



Article: Restoring Ansel Adams

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RESTORING ANSEL ADAMS

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Abstract

Photographs, like many objects have certain parameters of quality that collectors desire. Restoration and conservation of photographs affect originality, but also collectors have concepts of completeness that affects and limits the original. Conservators often discover elements of the artist's working method during treatment. This paper explores the dimensions of restoration of the original and the nature of the artist's own manipulation of the original.

1.0 Introduction

In the examination and testing of the condition of photographic prints, the conservator is often faced with unique information about how the artist works and also how the artist changed methods and materials. What is also generally unveiled is information on how the artist desired to have his or her work displayed. This is especially true of works on paper, where evidence of previous matting or presentation efforts can be seen in residues or adherent matter like tape, adhesives or fragments of mounting papers or boards still attached to the original. I will assess the condition of a number of works by Ansel Adams discussing each print first and then describe how condition information led to the development of a proposal for a recommended treatment.

It should be kept in mind that the conservation of these prints will not restore them to a pristine state. Collectors often consider photographs to be eminently subject to restoration, and even better for the attention, in fact, some publications have described such activities as part of the duties of the collector. For example, in the Editor's "Introduction" to the Life Library of Photography publication, *Caring for Photographs*, 1972, states, "Most of the techniques of restoration, storage, and display are no more difficult than common photographic procedures." It is often the expectation of the collector that if he or she takes a problem print to a conservator the result must be to produce a perfect restoration. The goal that conservators hold worth attaining is to return the object to a stable condition and to compensate for loss, yet not falsify the intent of the artist nor erase entirely the evidence of damage. This is an impossible task, and one that has been criticized as being more a part of the character of American conservation tradition than that of Europe (Drysdale, 1988).

While many who work to conserve photographic materials are members of the AIC and conform in their treatments to the AIC Code of Ethics (Revised, 1994), many are not and practice as restorers, producing outcomes that often follow individual and idiosyncratic views of completion and intervention. Partly this follows from the nature of photography where photographers have traditionally been inventors of sort and amateur chemists. This attitude has spilled over into the ranks of collectors who often feel that they can follow the directions of a few existing texts (e.g., Eastman Kodak, 1952, 1979, 1985; Time-Life Books, 1972; Schwarz, 1977; Rempel, 1980; Lavedrine, 1990), though most books in the conservation literature are more oriented to describe conditions for preservation or to give collectors and curators a basis for understanding when

problems are present (e.g., Ostroff, 1976; Weinstein & Booth, 1977). Similarly a number of descriptive articles (e.g., Eaton, 1970; Rempel, 1977; Norris, 1992) are available. While much of the photographic conservation literature refers to problems in processing and image stability (e.g., Swan, 1987; Collings & Young, 1967; Wilhelm & Brower, 1993) and blends into the photographic technical literature (see, for example, Chapman, 1999). See, for example, Crabtree, "Stains on negatives and prints: their cause, prevention and removal," 1921. Recent articles on photographic conservation, like the conservation literature in general after 1985 is more concerned with analysis and description of degradation processes (see issues of Topics in Photographic Preservation). In 2005 a collection of essays on photographic conservation, Coatings on Photographs, appeared that seems to reflect the turning of the tide as the volume contains a number of useful and important descriptions of treatments. Like most of the recent conservation literature, however, it still reflects a central concern and focus on description of physical condition and analysis. Evaluation of treatment durability appears to be a long way off.

The idea that collectors can simply follow the directions in publications to complete desired restorations is often demonstrated to be more than a fallacy when they bring prints in the laboratory that have suffered from self-treatment. On the other hand some instructions in respected photographic publications cannot be followed to the desired result due to either problems in the directions or a lack of clarity in methodology and materials as Griggs and I (2001) described concerning published methods for cleaning slides. On the other hand, Bill Cooke made it amply clear in a review article (1989) concerning textile conservation (and I produced a very similar review of most of the rest of the conservation literature the same year Caldararo, 1989), that most of the conservation treatments done are unique experiments, drawn from limited documentation and derived from empirical work by lineages of practitioners. Little progress has been made in the past 20 years. Some books have been published on techniques, and a small number of scientific studies have been carried out on small samples of objects (Caldararo, 2004).

