McCune, Thomas. University of Hawaii, Honolulu, Hawaii. Electrophoresis of α-amylases of Drosophila melanogaster.

A method for agar gel electrophoresis has previously been described by Kikkawa (Jap. J. of Genetics 39:401-411). Doan (DIS 41:192) gives another technique using acrylamide gel electrophoresis which allows the relative activity of the various amylase bands to be measured. The method described here has the advantage of being simple and permits large numbers of single flies to be tested for their banding patterns in a relatively short time. This system employs a 7% cyanogum gel in a horizontal electrophoresis setup.

The buffer and electrolyte for this technique is described by Ashton (Aust. J. Biol. Sci. 18:665-670). The electrolyte consists of 0.75 gr. lithium hydroxide and 11.8 gr. boric acid per liter of solution. The buffer consists of 90 parts of a solution containing 1.6 gr. citric acid and 4.8 gr. tris(hydroxymethyl) aminomethane per liter and 10 parts electrolyte. To polymerize the gel, 1.25 ml. of a 10% solution of ammonium persulfate and 0.3 ml. of N,N,N',N' tetramethylethylene diamine is added to 150 ml. of the 7% cyanogum solution. This solution is poured into a plexiglass tray (11"x11-1/4"x1/16") and covered with a glass plate. Polymerization requires about 15-20 minutes. The glass plates may be treated with a siliclad solution to prevent the gel from sticking to them when they are removed after polymerization.

The preparation of the samples is simple and quick. Each fly is ground in a spot plate with a drop of buffer solution. The homogenate is covered with a single layer of Kleenex, and the moisture is drawn into a small piece of filter paper. The filter paper is inserted into a slit cut 3-1/4" from one end of the gel, which is removed after about 15 minutes of electrophoresis. Electrophoresis is run for 2-1/2 hours at 50 ma. It is run in the refrigerator at 4° C. The gel must be covered with handi-wrap to prevent it from excessive drying.

Following electrophoresis, the gel is placed into a 1% soluble starch solution containing a tris-HCl buffer of pH 7.4. It is allowed to incubate at room temperature in this solution for 2 hours. Excess starch is rinsed from the surface of the gel and it is placed into a 0.01 N $I_2$-KI solution for 1-2 minutes. The amylase bands stand out as light bands contrasted against the dark blue background of the gel. It is best to read the gel quickly; however, it may be stored in a 7% acetic acid solution in the dark and under refrigeration. This work was supported by Grant GM 15421 from the U.S. National Institute of Health.

Gooch, James L. Juniata College, Huntingdon, Pennsylvania. A large population cage.

For the geneticist better provided with funds than the time or urge for tinkering, Ward's Natural Science Establishment of Rochester, N. Y. makes an insect breeding cage readily adaptable as a population cage for Drosophila. The cage, measuring 16" x 12" x 10", is constructed of laminated pine panels with large windows covered by fine plastic mesh screen. The sides are held together by hooks and are grooved to receive the floor. The assembly is readily collapsible, but still quite sturdy. If collapsibility is unimportant to the user, he may insure stability by inserting small brads into the corners.

The bottom of the cage is composition board capable of accepting screw-threaded bottles, but careless or prolonged use may widen the apertures. Corks with food-filled plastic vials nailed or fastened to them make more satisfactory food holders.

The cage is priced at $15.50. The geneticist contemplating using several might consider purchasing one and handing it over to the college or university wood shop for replication. With the use of power tools the cages could be fabricated at the rate of several per day.