Roughened, arose in a single mosaic male among 102 progeny of a female treated with cold shock at an early embryonic stage. The mosaic male produced 788 offspring, only one of which showed the roughened eye. The latter produced 50% offspring, rough in both sexes, indicating its normal viability in a heterozygote. Consequently it appears that possibly a single cell carrying the mutant was incorporated into the mosaic gonad of the original male. This observation is significant in considering mutation rates resulting from treatment of pole cells.

Mickey, George H. and Blount, Jerry Somatic polyploidy in D. melanogaster induced by cold shock.

The effects uponsomatic cells (ganglia) of cold shock applied to embryos at the pole-cell stage and to third-instar larvae of D. melanogaster were investigated. Results were scored from aceto-carmine squash preparations of the third-instar larval brains by comparing the ratio of normal diploid metaphases to the polyploid metaphase figures. Results were as follows:

Stage	Treatment	No. Indiv.	No. Figures	No. Poly.	% Poly.
control	untreated	53	1746	0	0
pole cell	1/2 hr. -5.5° C	22	957	38	3.3
pole cell	2 hr. -3.3° C	19	976	102	9.1
pole cell	1 hr. -6.1° C	16	729	106	12.0
third instar	24 hrs. -6.1° C recover 24 hrs.	9	763	289	29.7

Both temperature and length of treatment influence polyploidization but the temperature appears to be relatively more important. The last experiment gave the highest percentage of tetraploid cells and the most consistent figures. This may be due to the fact that there was less opportunity for the elimination of these tetraploid cells before their detection. Gloor's treatment of D. hydei larvae at higher temperatures (8°-12° C) and for a longer period (10 days) gave a much higher degree of ploidy (Gloor, DIS-24; 82). The length of treatment in our experiments allowed for only a single doubling of chromosomes.

Mickey, George H. and Di Paolo, J. A. Lethals induced in Drosophila by combined action of urethane and H_2O_2.

Adult males of D. melanogaster were injected with M/4 urethane (ethyl carbamate) in Holtfreter's salt solution. From 12 males a total of 641 chromosomes were tested for sex-linked lethals, using the Muller-5 techique. Only 2 lethals were detected (from separate flies). From 23 males injected with the same solution of urethane but also treated for 24 hours with fumes of superoxol (3% H_2O_2) a total of 1203 chromosomes were tested and 17 lethals were detected. Two flies gave three lethals each, three gave 2 lethals each, and the others only 1. Crossover tests proved all the cases of multi-lethals from single males to be distinct (with one possible exception). The rate of lethal production in the experiment using urethane ($0.31 \pm 0.22\%$) was not significantly different from the controls ($0.26 \pm 0.12\%$); but the percentage of lethals induced by the combined treatment ($1.41 \pm 0.34\%$) was significantly greater than in either the controls or the urethane experiment.

Mickey, George H. and Sturtevant, F. M. Jr. Failure of phenol to produce lethals in Drosophila.

Phenol had been administered to Drosophila previously by subjecting adults to vapors, injecting adults, soaking fertilized eggs or excised ovaries, and placing phenol in the food. We employed

three methods hitherto unused for phenol: (1) male third-instar larvae and adults of both sexes were subjected to a constant flow of phenol vapors for 24 hours; (2) different concentrations of phenol (0.20%, 0.25%, and 0.50%) in Holtfreter's saline solution were injected into third-instar male larvae, and 0.50% into female larvae, using a semi-micropipette; and (3) mature sperm were treated with phenol (0.01, 0.1, 1.0 and 2.0%) in Holtfreter's solution by the vaginal-douche method of Herskowitz. Control and experimental series were tested for sex-linked recessive lethals by the Muller-5 method. Rate of lethal production in experiments was in no case significantly different from that in the controls. The reason for the failure of in vivo treatment is postulated to be phenol detoxication in the fly and inability of the phenol to reach the germ plasm during the critical physiological period.

Miller, D. D. Mating behavior in D. athabasca and D. narragansett.

Observations of mating behavior in D. athabasca and D. narragansett are in progress, employing New York and New Jersey strains of athabasca (kindly supplied by Drs. E. Mayr, C. Pittendrigh, and B. Wallace) and a New Jersey strain of narragansett (furnished by Dr. C. Pittendrigh). A number of differences between the mating behaviors of these species have been observed, both with respect to each other and with regard to the similar species D. affinis and D. algonquin (Miller, 1950). D. athabasca males were found to be different from males of the other three species in regularly extending and vibrating one wing rather than both during courtship. A distinctive courtship movement of D. narragansett males was rapid opening and closing of the wings while approaching and circling about the females. The following table presents data on copulation times in the four affinis subgroup species affinis, algonquin, athabasca, and narragansett.

Temp.	affinis	algonquin	athabasca	narragansett
27° C			1'13", 1'26", 1'12", 1'23"	
26			1'25"	
25				10'59", 14'32"
24	58", 1'10", 1'13", 55", 1'1", 1'26"	5'35", 4'50", 7'31"	1'40"	
23	1'24", 1'3", 1'29", 1'24", 1'22"	4'37", 5'42"	1'48", 1'42", 1'27", 1'15", 1'12", 1'23", 1'25"	17'42", 20'52"

A few interspecific mixtures of males and females have been observed. Attempted (but not successful) copulations have been observed in both reciprocal combinations of the species pairs algonquin x athabasca and athabasca x narragansett.

Mittler, S. Variation of the penetrance of tu^{50j} when reared on yeasts that do not require vitamins or amino acids.

A highly inbred stock of D. melanogaster containing tu^{50j} was raised on a minimal medium consisting of glucose, $(NH_4)_2 SO_4$, and several trace elements, inoculated with yeasts that were able to live in absence of vitamins or amino acids. Hence, the flies obtained practically all their nourishment from the yeast and not from the medium. In research work involv-