SCIENTIFIC APPARATUS AND LABORATORY METHODS

BLOCKING-OUT UNDESIRABLE BACKGROUNDS IN PHOTOGRAPHS

I WISH to bring to the notice of those who use photomicrographs for illustration a method of blocking-out the backgrounds of their negatives by means of cellophane sheets. This thin, transparent material now commonly used for wrapping cake, candy-boxes, etc., comes in sheets 35 x 40 inches and in a variety of colors. The ruby red cellophane, used for the present purpose, is absolutely non-actinic and so extremely thin that it permits perfect contact between negative and printing-paper. I cut up the sheets into pieces corresponding in size to my negatives, in my case 4 x 5 inches.

One of these is laid on the film side of the negative and the outline of the photo is traced on the cellophane with pen and ink. Any error in the ink outline can be corrected by drawing a new line without bothering to remove the inaccurate one, as the non-actinic cellophane makes such lines invisible in the print. The true outline is then cut out by means of dissecting-scissors or a sharp scalpel or a very finely pointed needle. It is best done over a piece of white blotting-paper.

The opening is then placed over the photo and the two outlines are accurately adjusted. A minute drop of thick styrax, such as is used in microscopic mounts, will fasten the four corners of the cellophane film to the face of the negative.

By this method perfect accuracy in blocking-out backgrounds is secured in far less time than by the common one of painting out with opaque red or India ink. In the case of diatom photos the improvement in the finished prints is very great, for on account of their translucence unblocked backgrounds are usually dense and greatly detract from the sharpness of the photo. The almost infinite variety in diatom outlines also makes blocking-out by the old method a difficult and slow task.

It should be added that objects with circular outlines, a form common among diatoms, can be most easily outlined by measuring the diameter of the circle and cutting out an opening with a pair of compasses, the tip of one leg being sharpened so as to cut through the cellophane film. Obviously, also, this material is ideal for mats around pictures where complete blocking-out of the background is not desired.

Negatives so prepared can be stored without any appreciable loss of space.

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MOUNTING SERIAL SECTIONS

SEVERAL years ago the author devised a method of applying balsam and cover-glass to slides of serial sections which, while apparently not in use elsewhere, possesses several advantages over the technique usually employed. This method is as follows.

The slides of stained and cleared sections are passed through a jar of clean xylol and removed one by one without draining to a piece of toweling paper, upon which they are laid back down. Enough thick balsam is then dropped on the sections to insure that considerably more will be present than the amount actually needed. The cover-glass is then quickly placed upon the balsam. The large amount of balsam present and the undrained xylol still upon the slide insure quick and complete displacement of the air. Very seldom will any bubbles form.

After an interval of a few seconds the slide is stood on edge in a small slide box, lined on the bottom with towel paper. The superfluous balsam and xylol drain from the slide and are absorbed by the paper. It is often desirable to pipette xylol onto the paper to insure contact between it and the slides and start the absorption. In my own use I find wooden slide boxes (twenty-five slides capacity), cut in half so that two trays holding twelve each are formed, very handy. The box is then placed with slides *on edge* in a Tharaldsen "Columbia" oven, and the temperature increased just enough to insure seepage of the balsam. Additional xylol may from time to time be pipetted upon the paper. If the heat is not too great there will be no danger of too much balsam running out and leaving air spaces. Any bubbles that may have occurred in mounting will quickly work out. Capillary attraction insures that exactly the correct amount of balsam remains and no more. The cover will be drawn down tightly, and any sections which have not adhered evenly to the slide will be pressed down flat. There is no necessity at any time for balsam to soil the outer surfaces of the preparation.

After a few hours in the oven the upper edges of the slides will have dried, and then heat may be increased, as far as is felt safe for the material and stain, to expedite the drying. When the slides have dried sufficiently to be removed from the box the only cleaning required is a light wipe along the lower edge with a cloth moistened with xylol.

This method is much quicker and easier than the ordinary way, and guarantees the closest possible contact between slide and cover—a great advantage in delicate work with high-power objectives. The slides require practically no cleaning from superfluous balsam when dry and are hard enough for use within twenty-four hours from the time of preparation. The method is, of course, limited to the use of cover-glasses approximating the width of the slide.

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