Surface features either of an original quality of the developed print or of the results of mounting have taken on an extreme focus among many collectors and some conservators. This is certainly reflected in the guidelines published by the Photographic Specialty Group in their Chapter 1 of the Photographic Materials Conservation Catalog (2004). The effects on image quality of exhibition exposure to light, heat, etc. or of outgassing from storage conditions, display furniture or matting and framing find special reference. A recent text edited by McCabe (2005) describes this focus in a comprehensive fashion.

This article will report on the conservation of a number of fiber-based gelatin silver prints by Ansel Adams. Some of the treatments discussed will be quite regular and uninspiring, but even these can inform us about the nature of the artist's working method and materials. Other treatments will describe challenging problems, especially of a group that suffered not only physical violence in the vandalism of a collection facility, but in the aftermath, water damage and disaster handling.

2.0 Treatments: Invasive Challenging Undertakings

There are some photographs in this group where considerable damage has taken place with loss of not only the surface features of the emulsion but significant paper loss, tears across the paper support, scratching and adherent debris and dirt onto the emulsion. The paper supports in several cases have suffered physical deformation both due to pressure and trauma as well as in laying in standing water on or among wet materials and piles of debris. It was obvious that after treatment some minor planar distortion might persist as well as irregular transitions in surface sheen, texture and reflectivity. Our goal was to return the images to a degree of authentic viewing integrity. Questions of loss of value resulting from the damage will always be attendant to these injuries in the objects and should always be disclosed. That fact alone will reduce their value in the eyes of some collectors. It was essential that this fact was clearly understood by the owner.

The collection suffered damage to a larger number of objects, our treatment here will be limited to only the Ansel Adams prints. Added to this one collection are several from other private collectors.



Figure 1

2.1 Ansel Adams Golden Gate Bridge #1, Before the Bridge, this print measures 15 and 1/2 by 19 and 1/4 and is mounted on an acid-free board. In all cases of original artists in this group the existence of a signature on the mat, or across the edge of the photograph and onto the mat, required treatment of the entire sheet, its treatment for mold, cleaning and any problems with flattening.

Condition. This print is a typical fiber-based silver gelatin print (Figure 1) which displays some significant degree of texture probably created in the original mounting process onto the board.

The water damage caused the failure of the adhesive holding the photograph to the board and can be seen as tenting or areas of folded image and indentations in the print. Larger "bubble-like" separations are present. The surface is scratched and there is significant debris and dirt on the surface. The mount board has suffered scratching and a few areas of surface skinning where something might have been adhered. The board and print are distorted and out of plane. Some adhesive residue was noticed on the edges of the print that most likely had resulted from the original mounting process, as these had become slightly yellowed and were visible on the edges of the print, especially the white areas. Some abrasions to the mat were present. It was obvious that when this work was removed from the wall and smashed on the floor, the broken glass shattered away from the print, and the print, supported by a thick 1/2 acid-free foam core backing, simply flexed. The entire set of fragments and the print and mat/backing must have landed outside of the main body of water.

No evidence was noted in any of the prints discussed in this article of degradation of coatings Adams used on some of his prints, especially large "overmantels" meant to be viewed without glass (Adams, 1967). Adams explained that these larger format images needed to be viewed without glass at a distance and the coatings could protect them from dirt, etc. and yet allow them to be cleaned (Adams, 1983). Chen and Albright (2005) published a study of the coatings Adams used on his photographs and had access to the comprehensive archives of framer and restorer, Paul Fredrickson who mounted and treated Adams' work from 1956 to 1984. This is a very useful and well thought out study of an artist's working method and his relationships with other professionals as they affect his or her work's preservation. What would be now helpful is for someone to carry further this study and produce microphotographs of images of coatings from the 1930s to 80s to quantify the ageing characteristics of the different coatings and also a tabulation of the solubility of coatings and their chemical identity. Apparently some varnishes were used as well as lacquers. Since the technology is available for the visualization of films that individual DNA molecules can now be resolved (Duggal & Pasqualli, 2004) characterization of films on images and their degradation states should be possible.

