Polivanov, S. Catholic University of America, Washington, D.C. Double elimination (?) of X chromosomes in D. melanogaster.

An abnormal male was found in a lz^{63i}/M-5 culture. This male had one typically lozenge eye, while the other eye was Bar. (B flies are sometimes produced in lz/M-5 culture when M-5 chromosome is broken due to crossing-over.) This male was isolated and 8 virgin M-5 females were added to the culture. Four days later this male died. No offspring were produced.

This male had normal external morphology except the eyes. The most probable explanation for the production of such a male was suggested by S. Pipkin. Apparently this individual was started as a lz/B female, and then due to some or other reasons one of the X chromosomes was either inactivated or eliminated in each cell. It is unusual, however, that different X chromosomes were lost in different parts of the body. It is unlikely also that parts of the body still contained both X chromosomes, since the eye was very narrow as in B males and no morphologically female structures were found. (Sex combs were present on both front legs and abdomen had typically male shape.)

Wattiaux, J.M. and A. Elens. Facultés Universitaires N.D. de la Paix, Namur, Belgium. Variation in the sexual behaviour of Drosophila.

The purpose of this paper is to call attention to special kinds of fluctuations which may give some misleading results and to suggest a rationale to avoid this pitfall. The variability we are referring to, concerns the apparent heterogeneity in sexual behaviour depending upon the time of observation.

The results to be described here have been obtained by means of a technique introduced by Elens and described by Elens and Wattiaux (1964). Two kinds of virgin females and two kinds of virgin males are introduced into a small wooden box with a checkered canvas floor and a glass cover which enables the scorer to record the different sorts of copulation and their occurrence according to time of observation.

TABLE I. VARIATION OF THE RATIO OF HETEROGAMIC TO HOMOGAMIC COPULATIONS (D. melanogaster)

Time of observ. in minutes	cross +/+ x e/e			cross b/b x e/e			cross vg/vg x e/e, vg/vg		
	actual values		ratio of	actual values		ratio of	actual values		ratio of
	hetero	homo	cum. val.	hetero	homo	cum. val.	hetero	homo	cum. val.
20	184	268	.69	10	56	.18	24	42	.57
40	94	60	.85	26	22	.46	16	28	.57
60	108	162	.79	14	18	.52	10	2	.69
80	53	36	.83	4	8	.52	12	6	.79
100	11	6	.85	2	4	.52	12	0	.95
120	2	0	.85	0	0	.52	4	0	1.00
Heterogeneity chi-square	7.55*			27.6**			31.5**		

TABLE II. VARIATION OF THE RATIO OF HETEROGAMIC TO HOMOGAMIC COPULATIONS (D. subobscura)

Time of observation in minutes	cross: Meerdael x Jerusalem		
	actual values		ratio hetero/homo
	hetero	homo	cumulated values
30	114	158	.72
90	135	176	.75
180	99	95	.81
360	80	96	.82
Heterogeneity chi-square	4.23 N.S.		

We will refer to some results obtained in D. melanogaster and D. subobscura.

Table I and Table II record the actual number of heterogamic vs. homogamic copulations observed during a given time interval (f.i., from 0' to 20', from 21' to 40' ....) and the ratio of heterogamic to homogamic copulations (sexual isolation index) calculated from cumulated values. The heterogeneity chi-squares are calculated from non-cumulated values.

It appears that the coefficients of sexual isolation do not fluctuate randomly around some average value but show a significant increase, according to the time of observation. In other words, since females are only inseminated once, active females, i.e., those copulating in the beginning of the experiments, are also more selective.

Reference: Elens, A. and Wattiaux, J.M., 1964, Direct observation of sexual isolation DIS 39: 118-119.