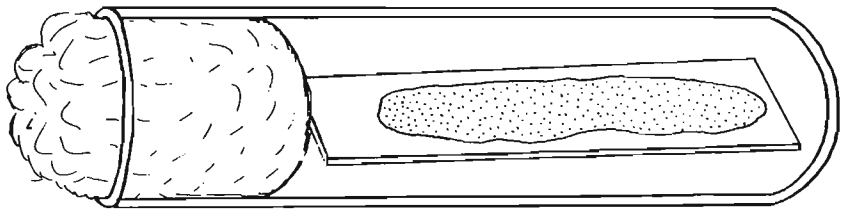
David, J. and M. F. Clavel. University of Lyon, France. A new method for measuring egg production without disturbing the flies.

For metabolic studies on Drosophila adults, egg production appears to be the most easily measured character. As a consequence, a large number of references, describing various techniques for determining the daily egg production, are to be found in the literature. All these methods have some common features, particularly the necessity of frequent renewals of the food, which also serves as a site for egg deposition.

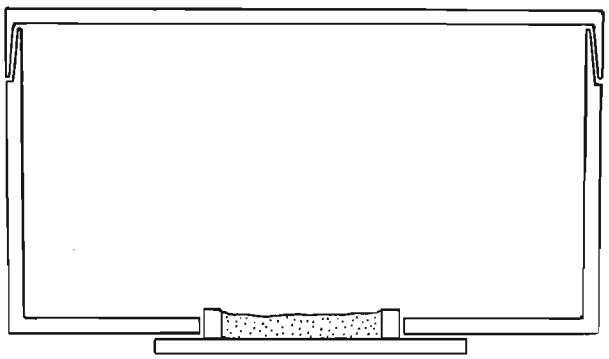
A



For many years we have used a method which is illustrated in Figure A. The flies are kept in a glass tube (11 x 3 cm) closed with a cotton plug. The food is deposited on a glass slide which is introduced in the tube and maintained by the plug. This method has the following inconveniences:

- it is necessary to shake the tube when changing the food, to prevent the flies from flying out
- when introducing a new slide, some flies may be crushed
- the thickness of the food is irregular and its area variable
- the food usually begins to dry near the plug

B



In order to overcome these deficiences, a new method has been worked out. The flies are put into a box of plastic material with a circular hole in the bottom. The food is placed in a small round plastic recipient (4 mm high) exactly fitted to the opening of the cage (see fig. B). The advantages are:

- the possibility of changing the food without disturbing the flies
- the constancy of the food area
- the smaller dessication of the food due to its greater thickness
- the greater volume available to the flies, giving them the possibility of small flights and allowing them a more normal behavior.

Some experiments were performed to compare the results given by the two methods. With the plastic cages, two food areas were studied. The fecundity was always measured on groups of 4 females and 5 males. The results, summarized in the following table, are presented in two ways:

- the maximum daily egg production (average of the daily output from the 4th to the 9th day)
- the total egg production per female during its first 10 days of life.

method	food area (cm^2)	maximum daily egg production	total fecundity to 10 days	number of experiments
glass tube	10	85.7	739.2	4
plastic cage	9	83.2	721.0	4
plastic cage	4.5	84.6	726.6	5
mean		84.5 ± 2.02	728.8 ± 20.1	

Variance analysis shows that there are no significant differences between treatments. So it may be concluded that an area of 4.5 square cm is sufficient for egg deposition of 4 females.

It was also of interest to compare the frequencies of loss of flies with both methods. For this it was possible to pool a larger number of experiments. The data, concerning the proportion of flies still under test on the 10th day, are the following:

	female	male
glass tube	94.5% (n - 92)	87.8 (n = 115)
plastic cage (small area)	97.7% (n = 86)	99.0 (n = 105)

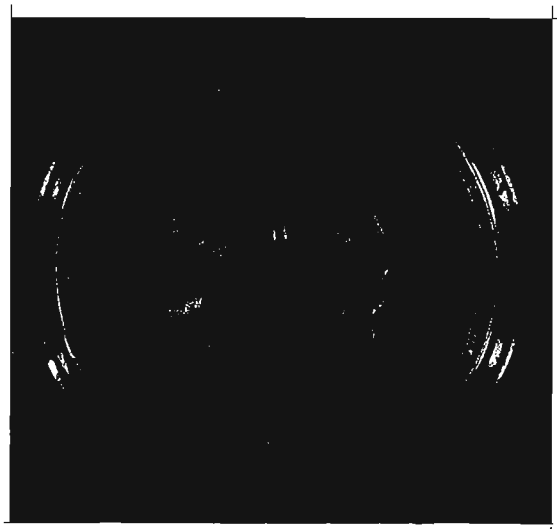
It appears that the new method affords greater safety by preventing the flies from escaping.

Because of its above mentioned advantages, the plastic cage technique (with small area of food) is now preferred. It is also worth emphasizing that this method allows new types of experiments, for example, food preference studies.

Gottlieb, F. J. and B. Langer. University of Pittsburgh, Pittsburgh, Pennsylvania.

A device for holding alcohol preserved specimens during microscopic examination.

Scoring morphological traits, such as bristle numbers, on alcohol preserved Drosophila requires a means of holding and orienting the submerged specimens without damaging them. A simple device has been used successfully in our laboratory. A clean, dry Syracuse watch glass (50 mm ID) is filled with hot dental wax (SHUR Pink Base Plate Wax). When the wax has cooled, a concave depression 25mm in diameter and 7-10 mm deep is excavated. The brush and metal collar of a size 2 or 3 red sable watercolor brush (Grumbacher "Showerproof") is removed from the wooden shaft all but about 12 mm of the metal is removed. This brush is then inserted horizontally metal end first, in a hole, made with a hot wire, in the side wall of the depression and sealed in place (see photograph). The bristles should touch the bottom of the depression so that no animals will fall under the brush.



To use, the depression is filled with alcohol (or other preserving fluid). The specimens are oriented by gently entangling them in the brush hairs and are thus held firm for examination under the dissecting microscope.