Treatment. The essence of the treatment process is to restore lost qualities of the original without changing the intent of the artist. Any intervention must be carried out with as little alternation as possible.

1. The board, or mounting support, could be flattened along with the print. It did not sustain any significant damage or soiling, and the moisture it had gained had been controlled by the owner's associates once the disaster was recognized. Though the exact methods applied are in question, it is clear that some increased air movement was used and controlled drying was achieved. Surface treatment was undertaken after the initial period of examination followed by exposure to UV to destroy active mold. The enclosure of the UV bank of lights was a shallow tray into which a thin layer of Boric acid powder had been dusted. A variety of tests using borates have shown that they can retard mold growth (e.g. Kartal, et al., 2003)

A soft Blower Brush was used to lightly remove debris from the surface mechanically. Extensive treatment to kill mold and remove mold stains and any mold remains was not necessary. In this case all that was required was exposure to UV light for 3 hours and dusting with Boric Acid. Sandra Nyberg's updated 1987 Solnet Preservation Leaflet summarizes most of the modalities in

dealing with mold and repeats the often heard argument that mold is everywhere so do not panic. Of course, in the case of highly contaminated objects one has to err on the part of prudence, so what is desired is to stop potential production of mold pigments and to assure that the percentage of active mold is returned to an “average” environmental level. Nyberg recommends, as do many other practitioners, UV treatment with care in mind to potential fading.

UV light has been found in medical studies to kill active mold and since the objects had been exposed to blood products and other body fluids this seemed to be a prudent avenue to protect both conservators and to reduce the presence of active mold, bacteria and other pathogens. The use of chemicals such as Thymol to kill mold can often give the conservator a false sense of security as many people are allergic to the dead mold spores as well. Edward’s Anti-Stat Cleaner was then applied to the print to remove surface debris and to allow for more comprehensive examination using a microscope (the Prior StereoZoomMaster 65 stand was the most appropriate for this process allowing for complete access to the entire print). Once it was apparent that no significant damage was evident, the surface was cleaned using PEC-12. The adhesive residue on the edges of the print was removed using Toluene. Abrasions to the mat (especially in the lower left) were consolidated with wheat starch paste.

2. The areas of lost adhesion between the print and mount could, in general, be restored by addition of adhesive (usually D-8) and heat or wheat starch paste and pressure. This treatment failed to produce satisfactory results in some cases, while in others during the procedure there appeared to be danger of creasing or tearing, and full removal of the photograph from the mount was then the only alternative.

Full removal was required in this case and the entire photograph had to be lifted from the mount and it was executed to minimize any damage to the mount as well as the photograph. Details of this process, and a summary of different methods used by other practitioners, have been published in an earlier article (Caldararo & Sheldon, 1992). It also involved removal of as much original adhesive and transferred fiber as possible as well as the mounting tissue if any was present. This was accomplished using Toluene applied with a brush and syringe. It was of interest that the adhesive and the mounting paper were hardly yellowed at all. A new Colormount Kodak adhesive was then used. Conversations with an associate of Ansel Adams, Allan Ross, have verified the nature of the adhesive used and the mounting procedures. From these conversations, we learned that Ansel Adams had dismounted a number of his early prints in the 1970s and replaced them with a new mounting tissue as he had seen the results of earlier mounting tissues where exposure to sunlight had caused the tissue to darken and become brittle affecting, in his estimation, the balance of brightness in the prints. Our work has attempted to reproduce the mounting qualities Adams sought in remounting his prints. It was obvious that this print had undergone the remounting process by Adams during the 1970s. In Caldararo & Sheldon (1992) we summarize some of the problems with older mounting tissues and boards from the published literature and our experience. It seems to me, however, that the tissue Adams was using in the cases we examined were not yellowing significantly.

