change from 25° C to −183° C were as follows: serpentine, +517%; prochlorite, +227%; selenite, +129%; graphite, +104%; and halite, −72%.

A Microscope Stage for Continuous Anesthesia of Insects

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Williams (*1*) described a method of continuous anesthesia for insects using carbon dioxide with a Buchner funnel as the anesthetizing cell, the insects being placed in the open depression of the funnel. The Buchner funnel must be mounted flush in the top of a table or used with a microscope having an elevated stage with the funnel fitted to a metal plate which is substituted for the glass stage.

Work in this laboratory requires that small insects such as clothes moths, flour beetles, and mosquitoes be held under continuous anesthesia during experimental manipulation. When operating on small insects, a shallow stage in which the sides of the anesthetizing cell do not interfere with the dissecting instruments is preferred. It is also desirable that the microscope with the stage in place be readily moved to any table for use without an elevated stage. The anesthetizing stage shown in Fig. 1 was designed for use with a Spencer stereoscopic microscope; however, the device can be adapted for use with any similar type of microscope.

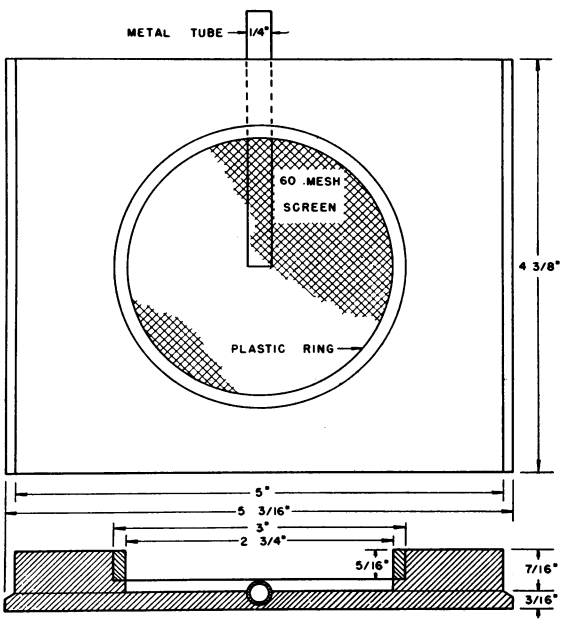

FIG. 1. Plan and cross section drawings of anesthetizing stage.

The stage is made from two plates with the cell cut in the upper plate (see cross section in Fig. 1). The wider lower plate that forms the bottom of the cell slides into the base of the microscope. A hole is drilled between the two plates to receive a metal tube connection for carbon dioxide. The connection opens into the center of the cell in the space between the bottom plate and the screen above. A shoulder is machined around the periphery of the cell opening in the upper plate, against which a disc of 60-mesh screen is held by a tightly fitting plastic ring. If deeper cells are needed for use with larger insects, the height can be increased by using plastic rings which will project as far as necessary above the plate. Steel was used for the plates that form the stage, although aluminum or plastic would have the advantages of lightness and resistance to corrosion from perspiration. The diameter of the cell is larger than the field of the microscope at the lowest magnification; for use at higher magnifications the cell diameter might advantageously be reduced. The stage in place in the microscope is shown in Fig. 2.

FIG. 2. Anesthetizing stage in position in dissecting microscope.

This stage permits convenient experimental micrurgy of small insects under continuous carbon dioxide anesthesia. It eliminates the Buchner funnel, which has been used previously, and has the advantages of not requiring a permanent mounting in a table or the use of an elevated stage for the microscope.

Reference

1. WILLIAMS, CARROLL M. *Science*, 1946, **103**, 57.