

Ander, Georges Pleiotropic effect of lozenge clawless.

The lozenge-clawless ( $lz^{cl}$ ) mutant which affects the size, color, and structure of the eye, and implicates reduction of claws in both sexes and in females the loss of parovaria and spermathecae, also effects a considerable reduction of the third antennal segment. Histologically a certain type of thin-walled blunt hairs (possibly sensilla basiconica) were found mostly lacking. More accurate investigations involving differences between the alleles  $lz^{cl}$ ,  $lz^s$ ,  $lz^{34k}$ ,  $lz^{46f24}$  and  $lz^g$  and their compounds are in course.

Anders, Georges Pleiotropic pattern of the lozenge-mutant in D. pseudoobscura.

Investigations on pseudoobscura lozenge showed the pleiotropic pattern to be very similar to that of melanogaster. The eyes, claws, and antennae are affected by reduction. In females the spermathecae and parovaria are lacking. Owing to this great similarity in the pattern of gene action a homology of these genes can be postulated.

Asahina, Kazuo Studies on the Taxis of D. melanogaster.

It seems highly probable that the behavior of D. melanogaster is controlled by the phenomena of four fundamental taxises: phototaxis, chromotaxis, negative geotaxis, and negative aggro-taxis. In this investigation the relation between these taxises and behavior was studied. The experiment on chemotaxis, one of the important factors responsible for the matter, has not yet been performed. The results obtained in experiments in which temperature was  $25^{\circ}\text{C}$  are as follows.

1. Phototaxis (investigated by light within the limits of 1,000 Lux): Males and females show similar positive responses. Response of taxis becomes stronger in accordance with intensity of stimulus of the light, and it reaches a constant level after 30 minutes of irradiation. The animals also show strong responses under green color, the complementary color of red, and white illumination, whereas a weak response is observed under yellow color, the complement of blue. But under orange illumination they show a negative response.

2. Chromotaxis: In general, the taxis appears strongly by the light of long wave and weak by short wave. It appears also strong by green and weak by yellow. This taxis is similar in males and females, and also shows constant reaction after 30 minutes of irradiation.

3. Negative Geotaxis: The flies begin to fly up lively by the illumination of every color when they are changed an angle from horizon. This reaction becomes maximum during the first 5 minutes and decreases afterwards. The animals show the strongest responses under green light at  $45^{\circ}$  and under red at  $90^{\circ}$ , but do not show any difference under the other colors.

4. Negative Aggro-taxis: It is observed in test tube that the individuals migrate from dense part to that of scattered under the illumination of every color. This phenomenon is increased under light of red, green, and orange, while it is comparatively weak under blue and yellow light. These responses appear considerably quick and both males and females show the same reaction. These experiments show that the similar inclination exists between the cooperative effects of green and red and those of yellow and blue. The behavior of the flies, therefore, does not always consist with the approximation of the wave length and this phenomenon is worthy of note.