

Brändle, E. and E. Hadorn. Zoologisches Institut der Universität, Zürich, Switzerland. Cell numbers in adult corpora allata of *Drosophila melanogaster*.

adults. In each of the 12 sex-age groups, 4-12 counts were made. No significant differences between sexes or age-groups were found. The numbers varied between 12 and 22. Mean:  $15.31 \pm 0.189$ .

*Corpora allata* were fixed in alcohol-acetic acid and stained in toto with gentian-violet. Numbers of cells were determined for glands of inseminated females, virgin females and males at 1, 2, 4 and 8 days after hatching of the

Ditman, W. F. Purdue University. Observation of *D. melanogaster* behavior.

The following observations were made while developing an apparatus and an experimental procedure for testing depth perception preference in *D. melanogaster*. General testing

procedure: Flies were released into the apparatus, 50 at a time from a clean, half-pint culture bottle. They were given 30 seconds to respond to the visual stimuli. Then the trap doors of the collecting chambers were closed and the flies were removed with an aspirator and counted. For details of the apparatus and procedure see: An Improved Method for Determining Visual Depth Preference in Large Numbers of *D. melanogaster*, this newsletter.

#### Experiment One: Effects of Ether on Flying Behavior

Flies used were wild stock (CS-200), kindly supplied by Dr. A. B. Burdick. The apparatus was specifically designed to admit light only through the ceiling. Yet, despite their positive phototropism and negative geotropism, less than 50 percent of the flies could be induced to ascend the inside (27") of the box to the ceiling. During preliminary work on depth preferences, the flies were etherized for counting out lots of 50.

A review of the preliminary data collected suggested that etherizing affected the flying behavior of *D. melanogaster*. In a test of this hypothesis, 400 flies were divided into groups of 50. Counting for this and all subsequent experiments was done by letting flies crawl singly through a narrow tube into half-pint bottles. The eight bottles were then arranged into an ABBA ABBA order in which all "B"s were etherized very lightly. The flies were tested in the same counterbalanced order six hours later.

Table 1

<u>Group</u>	<u>No. Released</u>	<u>No. Flew</u>	<u>% Flew</u>	<u>X<sup>2</sup> Obs.</u>
Etherized	197+	86	45.6	10.62**
Un-Etherized	206+	158	76.7	

+No. deviates from 200 because of miscount in dividing flies into groups of 50 each.

\*\*significant at the .01 level of probability.

The Chi Square value of 10.62 is significant at the .01 level of probability, indicating a difference in the behavior of etherized and un-etherized flies.

Conclusion: Flies that have been etherized even lightly and then given adequate time to recover show a significantly lower propensity for flying when given the opportunity than un-etherized flies. This phenomenon may be readily observed by placing an un-etherized group of flies into a clean dry culture bottle and an etherized group into a second bottle. After the flies have had time to recover the un-etherized flies will be observed crawling about their bottle with greater vigor than those in the other group. If the lids are removed more of the un-etherized flies will escape.

Curiously, it was noted that at certain times the drawing of the hand down along the side of the culture bottle stimulated the flies to rush up the inside of their bottle. When the hand was drawn up the sides of the bottle, the flies would circle the inside of their bottle. This phenomenon is most pronounced when flies are used which previously had been lightly etherized. Flies that had been heavily etherized were sluggish and did not respond. Un-etherized flies, on the other hand, were so responsive that almost any stimulus caused