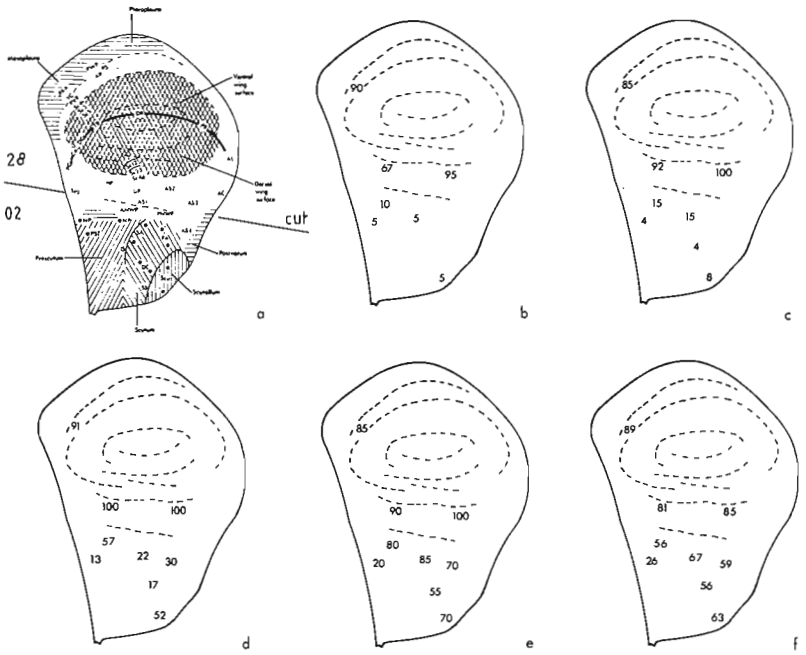

Fig. 2. (a) Fate map of wing disc (after Bryant 1975). Markers used in this study: ANWP, anterior notal wing process; AP, axillary pouch; AS, axillary sclerites, first, second and third; PCO, MCO, and DCO, proximal, medial and distal costa; DC, dorsocentral bristles; HP, humeral plate; NP, notopleural bristles; PS, pleural sclerite; PWP, pleural wing process; PA, postalar bristles; PAA, prealar apophysis; PST, presutural bristles; PVR, proximal ventral radius; TR, OR, and PR, triple row, double row and posterior row of wing margin hairs; Scu, scutellar bristles; Sc4d and Sc25, group of 4 and group of 25 sensilla campaniformia on the dorsal radius; SA, supraalar bristles; Reg, tegula; UP, unnamed plate; YC, yellow club. For rest of abbreviations see Bryant 1975. (b) Frequency of presence of pattern elements in disc fragments cultured for one day. The frequencies of 3 unregenerated markers are given in the 28 piece to contrast with the frequency of markers in the regenerating 02 region. (c) Two-day culture periods. (d) Three-day culture periods. (e) Four-day culture periods. (f) Five-day culture periods.

the five day implants all pattern elements of the notum appeared less frequently than in the four day pieces, with the exception of the presutural bristle which now appeared in 26% of the implants.

Using statistics we were able to conclude that the sequence with which the bristles reappeared was: (1) notopleurals, (2) supraalars and scutellar bristles, (3) presuturals, postalars and dorsocentral bristles. It should be noted that presutural bristles are not included in the figures since they are often not differentiated in the controls (Table 1).

During regeneration the cells respond to positional cues which are set up in the growing tissue mass and these in turn define which part of the regenerate the cells will make. Initially there are not enough cells to regenerate the entire thorax and cells must decide which pattern elements to differentiate first. One might have expected a simple sequence beginning close to the cut surface and moving towards the edge of the fate map of the disc until the pattern of the thorax is complete. It appears, however, that regions close to the cut edge, notopleural and supraalar bristles, and those furthest from it, scutellar bristles, are re-established first in the regenerating disc and the remaining structures are then intercalated.

Reference: Bryant, P.J. 1975, J. exp. Zool. 193: 49-78.

Jenkins, J.B. Swarthmore College, Swarthmore, Pennsylvania. Paternal age and mutagen sensitivity.

This study was undertaken to ascertain whether the chronological age of Drosophila males was a factor in the sensitivity of germ cells to ethyl methane-sulfonate (EMS) mutagenesis. Ore-R males of different ages were fed EMS (40 mM for 8 hours) by the Lewis technique, then mated individually to 2 day old ed $dp^{ov'}cl$ virgin females. The F_1 from post-meiotic male germ cells only (first 6 days of mating) was scored for dp mutations. As can be seen in this preliminary analysis, 27 day old males are substantially more susceptible to EMS mutagenic action than 2 day old males. The basis for

No. of males	Male age (days)	F_1 scored	dp mutants	Frequency (%)
36	2	7156	40	0.56 ± .03
23	27	5050	54	1.07 ± .04

the increased susceptibility to EMS mutagenesis by aged males is unknown, but may be due to depressed error-free repair functions which normally deteriorate with age.

