

tion given them as is necessary to enable them to properly preserve and forward such morbid products as they would likely wish to send to a pathologist for microscopical examination.

For convenience of treatment, all morbid products can be classed under two heads—*solids* and *liquids*. The requirement is, that they must be preserved in such a way that their constituent elements shall not undergo any material alteration. To accomplish this end, we use certain agents which "fix" or "kill" these elements. There are a number of such agents, but, as I wish to make this paper as practical as possible, I will mention only those which are easily procured in any drug store. It is evident that both classes of morbid products can not be submitted to the same treatment. Therefore, we will consider the *solid* products first.

As "fixing" agents for this class I will mention :

A.—90% Alcohol, or the ordinary alcohol found in commerce.

B. *Absolute Alcohol*.—This is not found in commerce sufficiently anhydrous, so must be made at home. This is easily done by placing, say, one-half pound sulphate copper in an iron vessel ; put it in the oven of a cook stove and bake it until it falls into a fine *white powder*. Then place the powder into a quart bottle and pour over it sufficient 90% alcohol to fill the bottle. Cork it with a ground-glass stopper, if one is at hand ; if not, use a perfectly sound cork. Now and then shake the bottle well. In twenty-four, or better, forty-eight, hours, the alcohol will be ready for use, *after filtering*.

C.—*Müller's Fluid* :

R.—Potassium bichromate, . . . 2½ parts.
Sodium sulphate, . . . 1 part.
Water, 100 parts.—M.

D.—*Erlick's Fluid* :

R.—Potassium bichromate, . . . 2½ parts.
Cupric sulphate, . . . ½ part.
Water, 100 parts.—M.

This is a better preservative than Müller's fluid.

E.—*Picric acid*—saturated aqueous solution.

It is not an easy matter to give definite directions as to which of these "fixing" or preservative solutions it is best to use in individual cases. However, the following rules will assist in determining the matter. Preserve in—

1st. *Alcohol* (90%).—Firm, hard tissues, and also such as do not owe their pathological condition to *vascularity* or *congestion*, in part or in whole.

2nd. *Müller's* or *Erlick's Fluid*.—All soft, vascular or congested tissues. In one of these fluids *must* be placed the eye, brain, spinal cord, ganglia and delicate tissues of whatever kind.

3rd. *Absolute Alcohol*.—All tissues which are to be examined for micro-organisms.

4th. *Picric Acid Solution*.—Pieces of diseased bone. This medium is also valuable for soft tumors, epithelial and gland tissues and mesentery. The pieces should be small, and must not remain in the preservative longer than twenty-four or forty-eight hours, except bone.

General Directions.—With a *very sharp* knife cut the tissues into blocks never more than one inch square and one-half inch thick. It is better to have them one-half or three-quarters inch square and one-quarter inch thick, if they can be so cut, and give a surface fairly representing the morbid conditions present. Where you have organs or growths surrounded by a capsule, or where the skin is involved, the blocks must be taken so as to have the capsule or skin attached to one edge of the section. It is also necessary to have blocks taken from the periphery, centre and intermediate portion of organ or tumor. When the kidney is concerned, take a section that will include both the cortical and medullary regions. If the stomach, intestines or bladder is the seat of disease, they must be slit open and tacked to a block of wood with thread, having the mucous surface up. Never wash these organs out with water, but press out the contents with the fingers and place them in the preservative fluid.

Thin membranes, such as the omentum and mesentery, should be stretched across a block of wood and tacked with thread. Have at hand a wide-mouthed bottle with a perfectly sound cork, and one that will hold enough of the preservative fluid to be in proportion to the volume of tissue it is to contain as 20 to 1. *This is imperative*. If the volume of the blocks aggregate 60 cubic centimeters, there must be a quart of the preservative. Have also a fine needle threaded with cotton thread. As each block of tissue is cut run the thread through it, and have it long enough to suspend the tissue in the upper portion of the fluid and permit a card to be attached bearing the name of the organ and from what part it is cut ; if it is a tumor, whether it is from the periphery, centre or intermediate portion, treat each piece in the same way. Finally, place a label upon the bottle, giving the name, age and sex of the patient ; the name of the preservative fluid, and the date the specimens were placed in it.

It is now ready to be sent to the pathologist, but if it is likely to take more than a day for it to reach him, it is best to wait twenty-four hours and change the fluid before sending.

Liquid Morbid Products.—Under this class we have urine, sputum ; contents of abscesses, cysts and the cavities of the body. None of these require any preservative except the *urine*.

Urine.—When a sample of urine is sent for chemical analysis, as well as microscopical, at