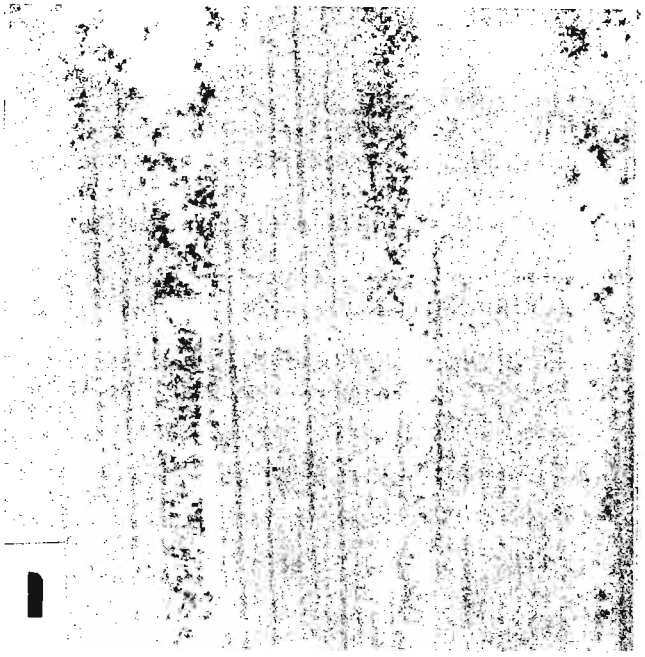

Fig. 1. Electron micrograph of a longitudinal section of the "A" region of prepupal muscle from a heterozygous normal prepupa of the ar/eyD stock. Note straightness and clear definition of fibrillar organization. X18,600.

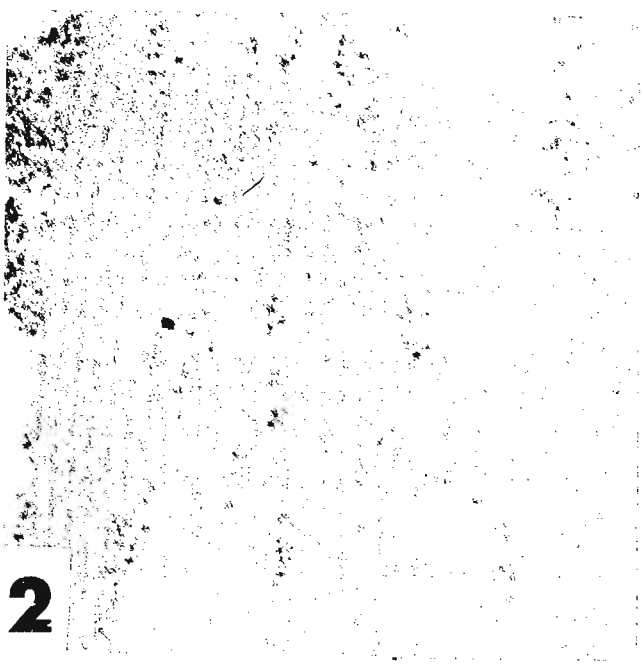

Fig. 2. Electron micrograph of a longitudinal section of the "A" region of muscle from a homozygous "rotated" prepupa of the ar/eyD stock. Note the irregularity and diffuseness of fibrillar organization. X18,600.

described by the writer (1980). This paper showed an enlargement of the "I" regions and a narrowing of the "A" regions in the mutant prepupal muscles. However, at the magnification printed, the fibrillar disruption of the narrowed "A" region was not clearly delineated.

When electron micrographs of the "A" region were enlarged to 18,600X magnification, the fibrillar differences between the normal muscles (Fig. 1) and the mutant muscles (Fig. 2) are clearly recognizable. Straight and evenly spaced fibrils characterize the normal muscles, while the muscles of the "rotated" prepupae show lack of straightness and definition which characterize the musclesof the "normal" pupupa. It is believed that this ultrastructural fibrillar disorganization is what accounts for the puparial abnormalities described by Marengo & Howland (1942).

References: Beliajeff, N.K. 1931, Biol.Zbl. 51:701-709; Marengo, N.P. & R.B. Howland 1942, Genetics 27:604-611; Marengo, N.P. 1980, DIS 55:94-95.

Marinkovic, D. & M. Milosevic. Institute for Biological Research, Belgrade, Yugoslavia. Mobility of D. subobscura flies with different rates of their embryonic development.

