

It is further hypothesized that the heterosis which would lead to the production of a hybrid swarm is functional only in those recombinant types which do not also contain poorly adapted combinations in other parts of the genotype (such as factors affecting fertility). As a result, the probability of obtaining "good" male and female recombinant types in a population consisting predominantly of the parental species is very low. This is thought to be due to (1) the low frequency of interspecific hybrids (2-3% of the population), (2) the low adaptive value bestowed upon these types by their non-coadapted gene complex, and (3) the greatly reduced fertility of hybrid males.

Thus, a reproductive barrier exists between the parental species beyond the one dealing with the initial production of  $F_1$  hybrids. If the second barrier (production of highly fit heterotic recombinants) is hurdled, the production of a hybrid swarm, or more correctly an introgressed population, would result.

Paik, Y. K., and J. S. Geum. University of Texas. Distribution of natural lethal genes on the second chromosome of D. melanogaster.

Twenty-nine lethal genes extracted from Korean natural populations were localized by use of three recessive marker genes. The distance between marker genes and lethal genes was adjusted by Kosambi formula. The results are as follows:

Collection	Non-allelic loci	Distribution		
		Left	Middle	Right
S62	17	4	11	2
K62	12	2	5	5

It can be seen that the lethal genes of S62 population are distributed in the central region ( $X^2 = 10.0$ , d.f. = 2,  $P = 0.01 - 0.001$ ). However, the lethals of K62 population seem to be randomly distributed ( $X^2 = 1.5$ , d.f. = 2,  $P = 0.3 - 0.5$ ).

Browning, L. S., and E. Altenburg. University of St. Thomas, Texas. A comparison of the sterilizing effect of X-rays, quinacrine mustard and azaserine on Drosophila males.

Males of Muller's Maxy stock were treated with X-rays, quinacrine mustard and azaserine and individually mated (in vials) to Maxy females (2 to 3 per male). The males were transferred to new food vials with fresh virgins every third day for several such broodings. The dose of X-rays was 3000r or 5000r and that of the quina-

crine sufficient to give a 2 to 3% lethal rate in mature sperm. The azaserine was weakly mutagenic (about 1% lethal inducing). In the present experiments, the X-rays produced a drastic drop in fertility in the third brood (8-10 days after treatment) from which there was a large measure of recovery in the fourth brood. In the case of chemical treatments, there was no such definite brood pattern. The effect of the three agents on the fertility of the Maxy males is shown in the following table:

Agent	Brood (and days)	No. ♂♂	No. Fertile	
			Cultures	Percent
X-rays	1 (1-4)	793	739	93
	2 (5-7)	748	633	85
	3 (8-10)	712	208	29
	4 (11-14)	635	470	74
Quinacrine	1	721	332	46
	2	507	201	40
	3	279	127	46
	4	191	109	57
Azaserine	1	432	241	55
	2	388	237	61
	3	252	202	80
	4	214	74	35