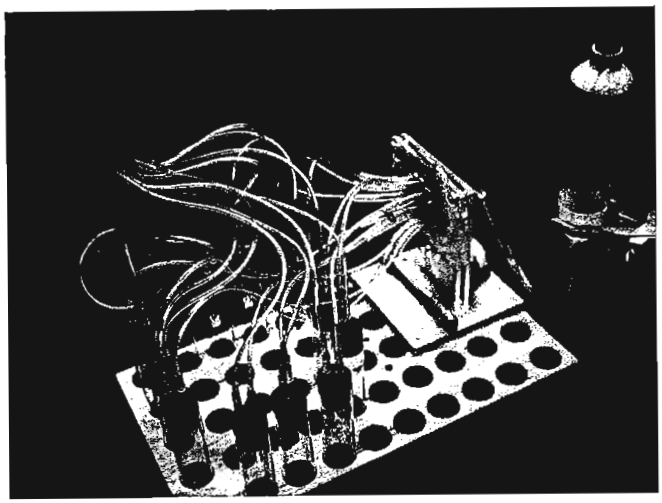
has a ring of twelve 1/4 inch equally spaced holes, each of which is connected by tubing (1/8 inch inside diameter) to one of twelve collecting vials (f). The holes in plate b communicate with the track in plate a by way of a single hole through the geared wheel which permits only one hole in plate b to be open at any given time. Flies from the chimney enter the track in plate a through the single hole in that plate and then are drawn through the opening in the gear wheel to be shunted down one of the collection holes in plate b. There is only one route open at any given hour to a collection vial. The wheel is turned 1/12th revolution every hour by a lever extending from the axle of a small one-RPH electric motor (d). This turning time takes about seven minutes which allows a given vial to be open for the major portion of the hour. All twelve vials are connected to a single vacuum block, but appreciable pressure is present only in the particular vial open to traffic.



Our machines were designed to run unattended for twelve hours. At the end of this period, the collection vials are replaced with an empty set. The flies collected from the preceding block of time can then be counted and sexed for use in prescribed matings. The machine, of course, can be modified to run for longer periods of time by altering the size and numbers of teeth on the geared wheel and the corresponding number of collecting holes in plate b to accommodate the grace period of virginity for the species under investigation or for, perhaps, a specified photocycle in the laboratory.

Supported by NSF-GU-3111-M.

Paika, Inder J. University of Nebraska, Lincoln, Nebraska. Application of air drying technique to the preparation of chromosomes in testes of adult males.

Crozier, 1968 (Stain Technology, 43: 171-173) has described an air drying technique applied to the preparation of chromosomes of Drosophila larval ganglion cells.

His method has been extended to testicular material of adult flies of D. affinis. Adult males were injected with a small quantity of 0.1% colcemide in Bodenstein's solution and after 1½ to 2 hours the testes were dissected out in 1% sodium citrate solution and left there for 15 to 20 min., after which the testes were fixed in freshly prepared acetic-methanol (1:3) for about 30 mins. After fixation the material was put in a drop of 60% acetic acid on a clean warm slide for about 30 seconds. A very small drop of acetic-methanol (1:3) was then added to the dissociated tissue and the slide tilted to regulate spreading and allowed to dry in the air. Staining was done with lactic-acetic-orcein (2gm. synthetic orcein in 50 ml. glacial acetic acid and 50 ml. 85% lactic acid) at 45°C. for about one hour. The slide was then placed vertically in acetic-ethanol (1:3) until the coverslip dropped off. After de-hydration with 95% and absolute ethanol the preparation was mounted in euparal.

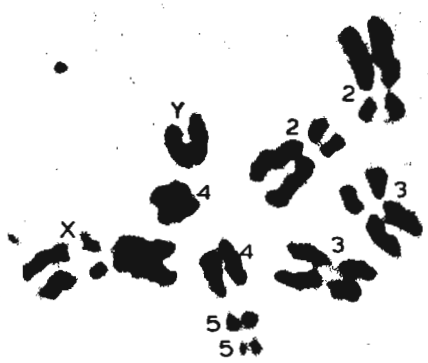


Fig.1. Phase contrast photomicrograph of primary spermatocyte of D.affinis (Chadron State Park, Nebraska) prepared by air drying technique applied to adult testes.