price of commercially available models, which provide, as a rule, only one testing condition. The device may also be used as a square wave stimulus generator, for nerve and muscle physiology, replacing the glow modulator tube by coupling capacitor and potentiometer to chassis ground.

References

1. SIMONSON, E., and ENZER, N. *J. Indust. Hyg. Toxicol.*, **23**, 83 (1941).
2. SEITZ, C. P. *Arch. Psychol.*, No. 257, pp. 38 (1940).
3. SIMONSON, E., KEARNS, W. M., and ENZER, N. *Endocrinology*, **28**, 506 (1941).
4. ENZER, N., SIMONSON, E., and BLANKSTEIN, S. S. *Ann. Internal Med.*, **15**, 659 (1941).
5. *Ibid.*, **16**, 701 (1942).
6. SIMONSON, E., FOX, M. S., and ENZER, N. *Arch. Otolaryngol.*, **38**, 245 (1943).
7. HILLIARD, R. C. *Electronics* (March 1946).
8. HECHT, S., and SHLAER, S. *J. Gen. Physiol.*, **19**, 965 (1936).

A Method for Preparing Slide Mounts of Small Invertebrates

M. W. Boesel and Charles M. Vaughn[1]

Department of Zoology,
Miami University, Oxford, Ohio

For some years the writers have been working on methods of mounting insects and other small invertebrates on slides for permanent preservation. Basically the procedure finally adopted follows that suggested by Middlekauff (*1*), but several major modifications have been made to adapt it to different needs. Furthermore, the method here presented has been found excellent for mounting both immature and adult insects, as well as other arthropods, helminths, and so on.

Adult insects are collected in 95% ethyl alcohol. Soft-bodied stages that are subject to shrinkage and discoloration are collected in a killing fluid recommended by Alvah Peterson and composed of 95% ethyl alcohol, 10 parts; glacial acetic acid, 2 parts; kerosene, 1 part; and dioxane, 1 part. Larvae should be kept in the solution until properly distended and then placed in 95% ethyl alcohol. For most adults, no special killing fluid is necessary or even desirable. It is important to note, however, that in many instances, color features may be preserved by mounting immediately after collecting. This is true, for example, of some greens in adult midges, which ordinarily fade considerably. Helminths fixed by usual laboratory methods can be washed and stored in 95% ethyl alcohol. Formalin-preserved specimens must be washed carefully and carried up to 95% alcohol before utilizing this method.

To prepare specimens, use three 5-ml beakers containing 95% alcohol, absolute alcohol, and beechwood creosote, respectively. Total volume of the specimens processed should not exceed about 10% of the volume of the fluid. Specimens are left in 95% alcohol a few minutes, in absolute alcohol at least a minute, and then transferred to creosote, where they invariably float; they should be retained in it until they sink to the bottom of the beaker. This may take 10 min or longer. Specimens may be kept in the creosote indefinitely without apparent harm. Ticks, other arthropods, and helminths have been stored in creosote for 12–15 months prior to their preparation as permanent mounts. After several hours in the creosote, specimens may be mounted whether they sink or not, although failure to sink is usually indicative of the presence of air spaces in the specimen, and such specimens are not likely to make the best mounts. Some nematodes require an immersion in a fourth 5-ml beaker containing an equal mixture of beechwood creosote and diaphane, to facilitate the penetration of the mounting medium into the body spaces of the specimens. Before transferring specimens to a glass slide, a drop of diaphane is placed on the slide. Specimens are moved from the creosote to the diaphane droplet, covered with more diaphane, and then covered with a cover slip. Mounts should be examined daily, and diaphane added until air spaces cease to develop under the cover slip.

If specimens are thick enough to cause a noticeable tilting of the cover slip, clear celluloid or plastic supports, about 3 × 6 mm, may be placed on the slide so as to hold the cover slip in a perfectly horizontal position. If materials of several different thicknesses are available, the correct thickness may be selected for the specimen at hand, but very thin supports may be used for all purposes by creasing them across the middle. Such creased supports have a desirable degree of springiness.

Perhaps the principal advantages of the method here described are its simplicity and broad applicability.

Reference

1. MIDDLEKAUFF, W. W. *Science*, **99**, 206 (1944).

Roentgen Irradiation of Para-aminobenzoic Acid Solutions

Peter G. Mar and Ivan C. C. Tchaperoff

Biochemical Research Laboratory and
Department of Radiology,
St. Joseph's Hospital, Victoria, B. C., Canada

Recent progress in radiation therapy of neoplastic diseases has focused attention on the radiation chemistry of the action of ionizing radiations on aqueous solutions of biologically significant organic compounds (*1*). Studies on certain amino acids, vitamins, enzymes, nucleotides, proteins, and steroids have already been reported. Dosages of radiations, however, were much greater than those therapeutically employed, whereas concentrations of solutions used were generally much higher than those obtained under physiological or therapeutic conditions. Studies under conditions more closely approximating those found clinically may yet prove steppingstones to the

[1] Now at Institute of Tropical Medicine, The Bowman Gray School of Medicine, Winston-Salem, N. C.