both between the adults and during the immature stages of development. The populations reached equilibrium between the 8th and the 15th week, and thereafter oscillated around the same level. After 52 weeks samples were taken from both populations and from the original mass culture stocks, and a new generation was produced at 25°C under uncrowded conditions. From this progeny different amounts of flies were placed in 1/2-pint culture bottles, and transferred regularly to fresh bottles (3 times a week at 25°C, twice at 19°C). A total of 10 transfers were made at 25° for each level of parental density, and 6 transfers at 19°C. The mean number of flies produced per bottle are presented in Table 1. In all the six cases studied the flies

Table 1: Mean number of flies produced per food unit by two experimental populations and their parental stocks.

Number of Parents	Number of flies produced per bottle					
	25°C			19°C		
	Experimental Population	Control	Difference	Experimental population	Control	Difference
100	396	363	33	233	208	25
300	423	381	42			
1000	513	495	18	477	379	98
1500	543	497	46			

from the experimental populations produced more progeny than the controls. It seems likely that, under the action of strong natural selection, new genotypes have been selected in the experimental populations which improved their fitness, as measured by the number of progeny produced per food unit.

Reference: Ayala, F. J. 1965. Relative fitness of populations of Drosophila serrata and Drosophila birchii. Genetics, in press.

Thompson, Peter E. Iowa State University.

The killing and resorption of eggs after injection of Drosophila females with actinomycin-D.

In the course of tests of the effect of actinomycin-D on crossing-over, females were injected with about 0.25 microliter of dissolved material at concentrations of 10 and 50 microgram/milliliter. Injection was via the thorax. Neither concentration had a marked effect on survival under sterile conditions. While the 10-gamma solution did not reduce fertility, the 50-gamma solution invariably led to a permanent or temporary cessation of egg laying.

In the 50-gamma series, females were inseminated during their first imaginal day and injected at 1 1/2 days. Each female laid 2-5 eggs soon after treatment, after which oviposition ceased for at least 6-7 days. Following this lapse, roughly one-third (37/124) of the females showed a recovery of fertility. The pattern of crossover effect after recovery was comparable in its time scale to effects of the 10-gamma treatment, heat treatments, etc., as if no marked retardation of survivng oocytes were involved. This included the observation of multiple rare exchanges, presumably gonial in origin, in individual females from the tenth day on.

Females examined early in the sterile period show degeneration of all advanced egg stages, and the ovary is distended with decomposition products. At day 6 (about 4 1/2 days after injection) most of this debris has been resorbed and oocytes up to about stage 3 or 4 can be seen. Again, the rate of development of these surviving oocytes must be nearly normal, for their maturation is complete in some females within another two days, at the return of fertility. A more thorough treatment of this aspect is projected, hopefully to establish a time scale of oogenesis similar to that found by Welshons and Russell (PNAS 1957) in their irradiation of Drosophila males. (Research supported by U.S.P.H.S. Grant GM 08912).