

## Consolidation Discussion

This discussion session was an attempt to have an exchange between conservators of different disciplines about approaches to paint consolidation.

Eric Hansen opened the session by introducing factors to be taken into consideration when planning a consolidation treatment. The factors mentioned were: pigments, binders, concentrations, film porosity, paint preparation. He emphasized the importance of pigment volume concentration (PVA), the ratio of the pigment volume to the pigment and binder volume. For those unfamiliar with this terminology a good introduction can be found in *Matte Paint*, edited by Hansen, Walston, and Bishop (1994). Eric mentioned that a large amount of information is already in the literature, not necessarily recent work, and that industrial information is often readily available and important to review in order to understand the structure of a paint film.

We talked about the importance of methods of application and distribution of consolidants as a major factor in its compatibility with the paint film. As examples we discussed the difference in results when the same consolidant is applied to the same paint film by brush, with a nebulizer, or in a saturated-solvent atmosphere. Eric emphasized the importance of testing in the same conditions as those of the actual treatment. As an example he brought up the treatment of a Karel Appel gouache, which was tested with the appropriate solvents but not in the solvent-saturated environment in which the treatment was carried out. The treatment results varied very drastically from the test results. Eric Hansen and Paula Volent (1994) published a

technical note on this example. Eric suggested that a less drastic and perhaps more controllable method of retarding evaporation would be simply to cover a treated area with plastic rather than working in the solvent saturated environment. He also suggested we be more precise in our use of terminology and make a distinction between adhesion and cohesion.

Daria Keynan followed Eric Hansen's introduction leading the discussion to systemic problems, commonly found in paper conservation, which lead to various forms of instability in a paint film. These problems usually fall into four main categories:

1. incompatibility of paint film and substrate;
2. incompatible paint types or paint layers;
3. incompatibility of paint film and ground layer;
4. application techniques which are incompatible with the design of the material itself.

Some examples were shown such as: (1) inflexible metallic paint used on unsized textured watercolor paper and thickly applied oil paint on newspaper sheets; (2) gouache over acrylic, or casein over under-bound powdery paint, and a layering of tempera paints where the same binder was used for all pigments but the pigments themselves varied from very finely ground well-formed paint mixtures to very coarsely ground, under-bound pigments; (3) water-based media over an acrylic ground; and (4) water-colors used very very thickly by pouring them onto paper or diluting them so much that they are very powdery (a drop of water color dripped into a pool of water or onto the paper and left to disperse and dry). An attempt was made to bring the discussion around to overall approaches to treatment, viewing the affected areas as part of a larger system as opposed to the local repair. Most of the participants felt that "you want to stick it down and get out." There was little interest in analyzing types of system failures and designing treatment around this type of analysis.

We discussed briefly application methods and techniques and the fact that the same consolidant will become more or less compatible depending on the solvents it is

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This open discussion took place on June 2, 2001, during the AIC 29th Annual Meeting, May 30–June 5, 2001, Dallas, Texas. The moderators organized and led the discussion and recorded notes. Readers are reminded that the moderators do not necessarily endorse all the comments recorded and that although every effort was made to record proceedings accurately, further evaluation or research is advised before putting treatment observations into practice.

used in or the delivery methods used to apply it. Eric repeatedly emphasized that one usually needs very little consolidant and that learning the most effective way to deliver and distribute the smallest amount of consolidant is key to a good treatment.

A question was asked regarding the possibility of adding matting agents to a glossy consolidant to make it visually compatible to a matte paint layer. Eric proposed that since the compatibility of the consolidant is dependent to a very high degree on delivery systems (type of solvent) and method of application, it may be possible in many cases to use the preferred consolidant differently and get the desired results rather than matting it out with a substance that may reduce its adhesive properties and introduce yet another material into the paint layer. It was observed that as delivery systems become finer a longer period of drying is needed before it is clear if the consolidation worked.

We brought up the idea that there are at least two schools of thought on the subject of consolidation: those who wish to set a flake down by creating contact between the substrate and the media with minimum penetration of the consolidant into the paint layer (reversibility and future testing being of primary concern here) and those who believe penetration of the consolidant into both layers will allow for the better, stronger, more flexible, more compatible, and more long-lasting repair. This second approach must acknowledge an alteration of the original material, a decreased expectation for reversibility, and interference with future testing and analysis.

This topic lead to an interesting difference between some painting and paper conservators. It became evident that the paper conservators felt that setting cupping or raised flakes back down was an essential part of consolidation, while paintings conservators considered 'filling' the gap between raised flakes and substrate with the consolidant as an alternative that will put less stress on the paint layer. Paper conservation often considers consolidation within a 'flexible' system: much consideration must be given to any alteration of the behaviors of the substrate due to consolidant application.

This discussion in turn lead to the observation that the same artwork treated by conservators of different philosophical approaches can lead to dramatically different results in the appearance of the work after treatment.

We revisited the now almost abandoned subject of reversibility. We started by arguing that reversibility is not realistically possible and is often undesirable, but at the end we concluded that what we need to strive for is "reworkability" not reversibility.

Some specific consolidants were discussed, including the irreversibility of emulsions such as Plextol B 500 or Beva D 8. One of the participants brought an example of consolidating an oil paint on paper board using wax. Here again a difference between paper and painting conservators

emerged: many paper conservators have found wax to be a rather short-term solution as it has poor adhesion qualities on paper, but paintings conservators brought up the fact that wax linings were used very effectively for many years in their field. It was suggested that conservators in Germany were making various uses of wax in treatment and that we should be looking into their practices. Other consolidants discussed briefly were polyvinyl acetate, used apparently more by objects conservators than others in the group; its big advantage is reworkability. Butvar (poly(vinyl butyral)) was also suggested as a reworkable alternative for matte paint consolidation.

We mentioned some tools, such as paper points and heat-conducting silicon tips, which have made application, distribution, and clearing of consolidants an easier task.

#### REFERENCES

- Hansen, Eric F., Sue Walston, and Mitchell Hearn Bishop. 1994. *Matte paint: its history and technology, analysis, properties, and conservation treatment with special emphasis on ethnographic objects*. A bibliographic supplement to *Art and Archaeology Technical Abstracts* 30 (1993). Marina del Rey: Getty Conservation Institute.
- Hansen, Eric F., and Paula Volent. 1994. Solvent sensitivity testing of objects for treatment in a vapor-saturated atmosphere. *JAIC* 33:315–316.

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