Mounting of Dermatological Material With Synthetic Resins

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In order to have available, especially for teaching and investigative purposes, permanent mounts of cleared, unstained, fungus-infected materials, trials have been made with the various mounting materials currently available. Colorless nail polish has also been used. To date, one of the most satisfactory of these mounting materials has been the Permount (obtainable from Fisher Scientific Company, Pittsburgh). After this report was prepared, the recent work of Barghoorn (*1*) on phenol formaldehyde and vinyl resins was found. Permount has been reported merely as a 60 per cent solution of pinone polymers. Without any preparation, the hair or scales of skin are put on a slide covered with a thin coating of the solution of the resins, covered with a cover slip pressed to remove bubbles of air. The solvent may serve to clear the tissue; the plastic, to preserve it. The specimens are available for immediate examination (Fig. 1). Over a period of a year the specimens have shown no discoloration or distortion. The solution has been used also to mount satisfactorily *Simulium*, *Pulex irritans*, *Phthirus pubis* with ova, *Pediculus capitis* and *corporis* and *Cimex lectularius*. For the preservation of larger specimens, the technics of Sando (*3*), Strumia and Hershey (*4*), and Kampmeier and Haviland (*2*) are preferred.

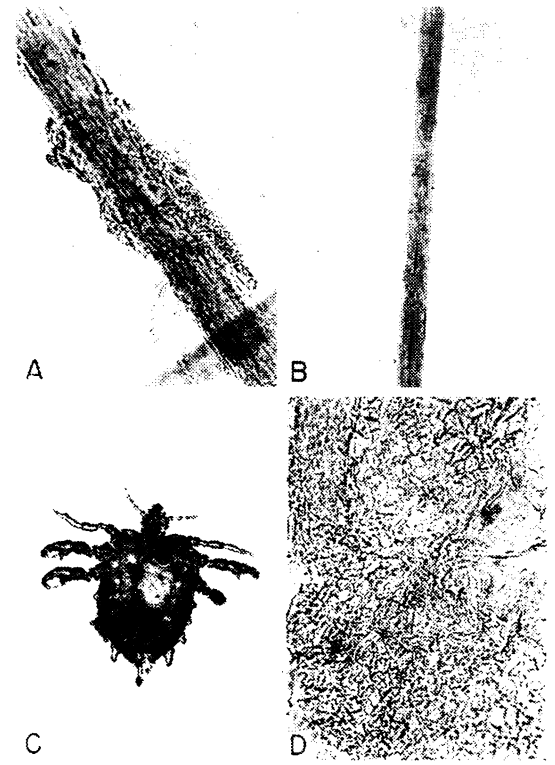

FIG. 1. Some specimens in a dermatological laboratory mounted directly in Permount: A.—hair infected with *M. audouini* (× 700); B.—hair acquired canities at zone of depigmentation (× 160); C.—*Phthirus pubis* (× 35); D.—skin infected with *M. audouini* (× 700).

References

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Polytetrafluoroethylene for the Prevention of "Bumping" From Superheating of Boiling Fluids

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Polytetrafluoroethylene, recently developed as a commercial plastic under the trade name of "Teflon,"[1] is extremely inert chemically, being unattacked by hot or cold acids or alkalis, or by chemical oxidizing agents; appears to be insoluble in all aqueous, organic, and silicone fluids; is attacked by molten sodium or potassium; is not wet by aqueous fluids or by many organic fluids; and can be cleaned in strong acid cleaning solutions or in alkali.

A sample piece of "Teflon" sheeting 0.040 inch thick was kindly supplied by the DuPont Company over a year ago. While cleaning some of the material in hot, 30 per cent sodium hydroxide solution it was noted that the solution boiled smoothly for many hours without bumping. Since then, small bits of polytetrafluoroethylene have been used routinely to prevent bumping in boiling fluids. The material has worked with uniform success with alkaline and acid solutions except as noted below, and with numerous organic fluids, including aniline, propionic acid, decahydronaphthalene, morpholine, ethylene dichloride, chloroform, benzyl alcohol, amyl acetate, ethyl alcohol, acetone, and many others.

It has not been very satisfactory as an antibumping agent for Kjeldahl digestions, probably because it floats in this heavy acid mixture.

It is striking that polytetrafluoroethylene retains its antibumping action for many hours—probably indefinitely. Pieces can be used repeatedly without evidence of deterioration.

One is tempted to theorize that antibumping action is probably related closely to nonwetability. Perhaps only an immersed surface not wet by the fluid brings about a satisfactory liquid boundary from which vapor molecules can escape readily. This might explain the well-known fact that glass beads function as satisfactory antibumpers when freshly added to an alkaline solution, when perhaps they are not perfectly clean and hence may have surfaces not wet well by water, whereas after a short time they cease functioning efficiently, presumably after they have been cleaned off by the solution and rendered wetable. Polytetrafluoroethylene, however, retains its nonwetting properties when perfectly clean.

[1] Manufactured by E. I. duPont de Nemours & Company.