

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  $25^{\circ}C$  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.

The present author is now investigating the interrelation of intensity of these taxises, and that between the taxis and ovulation or sex ratio.

Basden, E. B. *Drosophila*  
in Scotland.

During 1950-51 a survey of the *Drosophila* fauna of Scotland produced the total of 18 species listed below. Those marked with an

asterisk are new to the British list, while some of the others are recorded for the first time from Scotland.

1. *D. subobscura* Collin. Common and widespread. An out-of-doors species that only exceptionally enters buildings. It is most plentiful in and near woodlands, though it is the only species that can be expected in wide open spaces remote from trees. (moorlands, etc.)
2. *D. obscuroides* Pom. Widespread but not as frequent as (1). Does not enter buildings, and keeps to wooded areas.
3. *D. tristis* Fall. Has a widely scattered distribution but is only infrequently met with. My most northerly record is Lat.  $57^{\circ}53'$ .
4. *D. ambigua* Pom. Found as yet at only 4 or 5 places up to Lat.  $57^{\circ}36'$ .
- \*5. *D. sp. nr obscuroides* (new species) Has long bristles on each ovipositor plate. Quite common in 1951 at apple baits. Not yet caught north of Lat.  $57^{\circ}56'$ . This is a purely woodland species. Adults soon die in the laboratory unless fed with honey water. Many attempts to maintain stocks have failed, though ones and twos can be reared on *Drosophila* medium and fermenting fruits.
- \*6. *D. guyenoti* Burla. Fair numbers are attracted to apple baits, but it is not a common species and has not been trapped north of Lat.  $57^{\circ}$ .
7. *D. funebris* Fabr. This is the commonest species inside buildings, though it is also plentiful outdoors, but so far has not been met with north of Lat.  $57^{\circ}36'$ .
8. *D. busckii* Coq. As yet found occasionally in the eastern part of Scotland up to Lat.  $56^{\circ}44'$ .
9. *D. melanogaster* Meig. This will almost certainly be found in many more built-up areas but so far has not been found by me above Lat.  $56^{\circ}34'$ .
- \*10. *D. simulans* Sturt. This has been found on two occasions, in 1950 at Liberton, near Edinburgh, and in 1951 at Inverkeithing, across the Firth of Forth from Edinburgh.
11. *D. phalerate* Meig. This is the commonest toadstool species but occurs frequently at apple baits. It will probably be found wherever the larger fungi occur, but the most northerly record at the moment is Lat.  $57^{\circ}36'$ . This and the next two species (12, 13) breed but reluctantly on *Drosophila* medium.
12. *D. transversa* Fall. This can be bred from various ground fungi in large numbers but is very rarely attracted to fruit baits, even outside the fungus season (July-October). It has not yet been found north of Lat.  $56^{\circ}26'$ .
13. *D. pallida* Ztt. (= *unistriata* Strobl, *teste* Duda 1935) The eggs of this species can often be found embedded in the flesh of fungi. The adults will go to apple bait during the winter months. I have not yet found it beyond Lat.  $56^{\circ}18'$ .
14. *D. immigrans* Sturt. This occurs commonly in a fruit store in Edinburgh and will doubtless occur in similar places elsewhere in Scotland.
15. *D. sp. (repleta* group, near *bifurca* P&W) This has been collected in a house in Brechin, Angus.
16. *D. fenestrarum* Fall. This has been caught a few times around Edinburgh.
17. *D. (Parascaptomyza) disticha* Duda. A few specimens have been found in windows and amongst garden herbage in the southern part of Scotland. It will breed copiously in *Drosophila* medium.
18. *D. sp.* One specimen at apple bait at Coldbackie, in the extreme north.