. The $+^{sc}$ lines were kept in bottles (5 pairs of parents per bottle), and the sc' lines in vials (1 pair per vial). The sc' lines were scored by the author, and the $+^{sc}$ lines were scored by Drs. L. P. Jones and R. Frankham (who refer to them as "22" lines) in this laboratory under the same conditions that now prevail. Response to selection was nearly linear for both sets of lines.

The sc' population was derived by backcrossing a $y^2sc'w^{i-P}$ stock, obtained from Dr. W. Scowcroft, to the outbred wild-type Canberra strain (Latter 1964) as recurrent parent. The w^{i-P} gene (a partly-revertant allele of white-ivory) was eliminated after the first generation of recombination between the Canberra and mutant genomes. Canberra males and females were used in alternate generations of backcrossing, to avoid progeny-testing to distinguish between $sc+^{sc}$ and $+^{sc}+^{sc}$ females. Thus, of the eight crosses to Canberra, only four allowed recombination between the genomes derived from the Canberra and $y^2sc'w^{i-P}$ populations.

The y^2 gene, retained during backcrossing to Canberra due to its tight linkage to sc', is useful as a marker against contamination, and because it increases contrast between the bristles and the abdomen. No back-mutations from y^2 to $+^y$, and only one from sc' to $+^{sc}$, have been observed during scoring more than 90,000 flies.

Estimates of realized heritability, using the sc' stock, are similar to those using Canberra. Results of hierarchical analyses of heritability appear similar for the two populations, but the study on the sc' strain has not yet been fully analyzed.

I much appreciate the suggestion by Drs. W. Scowcroft and B. D. H. Latter of using a sc' stock in selection for abdominal bristle number.

I am indebted to Drs. L. P. Jones and R. Frankham for permission to cite their selection data.

References: Latter, B. D. H. 1964, Genet. Res. 5: 198-210.

Table. Comparison of some characteristics of Canberra - derived populations with and without the sc' allele.

Scute allele present	Unselected: Mean abdominal bristle number on one sternite*		Unselected: Phenotypic standard deviation		Unselected: Sample size	After 15 generations of mass selection at 20% selection intensity: Mean abdominal bristle number on one sternite*		After 15 generations of mass selection at 20% selection intensity: Average phenotypic standard deviation		After 15 generations of mass selection at 20% selection intensity: Sample size
	Female	Male	Female	Male		Female	Male	Female	Male	
$+^{sc}$	21.62	17.54	2.02	1.93	3000	30.37	24.33	2.07	1.98	3x100
sc'	9.35	6.95	1.73	1.44	2200	16.28	12.62	2.10	1.58	2x250

* Fourth sternite in males, fifth in females.