readily available. Maximum engorgement of the mosquito may be obtained on virus suspensions when this technique is used, without the complication of loss of virus in developing eggs and oviposition by the mosquito that occurs when blood from infected laboratory animals is used.

SUMMARY. Experiments were conducted with *Aedes aegypti* on blood feeding and on engorgement with non-blood solutions to find a procedure that was both clean and convenient for laboratory use. For this purpose, the chorio-allantoic membrane of chicken egg embryos, after 9 days' incubation, provided an excellent vital membrane suitable for mosquito feeding in administration of blood meals, for egg production and for oral administrations of test chemical solutions.

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PRESERVATION OF MOSQUITOES FOR MALARIAL OOCYST AND SPOROZOITE DISSECTIONS

RONALD A. WARD

Department of Entomology, Walter Reed Army Institute of Research, Washington 12, D. C.

In the determination of malarial infection rates in mosquitoes, sample size is limited by the time and personnel available for the dissection of freshly collected material. Our laboratory uses a freezing technique which enables us to preserve, for periods of at least nine months, large quantities of mosquitoes infected with *Plasmodium gallinaceum*. This permits us to make dissections for plasmodial oocysts and sporozoites whenever time or personnel are available. Freezing techniques have been used by parasitologists (Jeffery and Rendtorff, 1955; Molinari, 1961) for the preservation of malarial parasites in whole blood or mosquito salivary glands. To our knowledge, this procedure has not been applied in the preservation of entire infected mosquitoes for dissection at a future date.

For processing, the mosquitoes are immobilized by chilling in a household refrigerator or by exposure to ether or carbon dioxide. They are transferred to serum bottles (5 ml. or larger, depending on the number of mosquitoes in the sample) containing a small wad of absorbent cotton moistened with water which is added to prevent drying of the mosquitoes. The bottles are capped with sleeve type rubber stoppers. Labels are typed on adhesive plaster and applied to the outside of each bottle. The bottled specimens are stored in a —20° C. freezer until needed for dissection.

The freezing compartment of a refrigerator is also satisfactory as a storage area. If serum bottles are not available, mosquitoes can be placed in a petri dish lined with filter paper moistened with 1 ml. of water. Masking tape is used to seal the dish. Prior to dissection of the stored mosquitoes, a serum bottle is removed from the freezer and is allowed to remain at room temperature for ten minutes before it is opened. The dissection technique is the same as that used with freshly killed material.

The oocysts and sporozoites of *Plasmodium gallinaceum* have been well preserved in their

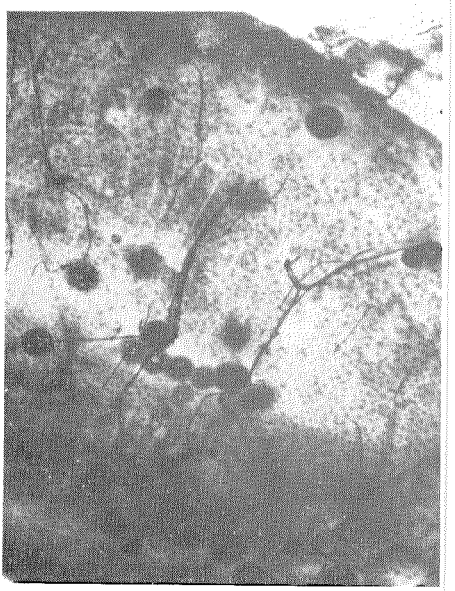

FIG. 1.—*Aedes aegypti* midgut with *P. gallinaceum* oocysts. Prepared from frozen material and stained with methylene blue. x 75

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Aedes aegypti hosts for long periods under these conditions. This is well indicated by Figures 1 and 2 which show photomicrographs of malarial

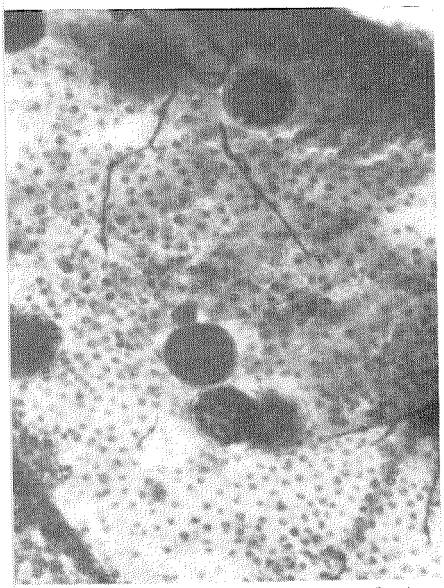

FIG. 2.—Oocyst detail at higher magnification. 150

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oocysts from frozen material. We have found it easier to dissect the gut from specimens preserved by freezing than from freshly killed mosquitoes. Salivary glands are slightly more difficult to remove and the sporozoites have a tendency to adhere to the cells of the salivary glands. However, it has always been possible to demonstrate their presence in infected mosquitoes. In addition to *Aedes aegypti*, we have successfully stored *P. gallinaceum* infected *Aedes taeniorhynchus, Anopheles quadrimaculatus* and *Culex pipiens fallens* at —20° C.

With the use of this convenient procedure malaria workers should be able to collect and process many times the volume of material now being handled.

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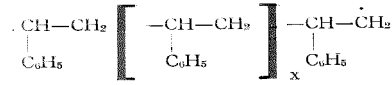
APPARATUS FOR THE TRIMMING OF FOAMED POLYSTYRENE FOR THE USE IN INSECT COLLECTIONS

BY M. TRPIŠ

Department of Zoology, Czechoslovak Academy of Sciences, Biological Institute of the Slovak Academy of Sciences, Bratislava, Czechoslovakia

Small insects, including mosquitoes are often mounted either on angular pieces of the pith of *Sambucus nigra* or *Sambucus ebulus* or on stiff paper by the help of so called "minuten" needles. In an earlier paper [TRPIŠ 1962] we have suggested the use of a plastic material, foamed polystyrene



for the production of these supports, this material being in fairly general use.

The properties of fine porous polystyrene are similar to those of the pith of *Sambucus nigra* and *Sambucus ebulus,* but it is much whiter than the natural product. The whiteness of foamed polystyrene blocks facilitates microscopic observation of insects mounted on them. The esthetic appearance of supports made of this material is also not to be underestimated.

Foamed polystyrene is marketed usually in plates of the size of 50 x 48 x 5 cm. As a consequence of the properties inherent in foamed polystyrene, the manufacture of small blocks from it is difficult. During manual cutting a warping and permanent deformation of the material often takes place, resulting in irregular shapes and untidy blocks, as well as in a very low rate of production. These problems of polystyrene block manufacture are solved by cutting apparatus, as described and figured in this paper.

DESCRIPTION OF THE APPARATUS. The apparatus consists of three main parts: (1) The base plate; (2) the guiding bars; (3) the movable cutting head. For details see Figures 1 and 3.

1. *The base plate.* It is made of a plastic material—e.g., Pertinax. As the apparatus is relatively light, the base plate is provided with four holes for screwing it to the table. The surface of the base plate is covered by an aluminium plate of the size of 162 x 288 mm provided with a groove 1 mm wide in which the cutting knife slides. Under the guiding bars a slide gauge is situated, by the help of which the width of the cut strips is regulated. The rectangularity of the strips is secured by an elevated metal guiding strip fastened to the back side of the apparatus.

2. *The guiding bars.* The guiding bars are mounted on the base plate by the help of two metal supports. The bars serve for the guidance of the cutting head.

3. *The movable cutting head.* On the right side of the body of the cutting head a blade