of Cy/L, Cy/+, L/+ and +/+ genotypes differed widely and in various manners from the expected 1:1:1:1 ratio. In spite of this diversity, the individual genotypes behaved in some respects similarly, e.g., the highest mean relative viability was ever found in the Cy/+ class. There was, thus, a general tendency of studied natural second chromosomes to be heterotic in viability at least when they were combined with the Cy chromosome.

Table 1. Correlation coefficients (r) of relative viability calculated between the relative viability of +/+ homozygotes and the cumulated relative viability of heterozygotes Cy/+ and L/+ in population samples H, B and M.

Population sample	r ± s	P
H	-0.9392 ± 0.1212	<0.01
B	-0.9482 ± 0.1153	<0.01
M	-0.9653 ± 0.0922	<0.01

If correlations were studied between the relative viability (expressed as chromosome subpopulation means) of +/+ homozygotes and corresponding cumulated relative viability of both heterozygotes, Cy/+ and L/+, high negative values of correlation coefficients significantly differing from zero were found (Table 1). This finding was unexpected. The theorem resulting from classical studies in maize (Jenkins, 1929; Hayes and Johnson, 1939) that the "performance" of genotypes when combined with a "tester" genotype is positively correlated with the "performance" of corresponding "pure" genotypes was not proved here. Evidently, more complicated relations take place if "pure" and "combined" genotypes develop in close mutual contacts as it is realized in a viability test. Wallace (1956) suggested that in these tests specific interactions may exist between larvae of different genotypes during their development and that alterations in the viability of one class may interfere with the relative viabilities of other classes. It is not excluded that the mentioned negative correlation was caused by similar "specific interactions", of course, of competitive character which can substantially change "ideal" ratios determined by "net" viabilities. For this reason, the values of relative viability estimated in a viability test have to be taken as resultants of "net" viability and of the above interactions.

References: 1. Hayes, H.K. and I.J. Johnson, 1939 J. Am. Soc. Agron. 31: 710-724; 2. Jenkins, M.T., 1929 J. Agr. Res. 39: 677-721; 3. Wallace, B., 1956 J. Genet. 54: 280-293.

Kuroda, Y. National Institute of Genetics, Misima, Japan. Effects of various sera and insect blood on the growth of embryonic tissues from D. melanogaster in culture.

To obtain the luxuriant growth in culture of embryonic tissues from the Oregon strain of D. melanogaster, the author has been searching for the supplementation of some macromolecular substances from various natural sources. Dechorionated and surface-sterilized eggs at the time of gastrulation (4 hours after egg laying) were torn into small fragments in balanced salt solution. These fragments were explanted on the glass surface of the culture bottles, incubated in salt solution for 60 minutes, and cultured in the chemically defined medium K-6' (1,2).

Supplementation to medium K-6' of sera from various sources and at various concentrations were examined to obtain better growth of cells under these conditions employed. The results are shown in Table 1.

Table 1. Effects of concentrations of serum on the growth of Drosophila embryonic tissues in culture.

Serum	No. of explants tested	No. of explants in which growth was observed	Percent growth
Calf serum, 3%	16	2	13
5%	19	7	37
10%	34	28	82
20%	5	1	20
Fetal calf serum, 10%	33	2	6

Supplementation of 10% calf serum was found to be the best among sera from various sources and at various concentrations examined.

Effects of silkworm blood on the growth of embryonic cells were also examined in the presence of 10% calf serum. The results are shown in Table 2.

Table 2. Effects of silkworm blood on the growth of Drosophila embryonic tissues in culture.

Source of blood	No. of explants tested	No. of explants in which growth was observed	Percent growth
Control	16	12	75
5th instar larvae, 5%	15	3	20
5th instar larvae, 10%	22	7	32
pupae, 10%	27	3	11

The addition of heat-treated blood collected from fifth instar larvae or pupae of silkworm exhibited no growth improvement in the culture of embryonic Drosophila tissues.

References: 1. Kuroda, Y., 1969 Japan. J. Genetics 44, Suppl. 1: 42; 2. Kuroda, Y., 1970 Exp. Cell Res. 59: 429.

David, J. and J. Bouletreau-Merle. University of Lyon, France. Two levels of egg retention in the genital tract of Drosophila females.

In Drosophila, egg production is controlled by vitellogenic activity, frequency of egg chamber resorptions and retentions. From the study of the relationship between daily egg production and frequency of females with an egg in the uterus, it is concluded that retentions may be initiated at two levels of the female reproductive system.

The results obtained for normally fed, mated or virgin females are plotted on the figure. In spite of a rather significant variability, it appears that the points correspond to an increasing convex curve. So the time spent by each egg in the uterus is quite stable and the variations in fecundity correspond to variations of the duration of absence of intra-uterine egg. Of particular interest is the fact that results for virgin females appear to be

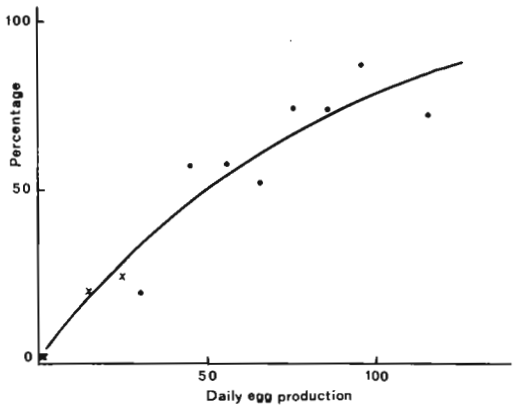

Figure: Relation between daily egg production and percentage of females with an egg in uterus (●: mated females; x: virgin females)

distributed on the same curve as those from mated females. From other studies (Merle and David, 1967) it is known that many stage 14 oocytes are observed in the ovarioles of virgin females. Therefore, this retention takes place in the ovarioles, not in the uterus.

Intra-uterine retention is observed when females are not offered a suitable site for egg laying. For example, properly fed, mated females were given only an agar medium for oviposition. In these conditions, the mean daily fecundity was only 2 eggs, but more than 80% of the females contained an egg in their uterus (data from Mrs. Van Herrewege, 1970). Of course, in such eggs, embryonic development begins and cases of viviparity are observed (see also King, 1963).

In conclusion, retentions may be initiated at two levels. 1) In the uterus, when the conditions for egg laying are unsuitable. This retention involves the oviposition behavior and is probably controlled by the central nervous system.

2) In the ovarioles, when females are not mated. This retention corresponds probably to a lack of ovulation; that is, an absence of contraction of the wall of the ovarioles. Its determinism is not yet known.

References: King, R.C., 1963 D.I.S. 38: 96; Merle, J. and J. David, 1967 C.R. Acad. Sci. Paris 234: 2028-2030; Van Herrewege, J., 1970 C.R. Acad. Sci. Paris 271: 108-110.