the lower edge of the bevel, which causes air to be drawn back into the flask and more alcohol is then introduced into the stender from the flask; when the level of the liquid in the stender reaches the level of the bevel, the flask of alcohol will no longer empty itself.

A provision has been made to insure the proper mixing of the alcohol and water in the stender. An L-shaped piece of glass tubing is connected to a rubber hose which runs to any source of compressed air (E). In the apparatus shown above, an old gas tank, provided with a pressure gauge, inlet and outlet stopcocks, was filled with air by an ordinary automobile air pump, so as to yield a pressure of 20 to 25 pounds. The rubber tube was attached to the outlet and the stopcock was regulated so that there would be 50 to 75 bubbles of air per minute when placed in water. Care must be taken to place the outlet of the L-shaped tube near the bottom of the stender; otherwise the alcohol and water will not mix properly.

If the siphon is regulated at eight drops per minute, the tissue (if placed in 20 cc of water to begin with) will be in approximately 97 per cent. alcohol after twenty-four hours, and is then ready to be transferred into absolute alcohol for 3 to 6 hours, before being placed in the clearing agent.

The apparatus is effective and easy to construct. One should be available on each table of the technique laboratory.

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THE ISOLATION OF MUSCLE NUCLEI

As a matter of cytological interest and as a means of freeing the nuclei from the cytoplasm for chemical analysis of their constituents, a method has been devised for the isolation of the nuclei of smooth, striated and cardiac muscle. The following procedure yields a permanently stained preparation suitable for cytological study. Cardiac muscle is suggested as an initial preparation.

(1) Smear a slide with Mayer's egg albumen according to the usual method.

(2) Place a drop of 5 per cent. citric acid in the center of the slide.

(3) Place a small piece of fresh muscle in the drop. Gradually the tissue is infiltrated and assumes a translucent state. The citric acid becomes cloudy, due to the released nuclei. Gentle teasing will hasten the reaction. If the preparation is examined microscopically at this time, one will note large numbers of nuclei streaming from the muscle substance.

(4) Remove the muscle from the drop with forceps. The resulting preparation will contain nuclei free of cytoplasm.

(5) Allow the preparation to dry almost completely. The slide is then placed in 95 per cent. ethyl alcohol, which coagulates the albumen, thus holding the nuclei in place.

(6) Rinse in several changes of tap water, followed by distilled water.

(7) Transfer to Mayer's hemalum until the nuclei are stained.

(8) Wash in tap water until blue.

(9) Counterstain in eosin.

(10) Dehydrate, clear and mount.

The technique is comparatively simple. The only possible cause of failure is the washing off of the preparation in step five. Perhaps a repeated attempt may be necessary for determination of the optimum time for drying the slide before placing in the 95 per cent. alcohol.

The resulting preparation shows an abundance of nuclei stained blue on a quite homogeneous eosin-stained background. The latter is presumed to consist of egg albumen and any muscle fraction soluble in the citric acid. Although the technique is applicable to a number of other body tissues, somewhat inferior results are obtained.

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BOOKS RECEIVED

BUTLER, LORINE L. Birds Around the Year. Pp. xi + 242. 8 plates. Appleton-Century. $2.00.

Culture Methods for Invertebrate Animals. A Compendium prepared cooperatively by American zoologists under the direction of a committee from Section F of the American Association for the Advancement of Science. PAUL S. GALTSOFF, FRANK E. LUTZ, PAUL S. WELCH and JAMES G. NEEDHAM, Editors. Pp. xxxii + 590. 84 figures. Comstock. $4.00.

DOORLY, ELEANOR. *The Insect Man: Jean Henri Fabre.* Pp. xvii + 180. Illustrated. Appleton-Century. $1.50.

FRANKENBURGER, W. *Katalytische Umsetzungen in Homogenen und Enzymatischen Systemen.* Pp. xi + 444. 22 figures. Akademische Verlagsgesellschaft M. B. H., Leipzig. RM 36.

HERMANN, GRETE, E. MAY and TH. VOGEL. *Die Bedeutung der Modernen Physik für die Theorie der Erkenntnis.* Pp. viii + 210. Verlag von S. Hirzel, Leipzig.

KELLER, FRANKLIN J. and MORRIS S. VITELES. *Vocational Guidance throughout the World.* Pp. xiii + 575. Illustrated. Norton. $4.00.

KOLLER, L. R. *The Physics of Electron Tubes.* Second edition. Pp. xvii + 234. 84 figures. McGraw-Hill. $3.00.

RANEY, M. LLEWELLYN, Editor. *Microphotography for Libraries.* Papers Presented at the Microphotography Symposium at the 1936 Conference of the American Library Association. Pp. xi + 138. The Association, Chicago. $2.50.

THOMSON, SIR J. J. Recollections and Reflections. Pp. viii + 451. Macmillan. $4.00.

WILSON, A. H. *The Theory of Metals.* Pp. viii + 272. 31 figures. Cambridge University Press, Macmillan. $5.00.