

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A ZIPPER TUBE FOR HOLDING SMALL LIVE ANIMALS

THE development of this apparatus resulted from an effort to find a satisfactory method of holding and quieting ground squirrels while marking and measuring their incisor teeth. Such work has sometimes been done with the use of an anesthetic, but it was thought preferable to avoid this factor since it might affect the results. After some preliminary experimentation, the senior author sketched out the following device, which was made by the junior author, and it has been used with much success in handling and weighing both ground squirrels and rats.

The cone-shaped or projectile-shaped tube of strong soft cloth (Fig. 1) should be at least twice the length,

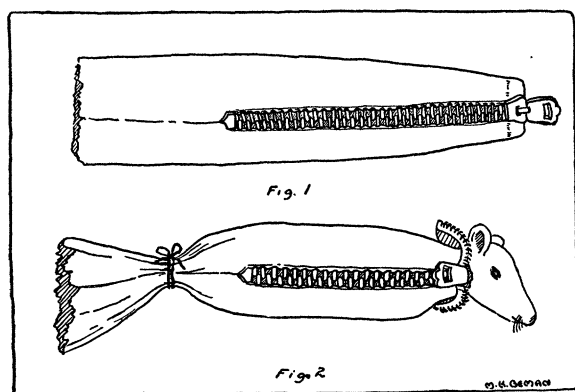


FIG. 1. The closed zipper tube somewhat shortened, with the zipper lock open at top.

FIG. 2. Animal in position in the tube ready for experiment. The zipper lock is closed.

and a third larger in diameter than the largest animal it is to hold. The basal end of the tube is left open and may be kept permanently open by reenforcing it with a ring or a hoop of the necessary size, sewed into a hem around the base. The basal third of the tube is fastened together along the side seam, and a zipper fastener with a patent lock completes the closure of the tube wall to the apex.

The animal can be caught and placed in the closed zipper tube or, by holding the open basal end of the device over the opening of the nest box, the animal may be driven directly into it. The head should be at the apex of the tube, and a reversal of this position may be prevented by tying a string around the tube directly behind the animal (Fig. 2).

To expose the head, the zipper is unlocked, pulled down as far as desired and locked. The apex of the tube wall is then folded back around the neck of the animal like a collar, thus, securely holding the individual and preventing scratching and struggling. One

operator can hold the animal while the other proceeds with the marking and measuring of the teeth.

The weekly weighing of the animal is very easily and quickly done while the animal is in the tube. It can be laid on a common balance, where it remains motionless until weighed.

By variations in the kinds of cloth used, the shape and size of the tube, and other modifications, it is possible to adapt this simple device to several uses. Although we have not yet attempted to use the idea for larger animals we believe that it can be made to work satisfactorily.

It is quite advisable to use the more expensive type of zipper, for it has a locking structure that is quite useful. The zippers are attached to a heavy cloth tape and by this means they are easily sewed to the cloth of the tube.

The authors wish to express to the artist, Miss Mary K. Beman, their appreciation and thanks for the very excellent illustration of the device.

ALBERT R. SHADLE

UNIVERSITY OF BUFFALO

IRENE SKARUPINSKI

A METHOD FOR IMBEDDING PLANT TISSUES WITHOUT DEHYDRATION

EXPERIENCE has shown that many methods of dehydrating plant tissues make them so brittle that it is difficult to cut satisfactory microtome sections. Made-moiselle Larbaud and Professor Zirkle introduced an improvement when they showed that isobutyl alcohol can be used in place of absolute ethyl alcohol. Recently, Dr. L. Genevois, of the University of Bordeaux, directed my attention to the properties of methylal, $\text{CH}_2(\text{OCH}_3)_2$. Since methylal is soluble in water and lipoids, it is a good intermediate between water and oils.

The technique of passing plant tissues from the killing fluid to paraffin may be greatly simplified by the use of this solvent. The plant tissue should be washed in water, as usual, to remove the excess killing fluid. It should then be transferred through the following media into paraffin, holding it for an hour in each reagent.

- (1) Methylal-water mixture 1:1.
- (2) Methylal.
- (3) Methylal which has been dehydrated and neutralized by contact with anhydrous sodium carbonate.
- (4) Methylal-paraffin oil mixture 1:1.
- (5) The tissues are warmed on a water bath and transferred to melted paraffin, which has a low melting point.
- (6) Within an hour the plant tissues should be transferred to the grade of paraffin required for embedding.

The whole process may be carried out within three hours from the first transfer from water to methylal.