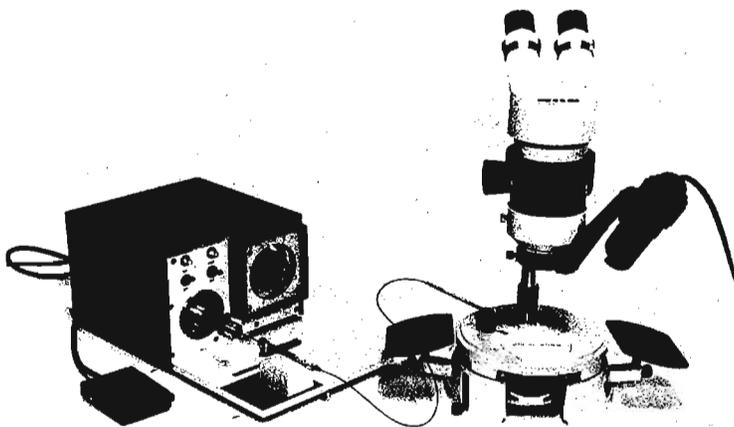


Mollet, P. and F.E. Würgler. Swiss Federal Institute of Technology, Zürich, Switzerland. An apparatus to inject large numbers of *Drosophila* with constant amounts of fluid within a short time.

amount of fluid to be injected is determined by a timer which stops the mechanism after a preselected time interval.

2. Microsyringe TERUMO Typ MSN-100 (Jintan Terumo Company Ltd., Tokyo, Japan). With such a 100  $\mu$ l syringe quantities of 0.1 to 0.6  $\mu$ l can be injected.



The whole microapplication set consists of the following commercially available parts (see illustration from left to right):

1. Microapplicator ISCO Model M (Instrumentation Specialties Company, Lincoln, Nebraska, USA). A foot switch allows one to start a constant speed micrometer syringe drive. The

range of the application quantities can be extended by using syringes of other volumes.

3. Polyethylene microtube ULRICH PE 100 (Ulrich & Co., CH-9000 St. Gallen, Switzerland). In order to obtain a tight connection between the needle of the microsyringe and the polyethylene tube a metal tube of 1 mm outer diameter is placed on the needle of the microsyringe.

4. Micropipette. Capillary tubing (1 mm  $\emptyset$ ) is drawn out by hand or with a vertical pipette puller. The base of the needle must be fire polished.

5. Micropipette holder. Instrument holder of a LEITZ-Micromanipulator (Ernst Leitz GmbH, Wetzlar, Germany). For injection the holder is kept by hand. In the illustration it is fixed for convenience only.

6. Stereo dissecting microscope WILD M 5 or M 7 (Wild Ltd., CH-9435 Heerbrugg, Switzerland).

The injection system (part 2-4) is filled with perliquid paraffin; in order to avoid the formation of bubbles a large syringe containing the paraffin is used to fill the injection system. The test material is taken up into the syringe by reversing the motor of the microapplicator. Depending on the solvent used, a suitable barrier must be used to prevent diffusion of the test material into the paraffin.

The etherised flies are laid on their wings in a row on a slide covered by a double-faced Scotch tape. During injection the abdomen of the fly is held firm with a brush. As soon as the point of the micropipette has been introduced into the abdominal cavity the foot switch is depressed and the fluid is injected automatically. The same microapplication set can be used for injection of larvae and pupae or for topical application.

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