the content of LX-291 resin increases. The mixtures are most readily prepared by blending the weighed portions of paraffin and resin at a temperature of about 170° C., and filtering. Five per cent., 10 per cent., 20 per cent. and 30 per cent. solutions have been used in practical work, though solutions of higher concentration have been made. All melt over a range of several degrees, the lower limit of each being within one degree of 55° C. A paraffin oven set at 59° C. is satisfactory for all.

Best results are obtained by infiltrating tissues in pure paraffin, in a 5 per cent. mixture or in a 10 per cent. mixture, and imbedding in a harder medium. The hardness of that part of the block composed of tissue plus infiltrating medium should be about equal to, but in any event should not exceed, the hardness of that part consising of imbedding medium. It is desirable to use a wetting agent in the fluid used to float the sections on the slide, especially for thinner ones where incorrect infiltrating and imbedding media may result in production of fine creases in the tissue of the section. If the section is overheated on the slide or if the fluid is allowed to cool too long before it is drained off, the imbedding medium will shrink slightly, but the tissue will not.

So much of the relative success of cutting sections depends upon the degree of perfection of the knife edge that no attempt will be made here to list the range of thickness of sections which can be cut best with each paraffin-resin imbedding (not infiltrating) medium. Under comparable conditions in one certain case, the following observations were made. With a 10 per cent. solution as the imbedding medium, sections thicker than 12 μ failed to ribbon well, while sections thinner than 4 μ were deemed to be too wrinkled to be designated as good, although those of 3 μ and 2 μ were usable. With a 50 per cent. solution as the imbedding medium, sections of 1 μ were the only ones that would ribbon. These sections exhibited about the same horizontal compression as did the 5 μ sections of the 10 per cent. mixture, albeit the ribbon was so light that it was very difficult to handle. Invariably, as the medium becomes harder the range of thickness of sections which can be cut well becomes narrower and shifts downwards. Thicker sections in each range show less horizontal compression than thinner sections, but among ranges this horizontal compression of sections in comparable parts of the ranges is about equal.

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A MICROFILM CAMERA

THE recent discussions of equipment for microfilming have overlooked one means of making a truly precision camera suitable for short-run and volume work in the small school with limited facilities. This equipment can easily be built around one of the discontinued 35 mm moving picture cameras which are still to be found on secondhand shelves. The author picked up such a camera for $10, mounted a shutter before the lens to produce a camera suitable for microfilming in color and in black and white. The lens is unquestionably superior to those found in the less expensive miniature cameras; the camera is ruggedly constructed and holds enough films for the photographing of a small volume on a single roll—250 single frame pictures.

The camera is a Sept, a spring-driven camera with a color-corrected, anastigmatic f 3.5 lens, popular in the days of silent films with the many eclectic news cameramen. This camera with the prefixed shutter may be mounted on a stand such as that described by English[1] to give an assembly capable of producing microfilm equal to that of many commercial laboratories.

The writer reads his microfilm in two visual magnifiers,[2] mounted on illuminated bases which were made at a cost of approximately $1.00 each. Two readers are indispensable for cross-referring; but possibly the chief advantage in having two readers is that they enable one to photograph the even-numbered and odd-numbered pages on different rolls, thus eliminating the moving and centering of the copy after each exposure; a roll goes into each machine and they are then used alternately.

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[1] F. L. English, *American Photography*, 32: 825, 1938.
[2] Herman Branson, *School, Science and Mathematics*, 40: 411, 1940.

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