3. Residues of adhesive and paper were removed with toluene and heat spatula.

4. Surface scratching was present and could be reduced by the application of slightly warmed photographic gelatin (2% to- 5% in water) via a brush with only a few fine hairs left (nearly a “one-hair brush” produced by reducing hairs with a scalpel), or with the “hairs” modified, sometimes “squared off” as in Figure 2b. Fogging or perhaps “blanching” was apparent, (as in a similar feature in paintings conservation where micro-cracking of the surface coating produces a change in transmittance of light) and often also responded to treatment, usually by delivery of a small amount of heat locally in combination with slightly applied gelatin. (Some coatings and consolidants limit the ability to inpaint effectively, see PMC Catalogue entry on inpainting and the McCabe (2005) text.)

Distressed and or dislodged emulsion and some carrier layers can be re-positioned with a dissecting needle or bone/folder/bamboo point and then warm gelatin added with a brush to level edges. A hot tool can also be used to reform dislodged corners or flaps.

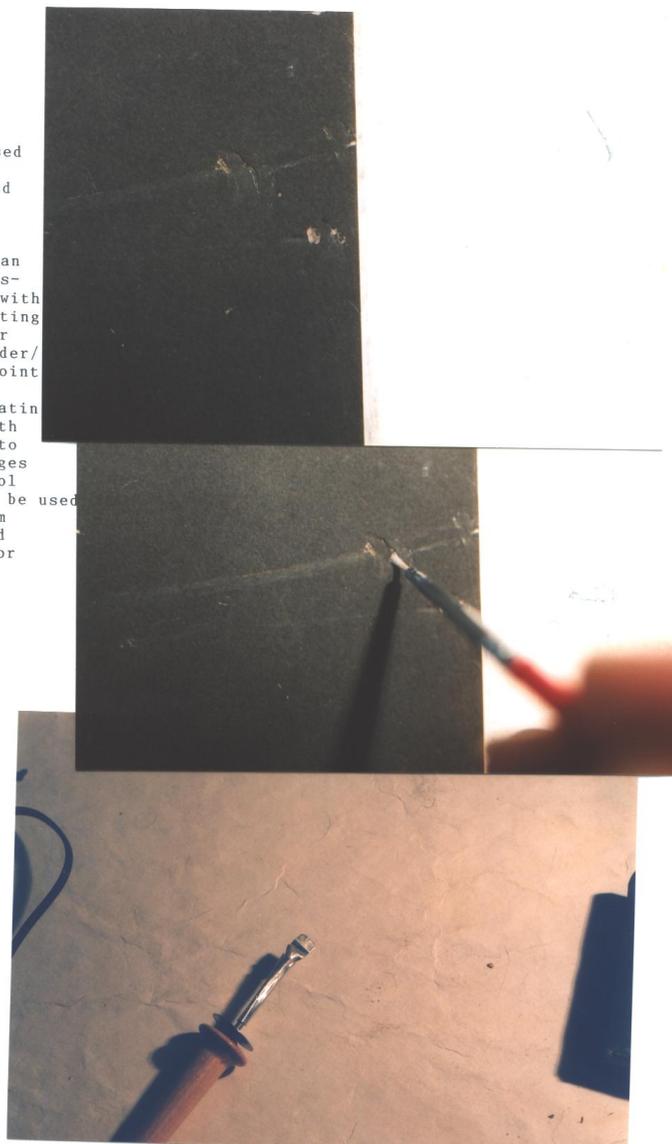


Figure 2a, 2b in center and 2c at bottom

Adherent foreign particles could be seen embedded in the emulsion and could be removed. This involved using a soft brush and a scalpel or plastic probe. As can be noted from the illustration (Figure 2a&b), scratching with broken glass can create deep, and very sharp cuts. The print also showed corner lifting, tidelines on the mat and puckering. The emulsion can separate from the cut, and then when exposed to water, lift on both sides of the cut. The edges of the cuts could be laid down with gelatin or a mixture of gelatin and BEVA D-8 or D-8 alone. The extent of the separation and the layers’ ability to adhere were the determining factors. Now and then PVA (AYAA) in alcohol (ETOH) was required though we often use isopropanol (ISOH) as well.