Kaidanov, L.Z. and E. Huguto. Dept. of Genetics & Selection, Leningrad State University, USSR. Studies on genetic possibilities of inbred stocks of Drosophila.

This work was aimed at discovering genetic consequences of long-term selection on sexual activity. The concentration of mutations to viability has been studied for selected stocks of flies. We used the following stocks: LA (low activity) and HA (high activity), produced from the former by reverse selection. Both of these have been maintained by closed inbreeding during about 300 generations. After 261 generations lateral branches were founded, which were selected for increasing a number of abdomen bristles. In contrast to HA the LA selection was very effective. There were also some differences between the stocks. The rate of LA and its lateral branches' semi- and sublethal mutations was higher (55-65% for 2 chromosome). When the selection of LA was stopped, the result was gradual clearing of the stock from mutation load. There was no equal distribution of harmful mutations among the LA genome; they have been concentrated in chromosome 2. The reasons for their accumulation were artificial selection and increased rate of spontaneous mutations (Gorbunova and Kaidanov 1975; Kaidanov 1979). The latter probably also was a result of previous selection. The mutable loci have been localized (Kaidanov 1979).

References: Gorbunova, V.N. and L.Z. Kaidanov 1975, Genetika (Russ) 11:9; Kaidanov, L.Z. 1979, Z. ob. biol. (Russ) 40:6.

Kaplin, V. and L. Korochkin. Institute of Cytology & Genetics, Novosibirsk, USSR. Histochemistry of the tissue distribution of some enzymes during the development of D. melanogaster.

Using histochemical methods we investigated the tissue distribution of some enzymes at the different stages of development in D. melanogaster. Two stocks, Canton S and In(3LR)D/Sb with the complicate inversion on the 3rd chromosome, have been investigated. Embryonic material was synchronized according to Delcour (1969). Two special methods of preparation of sections for the histochemical staining were elaborated by us.

First method: (1) Washing of eggs in some portions of distilled water. (2) Treatment by 2.5% glutaraldehyde prepared using Hanks solution with the addition of a substrate for a corresponding enzyme, at 4°C.

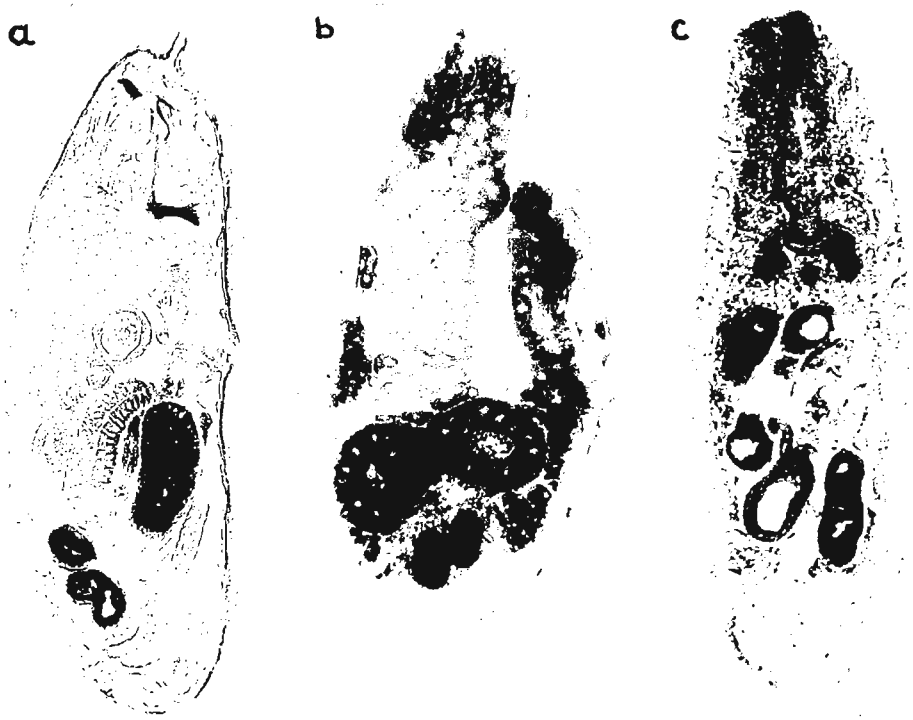

Fig. 1. Sections which were stained histochemically. (a) Alkaline phosphatase; embryo 22 h. (b) Esterase; embryo 22 h. (c) Malic acid; embryo 24 h.