Using a large number of D. subobscura flies for parental generation (F_1 progenies of wild flies caught at the coast of north Adriatic), we succeeded to collect about 700 of their eggs, in two hours. Two groups of hatched larvae were separated, with extremely fast (24-35h) and extremely slow (55-65h) embryonal development. Further development continued under the same laboratory conditions, i.e., at 19°C, RH 60%, cca. 60 larvae per 150cc bottle, with two replicas. Adult flies grown from larvae with fast or slow embryogenesis were tested for their mobility, using Kekic's maze for the measurement of phototaxic preference, but under the absence of light (Kekic 1981).

Table 1. Distribution of D. subobscura flies with fast (FE) and slow (SE) embryonic development, in Kekic's maze (N=103).

	c h a m b e r s				
FE flies: after	I	II	III	IV	V
2.5 minutes	52				
13.0 minutes	51		1		
20.0 minutes	49	2	1		
SE flies: after					
2.5 minutes	40	4	3	1	3
20.0 minutes	26	4	13	11	6

$X^2_{FE/SE} = 27.94$; $p < 0.001$.

When 52 flies with extremely fast embryonal development were introduced into one of peripheral chambers of Kekic's maze, only three of them migrated after 20 minutes to neighbouring chambers. The flies with the slowest embryogenesis (N=51), however, have shown quite opposite behavior. Already after 2.5 minutes eleven of them left the starting chamber, and after 20 minutes about two thirds of them spread out to all other chambers, exposed to approximately the same environmental conditions (t°, RH, absenct of light). By denoting the chambers with the numbers from 1 to 5, the average migratory success for flies with "fast embryongenesis" (FE) was only 1.08±0.04, and for those with the "slow embryogenesis" (SE) it amounted to 2.71±0.12, i.e., it was significantly higher.

The same two groups of flies (N=44 and 47, respectively) were compared for their preference of different light intensities, in a scope from 2 lux (1st chamber) to 7,000 lux (5th chamber). Using 60 minutes for each of two runs, the differences between FE and SE flies was not determined in this respect.

The correlation between the rates of embryonal development and mobilties of grown flies under the same laboratory conditions, should be an indication of important variability in genetico-physiological homeostasis of D. subobscura individuals. Further studies of such phenomena could be quite important for our better understanding of developmental adaptations, and especially of balancing mechanisms which maintain the coadaptive systems of genes.

Reference: Kekic, V. 1981, DIS 56:178-179.

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Developmental Profile and Tissue Distribution of alcohol dehydrogenase.

We present in this report a picture of the expression of alcohol dehydrogenase in D. melanogaster. Our results are, in general, in good agreement with the studies of Ursprung et al. (1970) but are more detailed in some respects.

The level of ADH was determined by activity measurements (Maroni 1978) in crude extracts of dissected tissues or whole individuals of different ages. Eggs from several thousand Samarkand flies were collected in a population cage. Newly hatched first-instar larvae were then transferred to yeast-supplemented corn meal-molasses culture medium at a density of approximately 100 larvae per 236 ml (half-pint) bottle. In most cases the medium contained the dye bromophenol blue at a concentration of 0.05% as an aid to estimating the time of pupation (see Maroni & Stamey in Technical Notes, this issue). Larval age was measured from the first-instar hatch (+/- 30 min); pupae were timed from the formation of the white pupa (±30 min or ±3 hr) and pharate adults from the time of emergence (±1 hr). While aging, adults were transferred to fresh bottles every two days.

Individuals at given stages in development were pooled in groups of three to five organisms and immediately frozen for assay at a later time. All assays of pharate adults were done on males. Dissections were done in ice chilled Drosophila saline. Organs were frozen in groups of five in microcentrifuge tubes. Homogenates were prepared in the same tubes with a conical teflon pestle in 0.2 ml of buffer. An ADH unit is the amount that will reduce one micromole of NAD per minute. Activity is expressed as units per individual or per organ.

ADH LEVELS DURING DEVELOPMENT: ADH activity in Samarkand individuals (a highly inbred line homozygous for the fast allele) is shown in Figure 1. Each data point is the average of three or more assays, the vertical bars are standard deviations. The time scale is a composite axis; several hundred first instar larvae were collected within one hour of hatching and samples were frozen at specified times during larval development. Except for the earliest pupal sample (white pupae) which has an asynchrony of ±0.5 hr, pupal development was timed as follows: all individuals that reached pupariation within a six-hour period were transferred with a wet brush to a new containe and pupal age was measured from the mid-point of this