NOTE.

A NEW METHOD OF PARAFFIN INFILTRATION.—In preparing material for the microtome a certain amount of difficulty is usually experienced in passing from absolute alcohol to paraffin. The ordinary method is to employ a clearing agent, such as xylol, chloroform, bergamot oil, or cedar-wood oil, which is miscible with both absolute alcohol and paraffin.

Unless, however, the transition from (1) the alcohol to the clearing agent, and (2) from this to the paraffin, is *very* gradual, satisfactory sections are not obtained.

A similar difficulty arises in the previous process of dehydration when effected by passage through a series of alcohols of increasing strengths, and good results are usually only obtained by using a series, the members of which differ not more than 5 per cent. to 10 per cent. one from another.

A much more satisfactory method, involving only one change, and one to be recommended to the worker who has more than one 'job' on at a time, is to employ glycerine. The material after fixing and washing is placed in 10 per cent. glycerine and left open to the air in a convenient place to concentrate. At the end of two or three days the water will have evaporated away, and the material is left in nearly pure glycerine, which is easily and quickly replaced by absolute alcohol. The process of dehydration has been accomplished without any sudden change from a lower to a higher concentration, and the loss of water has been a uniform process.

It occurred to the writer that a similar method might be devised for the infiltration process which, if successful, would lead to equally satisfactory results. What was wanted was a solution of paraffin wax, corresponding to the 10 per cent. glycerine, which could be made to evaporate slowly and finally result in pure paraffin. The following method has been used at Wisley with some success on such material as soft-rot of turnips and *Peronospora parasitica* on *Capsella* stems. Mr. F. T. Brooks, who tried the method, has informed the writer that excellent results were obtained with such material as anthers prepared for cytological work. The method is as follows:

A small quantity of paraffin is melted in the oven and then poured into a graduated glass bottle which has been kept warm. Twice the volume of xylol is added, and then three times the volume of absolute alcohol. The bottle thus contains a liquid (at the oven temperature) made up of one part by volume of paraffin wax, two parts of xylol, and three parts of absolute alcohol. The liquid solidifies at room temperature and must be kept in the oven. Material in absolute alcohol is warmed in the oven for a few hours and then transferred to a tube of the paraffin mixture and left tightly corked for twenty-four hours.

It must not be forgotten that only one-sixth of the volume is wax and that five-sixths will pass off on evaporation, so that a sufficient quantity of the mixture is needed to leave enough wax to cover the material after evaporation. After twenty-four hours the cork is removed, when the alcohol and xylol will evaporate, and the tube will gradually smell less and less of xylol. In forty-eight hours the process should be complete, and the material will then be in pure paraffin wax. The transition from absolute alcohol to paraffin has been effected in one step and at a uniform rate.

Probably, it will be found that a modification of the quantities is needed for different material, and that the xylol can be replaced by any other volatile clearing agent.

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