

Grossfield, J. and J. Smith. Purdue University, Lafayette, Indiana. Video taping *Drosophila* behavior.

general applicability for the analysis of *Drosophila* behavior. A TV camera with its lens removed (A in Fig. 1) is mounted vertically on a trinocular dissecting scope. This allows the microscope adjustment to focus the camera. A 10X eyepiece is located in the phototube supporting the camera. A lower power would give a wider field of view. The problems of glare from wings and thorax and heavy shadows can be compensated for by diffusing incident light, placing a set of polarizers in the light path, balancing light with aluminum foil reflectors, and using a deep pile underlay (velvet) on the bottom of the lucite observation chamber. A 1/4 wave plate

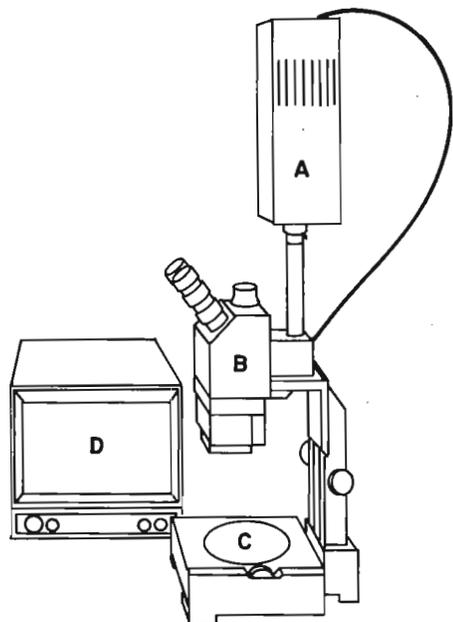


Figure 1. A. TV Camera; B. Dissecting scope with trinocular head; C. Observation Chamber, flat surface; D. TV monitor.

can also be used to cut glare. Any remaining glare can be compensated for by turning down the automatic gain control on both the camera and the monitor. A light coat of vaseline on the inside vertical surfaces of the observation chamber is reasonably effective in keeping the flies from assuming poorly photogenic positions on the corners or walls of the chamber.

For work in the dark a flashlight with a red filter (650 nm cut off, no UV transmittance) is a sufficient light source since the vidicon tube in the TV camera is sensitive to infrared light. IR Image Converter equipment can be used to work with wavelengths further towards that region of the spectrum (RCA laboratories, David Sarnoff Research Center, Princeton, N.J.).

A videotape recorder can be interposed in the system. This yields the capability to stop action at any point in a behavioral sequence and measure distances (angles of body parts, etc.) on the face of the TV monitor during playback. The videotape records can, of course, be stored to form a library of behavioral activities. In the long run this method is less expensive than using and processing 16mm film.

If you have sufficient funds to think about color TV, we'd be glad to hear where you got them.

Zalokar, M. Centre de Génétique Moléculaire, CNRS 91, Gif sur Yvette (France). Fixation of *Drosophila* eggs without pricking.

Carnoy fixative can be used directly and then only if its content of chloroform is higher than in recommended formulas, but this fixation shrinks eggs very badly.

Lipid solvents can penetrate the vitelline membrane, and if they contain a fixative in solution, they can carry it across the membrane. Any fixative which is soluble both in the solvent and in water will diffuse into the ooplasm and partition itself between its aqueous phase and the solvent according to the phase rule. If we want to fix an egg with 50% acetic acid, we should shake the solvent with the acid of this concentration. The solvent will take up the acid at the proper concentration so that the acid entering an egg submerged in the solution will reach 50%.

If we use a solvent which does not disrupt the egg lipids too drastically, we can achieve

In the course of working out some details of the behavior of species that require light in order to mate, it was necessary to ascertain whether or not the beasts made contact with one another in darkness (They do). The system we used has

Because of the impermeability of the vitelline membrane, the usual cytological fixatives can not penetrate the *Drosophila* egg and the egg has to be pricked to facilitate their entry. Only