5. Abrasions to the mount were plentiful but could be reduced by burnishing with a bone folder or by the application of wheat starch paste or CMC depending on the difficulty in producing a smooth surface from a roughened or abraded surface with losses. Often these passed into the

area of the print but in most cases they did not penetrate to the photographic base or carrier paper, still they were significant and some “leveling” of the emulsion surface had to be attempted with warm gelatin. Burnishing over a piece of Mylar or other suitable material can prevent polishing. Sometimes small areas of uplifted fiber can be burnished more effectively by using the rounded end of a dental scaler.

The outcome of treatment for this print seemed very good, and its response to treatment rewarded that assessment.

2.2 Ansel Adams, Golden Gate Bridge #2 Baker Beach 1953.

This print measures 15 and 1/2 by 19 and 1/2 and is mounted onto 4 ply, acid-free board.

Condition. There were many areas of loss of adhesion; some of these are indicated in Figure 3a with arrows. “Bubble-like” areas were present (Figure 3b). A slight crease appears in a released area in the left central area. We thought this might be able to be relaxed and flattened, but it could resist and require the entire print to be removed to avoid creasing. All possibilities must be evaluated before choosing a treatment design and in this case experience had shown that the width of a crease in millimeters to the thickness of the sheet often dictated the results. If the heat could be applied evenly then some lateral movement of the fold might be expected, however, the degree of flow of adhesive and the rate of movement of heat and moisture through the sheet would determine the outcome. As there are no available means of measuring the potential for such factors to operate, the conservator is dependent on experience and prudence.

There were numerous scratches on the surface and the surface was covered with adherent dirt and there was some minor fogging/blanching.

Treatment.

1. Treatment for mold was undertaken as described in #1.
2. Surface scratching was reduced as described above with gelatin and heat, though some of these were quite significant and did not respond to initial treatment, but required several campaigns. Where cuts are deep and the substructure of the paper/emulsion layers has folded under or become distorted, I use a dissecting probe whose tip has been bent. The end of the needle can be hammered to any shape, or flat and then when inserted directly into the cut or tear rotated slightly to untangle dislodged layers into alignment. Sometimes it is necessary to use more than one needle and bend the end to slightly longer lengths. Reduction of fogging/blanching and removal of foreign particles from the surface was undertaken using fine brushes and swabs.
3. Flattening of print and mount was undertaken in a dry mount press between sheets of silicone treated Pellon (generally I spray my own sheets of Pellon with silicone. There is probably no difference in using Seal Release Paper, but I am sure what I am dealing with). Initial treatment was a success. Planar distortion was reduced, but it was considered necessary to reinforce the old mount by mounting it to an acid-free support of 4-ply mat board. This was thought to be prudent as some “memory” of distortion might remain.



Figure 3a above and 3b below

4. Reattaching the print to the mount and repair of folded or torn areas of the print was carried out using local heat and the addition of adhesive, usually BEVA D-8 with a syringe. Torn edges of the photograph could be readhered using wheat starch paste.

The main problem in cases of partial detachment, especially of the “bubble areas” was the concern to limit the invasive nature of treatments. If reattachment could be achieved using added adhesive without danger of creasing, then this was chosen as the most acceptable approach. The same caveat applied here as to item #1 above where the failure of minimal treatment would then require full removal of the print.

5. The mount was cleaned and an effort was directed to reduce scratches and torn or re-deposited debris. All of these operations could be undertaken with the proviso that existing evidence of the artist’s working method would be retained as possible. The most significant element of this was the artist’s signature. It was evident that the artist had remounted several of the prints himself in the past.

