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A Progress Report on a Method for Histological Preparations Eliminating Fat Solvents (Abstract)

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A METHOD OF MOUNTING DIGLYCOL STEARATE SECTIONS UPON SLIDES

(ABSTRACT)

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In the technique reported by Stiles and Eastwood (Iowa Acad. Sci. Proc. 1940) difficulty was encountered in floating Diglycol Stearate sections upon glass slides. The usual water albumen method of affixing ribbons upon slides could not be used satisfactorily for two reasons: first, because Diglycol is soluble in water, thus causing the ribbon to disintegrate before the tissue is permanently affixed to the slide and secondly because the surface tension of water causes a spreading effect of the ribbon. The difficulties of affixing the tissue to the slide when it is Diglycol embedded constituted a serious weakness in this technique. This investigation was undertaken in an attempt to find a floating agent which would not dissolve Diglycol ribbons in any appreciable amount.

The use of calcium chloride as a floating agent was suggested by C. E. Moritz. Its solubility was tested in the usual manner, and it was found that Diglycol was not dissolved by it.

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A PROGRESS REPORT ON A METHOD FOR HISTOLOGICAL PREPARATIONS ELIMINATING FAT SOLVENTS

(ABSTRACT)

KARL A. STILES AND JEAN PETERSON

Of all the water-soluble waxes, Diglycol Stearate seems to be the most promising as an embedding medium for the purposes of this investigation; therefore experimentation on its usefulness has been extensive. It is a soap-like, white solid, having a waxy consistency suitable for sectioning with a rotary microtome. Diglycol Stearate as an embedding medium has several advantages over the usual paraffin technique. One of great possible importance is that preliminary dehydration and clearing of tissue can be eliminated, which may make possible the preservation of the phospholipoids of the cell membrane. The tissue may be removed in alcoholic

dehydration from 70% alcohol and thoroughly infiltrated within 48 hours by first placing it in a mixture of alcohol and Diglycol Stearate for 24 hours, then pure Diglycol Stearate. Embedding is simplified by reason of the fact that a good block may be produced by merely cooling at room temperature. The use of Diglycol Stearate eliminates electrification in sectioning; good ribbons may be obtained at a thickness of 2 or 3 microns, and if the lipoids of the cell membranes can be preserved there is the possibility of the cell membranes staining more distinctly.

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