staining is unnecessary. Staining takes from 3 to 5 minutes. This modification of the usual procedure makes for a rapid and simple stain for routine laboratory use with the resulting stain comparable to that observed after use of the accepted and lengthy Heidenhain iron hematoxylin method.

HERBERT S. KUPPERMAN
CHARLES R. NOBACK

SCHOOL OF MEDICINE OF
THE UNIVERSITY OF GEORGIA,
AUGUSTA

A MYOTOME FOR BIOPSY OF MUSCLE[1]

IN a study of the chemistry and metabolism of muscle it is desirable to have a means by which small quantities of muscle may be removed simply and frequently from patients and experimental animals. Various tissue punches and methods of aspiration biopsy have been described.[2-7] These methods are well adapted for the removal of specimens of friable tissues. They are not useful, however, in obtaining specimens of less friable tissues such as muscle. An instrument has been devised for the removal of portions of muscle, 20 to 50 milligrams in weight, without disruption of the histological structure. This quantity of muscle is sufficient for various analyses by microchemical procedures and for histological studies.

The instrument or myotome consists of an outer stainless steel tube, the distal end of which is square and provided with cutting edges (Fig. 1). A second and shorter stainless steel tube fits within the outer tube and serves as a plunger which is kept in position by a steel spring. To its distal end is attached a flexible steel blade which moves through a double slot in the wall of the outer tube. This blade, like that in the large viscerotome of Soper, Rickard and Crawford,[8] acts as a knife to sever the base of the specimen of muscle entering the instrument. An obturator fits within the lumen of the inner tube.

The myotome is used in the following manner. After sterilization of the skin and its infiltration with novocain solution, a minute stab wound is made with a sharp-pointed knife. The myotome with the obturator inserted is passed through the skin incision and through the subcutaneous tissue. Increased resistance is met when the myotome enters the muscle. At this time the obturator is withdrawn. The instrument is inserted further and directed at an angle of 60 degrees to the horizontal and in the longitudinal plane of the muscle fibers. A portion of the muscle enters the outer tube. The inner tube or plunger is then pressed down to sever its attached end. Pressure is maintained on the plunger as the myotome is withdrawn. After withdrawal the plunger is released and the obturator inserted to expel the specimen. Several specimens may be taken through a single skin incision.

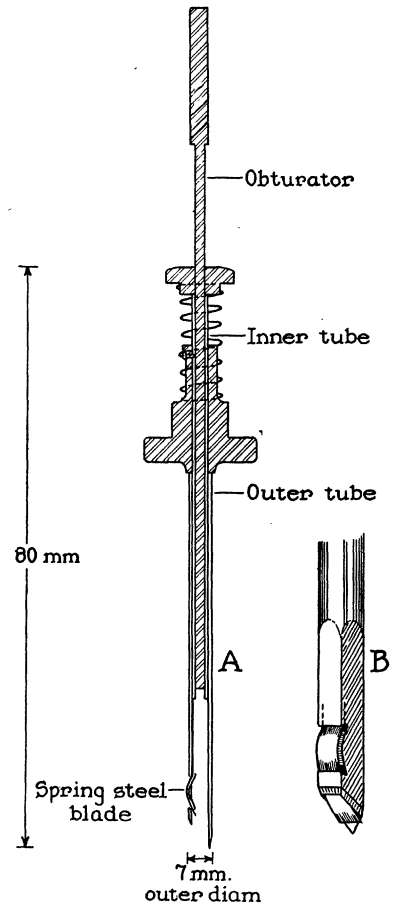

FIG. 1. A. Cross section of the myotome. B. Distal end showing the cutting edges.

ROBERT E. SHANK[9]

MEDICAL CORPS, U. S.
NAVAL RESERVE

CHARLES L. HOAGLAND

HOSPITAL OF THE ROCKEFELLER INSTITUTE
FOR MEDICAL RESEARCH,
NEW YORK, N. Y.

[1] The Bureau of Medicine and Surgery does not necessarily undertake to endorse views or opinions which are expressed in this paper.

[2] H. E. Martin and E. B. Ellis, *Annals of Surgery*, 92: 169, 1930.

[3] W. J. Hoffman, *Am. Jour. Cancer*, 15: 212, 1931.

[4] K. Lindblom, *Acta Radiologica*, 16: 295, 1935.

[5] C. C. Franseen, *New Eng. Jour. Med.*, 224: 1054, 1941.

[6] J. Tenopyr and I. Silverman, *Radiology*, 36: 57, 1941.

[7] M. L. Weinstein, M. Schindler and E. L. Adams, *Ann. Surg.*, 115: 880, 1942.

[8] F. L. Soper, E. R. Rickard and P. J. Crawford, *Am. Jour. Hyg.*, 19: 549, 1934.

[9] Member of the United States Navy Research Unit at the Rockefeller Hospital.