consistent with a radiation syndrome that rapidly progresses until death of the fly.

The data on mating frequency show that young control flies have an approximately constant high activity (Fig. 2). Mating of irradiated Drosophila, however, is depressed at 2 days after exposure, recovers at 8 days, and declines sharply thereafter. These observations suggest that 50 kR produce in Drosophila both an acute reversible injury and a chronic syndrome that eventually results in death.

Most male flies can copulate even after being completely sterilized by a dose of 50 kR. This finding agrees with our unpublished observations that control senescent male flies can also mate up to 91 days of age, several weeks after they have become sterile. This suggests that the status of the sex organs in Drosophila is not as important in mating behavior as the condition of the nervous system and the muscles. The degradation in performance for both negative geotaxis and mating of 9- to 16-day-old irradiated flies correlates well with the pathological changes of the brain observed starting at 14 days after exposure.

Vítek, J. J.E. Purkyně University, Brno, Czechoslovakia. The selection coefficients of heterozygotes for the recessive lethal mutations of D. melanogaster.

In many papers, selection coefficients of heterozygotes for recessive lethals were estimated by means of different tests (e.g. Cy/Pm). The adaptive values for lethal mutations in heterozygous condition were studied either in natural populations (Dobzhansky and Wright, 1941; Cordeiro, 1952; Dobzhansky and Spassky, 1968; and others), or in population cages (da Cunha, 1963 Sankaranarayanan, 1966; and others).

The majority of these authors found either the increase or the decrease of adaptive values of heterozygotes for lethals from 2% to 4%.

We have studied the selection coefficients of heterozygotes for three lethals of the chromosome 2: l(2)ax (chromosome al dp b bw l(2)ax), Bl, L^2; in the population cages and in five different populations, on the genetic background of Oregon-K. The initial genotypes of these populations were: l(2)ax/+; L^2/+; Bl L^2/+ +; L^2 +/+ l(2)ax; Bl L^2 +/+ + l(2)ax. The selection coefficient of each studied allele was estimated by comparing the theoretical relation between the frequency of normal allele and of the mutant allele with the empirical relation. The results are presented in the table.

The selection coefficients of heterozygotes for recessive lethal mutations Bl, L^2, l(2)ax, regarding the standard alleles, in the different experimental populations

generation	population	l(2)ax/+	L^2/+	Bl L^2/+ +	L^2 +/+ l(2)ax	Bl L^2 +/+ + l(2)ax
	mutation	selection coefficients				
1	Bl			0.02		0.10
	L^2		0.47	0.05	0.58	0.07
	l(2)ax	0.20			0.09	-0.01
2	Bl			0.36		0.22
	L^2		0.74	0.35	0.63	0.09
	l(2)ax	0.02			0.62	0.08

Some of the selection coefficients are ten or more times higher than the values estimated by other authors. This increasing of selection coefficients may be caused by the specific environment of populations, further by the specific genetic background (compare the population Bl L^2 +/+ + l(2)ax to others), and the specific properties of studied lethal mutations. The selection coefficients of the second generation are higher than those of the first one. This increase is caused by the increasing size of populations.

References: Cordeiro, A.R. 1952 Proc. Natl. Acad. Sci. USA 38:471-478; da Cunha, A.B. et al 1963 Proc. XI Intern. Congr. Genet., The Hague 1, 158; Dobzhansky, Th. and S. Wright 1961 Genetics 26:23; Dobzhansky, Th. and B. Spassky 1968 Genetics 59:411-425; Sankaranarayanan, K. 1967 Genetics 57:653-664.