For the composition of the trichrome stain the reader is referred to Foot's description.[2] The only modifications found desirable in adapting this stain to the vaginal smear were an increase in staining time with light green to 8 minutes and a reduction in the strength of acetic acid from the original 1 per cent. to 0.25 per cent. The acetic acid solution is made up fresh weekly. The other solutions will, with an occasional filtration to keep them clear, stain 1,200 to 1,500 slides satisfactorily. The exact procedure of staining is as follows:

(1) Fix slide while wet in 95 per cent. alcohol: ether (1:1) and carry through alcohols to water.
(2) Harris hematoxylin—2 minutes.
(3) Rinse 3–4 times in water and let stand 5 minutes in running water.
(4) Ponceau-acid fuchsin-orange G—5 minutes. Rinse 3–4 times in water.
(5) Phosphotungstic acid (3 per cent.)—10 minutes. Rinse 3–4 times in water.
(6) Light green—8 minutes. Do not wash.
(7) Acetic acid (0.25 per cent.)—3 minutes. Do not wash.
(8) Dehydrate, clear in xylol, and mount in damar.

Analysis of the action of individual components indicates the possibility of some simplification of the stain. Ponceau de xylidene, acid fuchsin and orange G were all taken up by the cornified cells and contributed to their final color. The most satisfactory staining of the cornified cells, using these dyes separately, was obtained with Ponceau de xylidene. Orange G is, however, desirable because of its staining of red cells. Phosphotungstic acid is essential because of its action as a mordant in fixing and intensifying the color produced by the preceding solution. Light green acts as a counterstain for the non-cornified cells. When used alone it will stain cornified cells a more intense green, but is unable to displace the other dyes once they have entered the cell. The staining with hematoxylin can be omitted, the nuclei then taking a red stain. Dioxane can be used instead of the alcohols as with tissue.

A more detailed description of the nuances of morphology and color revealed by this stain in smears from various normal and pathological states will be given elsewhere.

EPHRAIM SHORR

THE NEW YORK HOSPITAL AND THE DEPARTMENT OF MEDICINE, CORNELL UNIVERSITY MEDICAL COLLEGE, NEW YORK, N. Y.

A RUBBER CAST OF THE DOGFISH SPIRAL VALVE

THE spiral valve of the dogfish is a feature of most courses in comparative anatomy. It is difficult to visualize the spiral course taken by the food, and the large absorbing surface of the intestine is seldom appreciated. The structure and function of the spiral valve is well demonstrated by a rubber cast, which takes but a few minutes to make. The intestine from pylorus to rectal gland is removed from a fresh or formalin-preserved dogfish. The pyloric end is attached to a faucet and the contents completely flushed out by a slow but positive stream of water. This process is aided by gentle manipulation, and should be continued until the water is clear. After removal from the faucet the intestine is carefully squeezed to remove as much water as possible, and latex[1] is injected through the pyloric end under about 200 mm pressure. The large intestine should be tied off when latex flows out, and gentle manipulation assists the even distribution of the latex, mixing it completely with the water remaining inside. When the intestine is thoroughly turgid, the pylorus is tied off under pressure and the whole preparation hardened in 2 per cent. acetic acid for ten days. It is a simple matter to dissect away the tissue from around and between the flexible spirals, leaving a rubber cast of the interior of the intestine. The quality of the rubber improves if the cast is washed for a few hours in tap water and allowed to dry at room temperature for a day or two. The spiral may then be stretched, twisted or even unrolled without becoming permanently deformed, and is a striking demonstration specimen.

K. D. ROEDER

TUFTS COLLEGE

[1] Turtox Latex supplied by The General Biological Supply House.

BOOKS RECEIVED

ATWOOD, WILLIAM H. *Introduction to Vertebrate Zoology.* Pp. 511. 264 figures. Mosby.

CHILD, ERNEST. *The Tools of the Chemist, Their Ancestry and American Evolution.* Pp. 220. Illustrated. Reinhold. $3.50.

HAMBLY, WILFRID D. *Craniometry of New Guinea; Anthropological Series: Vol. 25, No. 3.* Pp. 83–290. 26 figures. 43 plates. Field Museum. $2.50.

Kyoto Imperial University; *Memoirs of the College of Science; Series A, May, 1939.* Pp. 41–223. Illustrated. Yen 3.80. *July, 1939.* Pp. 225–267. Illustrated. Yen 1.00. *September, 1939,* Pp. 269–356. Yen 1.00. Maruzen, Tokyo.

MYRDAL, GUNNAR. *Population, a Problem for Democracy.* The Godkin Lectures, 1938. Pp. xii + 237. Harvard Univ. Press. $2.00.

O'BRIEN, T. P. *The Prehistory of Uganda Protectorate.* Pp. xii + 319. 56 figures. 26 plates. Cambridge University Press, Macmillan. $7.50.

SVEDBERG, THE and KAI O. PEDERSEN. *The Ultracentrifuge.* Pp. x + 478. 154 figures. Oxford Univ. Press. $12.50.

WILLIAMSON, ROBERT W. RALPH PIDDINGTON, editor. *Essays in Polynesian Ethnology.* Pp. xlii + 373. 10 plates. Cambridge Univ. Press, Macmillan. $7.00.

[2] *Amer. Jour. Path.,* 14: 245, 1938.