Golubovsky, M.D. and Y.N. Ivanov. Institute of Cytology and Genetics, Novosibirsk, USSR. Autosomal mutation in Drosophila melanogaster killing the males and connected with female sterility.

In 1967 we performed an experiment on the frequency of occurrence of the second chromosome mutations in the offspring of flies isolated from natural population of Magarach (Crimea). The wild males were crossed individually to Cy/$L^2$ females. In the $F_3$ of one of such cross where parental males and females had Cy/+ genotype we obtained the following results: 548 Cy/$+^M$; 44 $+^M/+^M$. The "$+^M$" indicates the individual chromosome. The Cy offspring consisted of both females and males. But all the 44 flies homozygous for second chromosome were females. These females had reduced viability and were absolutely sterile. We could not explain these results by suggesting the occurrence of any chromosomal rearrangement between the sex chromosomes and the autosomes. The stock was maintained in balanced condition for some years. Then we examined the segregation again (see Table 1). Thus, again, the second chromosome homozygotes were only females. Their survival increased for some years of culturing but yet remained much lower than that of Cy/+ females. As earlier, all the second chromosome homozygous females $+^M/+^M$ were absolutely sterile. We had suggested that the second chromosome $+^M$ had a recessive factor we named "male killer" (symbol: mak) which in homozygous condition kills the non-Cy males and also causes female sterility. The gonads of the non-Cy females were often rudimentary. Assuming a monogenic nature of the "mak" factor, we mapped it by means of dominant genes Bl and $L^2$.

Table 1. The results of crosses of ♀ Cy/$+^M$ x ♂ Cy/$+^M$

| phenotype of offspring | | | |
|---|---|---|---|
| ♀♀ Cy | ♂♂ Cy | ♀♀ + | ♂♂ + |
| 535 | 543 | 216 | - |

Table 2. The results of crosses of ♀ Bl $L^2$/mak x Cy/mak ♂

| Phenotype and sex | Cy ♀♀ and ♂♂ | | | | non-Cy ♀♀ | | | | non-Cy ♂♂ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bl L | + | Bl | L | Bl L | + | Bl | L | Bl L | + | Bl | L |
| Frequency | 460 | 636 | 36 | 64 | 319 | 210 | 18 | 29 | 296 | 1 | 18 | - |
| Total | | | | | 576 | | | | 315 | | | |

The data of table 2, especially the sex ratio among the non-Cy flies, confirm the suggestion about the monogenic nature of the mak factor. Then the data show that the mak factor is to the left of the Bl locus and closely linked with Bl. Its position is no more than one m.u. from Bl, at approximately 54 ±. The second chromosome containing mak had an obviously reduced crossing over frequency, as shown by the reduction of the recombinant zygotes Bl and L among Cy progeny and non-Cy females. Unexpected results were observed in testing the sterility of different non-Cy females and Bl males. Of 15 tested males, 14 proved to be sterile. On the other hand, more than half of the females in the progeny from the above mentioned crosses with expected genotypes of mak/mak and $L^2$ mak/+ mak were fertile. It is interesting to note here that in the region 54 of standard second chromosome map, a cluster of mutations responsible for male and female sterility is known.

Smith, J.W. Purdue University, Lafayette, Indiana. Mating behavior of Drosophila nigromaculata.

This description of the mating behavior of Drosophila nigromaculata, a member of the quinaria species group, is based on 66 observations using one male with three females. All observations were made at 25° C in a moistened filter paper lined shell vial. The terminology used in describing mating behavior follows that of Spieth (1952).

The male taps at the side or occasionally at the front; moves to the rear of the female, assumes a head under the wings position and using the tarsal portion of his forelegs begins to stroke the dorsal and lateral surfaces of the female's abdomen. The forelegs of the male move alternately. Less frequently, the male will stroke the dorsal surface of the female's wings. Initial stroking is slow with well defined pauses but as courtship continues, stroking becomes