

TECHNICAL NOTES

UNEXPECTED HAZARD: LEAD POISONING

A case of lead poisoning in a textile conservator has illustrated the need to know about the materials that we are using and the need to take the proper safety precautions in our work. An article in the *Journal of the American Medical Association* recently reported this case and its cure. The problem surrounds the treatment of a large Peruvian tapestry from the Chancay period 1000-1500 AD, which was originally entombed with cinnabar (HgS) powder, presumably for ritual and/or preservative purposes. During the course of treatment considerable cinnabar dust was generated. Working during the winter in a small, poorly ventilated studio, the dust was inhaled by the conservator. Furthermore, while repairing/mounting the tapestry with needle and thread, the conservator frequently put the thread in her mouth to wet it, thereby ingesting the dust. Over a two month period, prominent neurological, gastrointestinal and diffuse muscular symptoms developed. The diagnosis of lead poisoning was confirmed by medical testing. Very elevated blood lead levels were found. There was not any substantial mercury absorption because in the HgS compound, the mercury becomes highly insoluble in tissue fluids. Analysis showed however, that the cinnabar contained 1% red lead (Pb₃O₄), presumably present as an impurity in the pigment. (It has been known that the ancient Romans added red lead to cinnabar, although this has not been previously known of the Chancay period.) This small percentage of lead is sufficient to cause severe intoxication. As a result of investigations in the work and home environments, as well as the testing of family members, there seems little question that the cinnabar was the cause of contamination. Since the completion of two series of chelation therapy and the completion of the conservation treatment about three years ago, there has been no recurrence of symptoms or high blood lead levels. While the details of the actual textile conservation treatment remain somewhat vague, despite efforts to clarify them, the circumstances are well worth noting. (from Alf Fischbein, MD et al., "Lead Poisoning in an Art Conservator," JAMA, 4/9/82, vol. 247, no. 14, pp. 2007-9)

FREE CONSULTATION FOR SAFETY IN THE LAB

"Every state has a free on-site consultation plan for employers who want help in recognizing and correcting health and safety hazards in their workplace. This consultation service is provided by state governments or private contractors with funding from the Occupational Safety and Health Administration (OSHA). The program is completely separate from OSHA's inspection efforts and issues no citations or penalties. The program is primarily aimed at small businesses and the consultation has to be requested by the employer." Museums may apply. In many states consultation is also open to individuals. Findings and recommendations are confidential; OSHA is not informed of results except in cases of imminent danger. Lists of the consultation services may be found in the May and June 1982 issues of *Art Hazard News* from which this note was taken.

MICROSCOPE IMMERSION OIL

"For many years microscope immersion oil contained polychlorinated biphenyls (PCBs). The product replaced cedarwood oil and was advertised to have numerous advantages over the former product. The product currently supplied by Cargille is clearly marked not to contain PCBs. However,

many bottles of the PCB-contaminated materials exist in a typical laboratory. This fact should be brought to the attention of scientists. It should also be noted that the disposal of PCB-contaminated substances is currently regulated. Provisions will have to be made for disposal." -- Steven D. Aust, Chairman, Toxic Substance Control Commission, State of Michigan, Lansing (*Chemical & Engineering News*, 4/19/1982, p. 4)

THREE-PROBE DIGITAL LINING PYROMETER

A custom built lining pyrometer with three tiny surface sensors and three vertically mounted L.E.D. displays was described by ROBERT LODGE and myself at the AIC paintings Specialty group session. One model was hand built to our design specifications. It provides accurate ($\pm 0.5^\circ\text{F}$) and simultaneous display of three temperatures: the lining table surface, the actual lining adhesive, and the surface of the painting measured from a tacking edge. The instrument was economically designed with a single pyrometer circuit. Although three temperatures are displayed simultaneously, each rapid-response sensor is monitored in turn by the single circuit at three second intervals. This pyrometer has proven useful in temperature-critical lining situations and in exact duplication of bonds achieved in mock-ups (allowing selection and control of the degree of napbond adhesion). It is possible that the instrument could be made for other conservators. If a sufficient number of individuals are interested, printed circuits could be made which would reduce the amount of hand-wiring and consequently the cost-per-unit. Contact AL ALBANO, Associate Conservator, Philadelphia Museum of Art, P.O. Box 7646, Philadelphia, PA 19101. (215-763-8100, ext. 242). AL ALBANO

MATERIALS TO BE USED WITH PHOTOGRAPHS

Photographic materials are a special category of objects that require considerations differing from art on paper. Awareness of this need is increasing throughout the curatorial and conservation communities. At the moment, however, there are at least a few materials marketed as "archival" for paper conservation (and generally suited to art on paper and historical paper) that can create serious damage in a photograph. This writer has observed such damage in various circumstances and was asked to submit a short description of the problem.

One case deserves special mention: in two months time, a toned "archival" board overmat created severe purple-pink staining in the high-light areas of many pristine nineteenth-century albumen prints, with fading in the denser areas. The writer has also observed a fading or tarnishing reaction on photographic images from one polyvinyl acetate emulsion commonly used in paper conservation.

It seems advisable that adhesives and other materials used near or with photographs should be tested to assure that they will not affect image silver, the gelatin emulsion or other matrix such as albumen, or the paper support. T. J. Collings and F. J. Young has suggested one test that may give a very general indication of silver tarnishing as observed on a test material placed next to silver foil (see *Studies in Conservation*, 21 (1976), pp. 79-84). This writer has used 1M acetic acid instead of hydrochloric acid and has identified some materials that in actual practice have been observed to affect image silver.

A second test that has been used to detect reactions with photographs is the Photographic