6. Again, damage to the mount or to the photograph might be possible to repair without unmounting.

However, in the case of this print also, if a slight creased area in the center could not be flattened, in situ removal of the entire sheet would be necessary. See Figures 4 for removal of the old mounting tissue from the original mount. Sometimes, where there are small areas of detachment and little risk of folding or creasing, a thermoplastic adhesive, such as D-8,

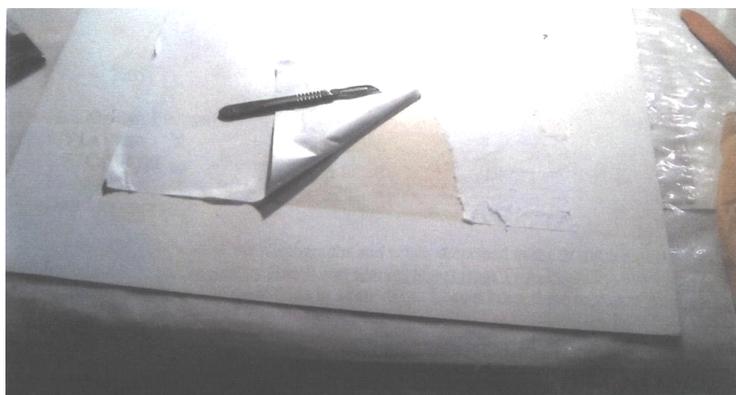


Figure 4

can be introduced by the use of a syringe followed by the application of heat and the print will resume a planar position. However, this is often difficult to predict before hand, and this is due to a number of factors including the flexibility of the sheet, the adhesive potential of both the verso of the print and the face of the mat, the possibility that the print has become distorted in size or shape during degradation or trauma. In this case, the initial tests indicated that some pinching of the print at the corners was



Figure 5

possible and the interior areas might crease. As a result the print was detached manually and with the aid of injected toluene. Once removed the verso of the print was cleaned of all paper fragments and residual adhesive, then remounted. See Figure 5 for “after” treatment.

2.3 Ansel Adams, Market Street from Twin Peaks, #3, measures 15 and 1/4 by 19 and 1/2 inches.

Condition. There were stains on the mount and one corner of it broken. It needed flattening and displayed severe planar distortion. Dirt and debris were on the surface and a few areas of minor lifting were present.

Treatment.

1. Treatment for mold was undertaken as in #1.

2. Surface cleaning with solvents was carried out including the use of PEC-12 by Photographic Solutions, Inc. and Anti-Stat Film Cleaner by Edwal. Both solutions are made up of fast-evaporating organic solvents.

3. Flattening of print and mount were mainly accomplished as noted in numbers 1 & 2. The broken corner of the mat was coated with CMC, fragments that had been folded over or pushed inward were reoriented with a dissecting needle or scalpel. Some paste was added with fine brushes to the interior and the corner placed under pressure. Areas of abrasion on the mat were burnished and a stained area was treated with ammonia 2% which lightens the area. Another stained area required treatment with hydrogen peroxide (3%) and alcohol 1:1.

4. Reattaching print to mount and repair corner was also done as described for the other prints. The corner damage also needed repair of the image sheet (photographic paper base) and required the use of wheat starch paste to reconstitute torn and twisted photographic paper. A similar use of tools and method as in #3 for the mat corner repair were involved.

The same course of possibilities for alternative treatment as above for possible need to remove print and remount were evaluated. In this case, however, no complete dismounting seemed necessary, instead the cleaned and repaired original mount and print were mounted to a 4-ply new backmat of pH neutral 100% rag.

5. The mount was cleaned of dirt, blood and other extraneous and adherent materials. Blood was able to be reduced by swabbing with deionized water followed by saliva.

6. Scratches were reduced using local heat delivered using a specially designed tip (see Figure 3c). The thin aluminum creates a heated surface but is not strong enough to be used to force an impression) followed by "Marshal's" solution and P.M. solution or saliva.

2.4. Ansel Adams, Sutro Garden, #4 1933 Mount 14 x 18 inches, image 11 x 14 a gelatin silver print mounted onto a 4 ply board (Figure 6).

Condition. Blood residue was present in a number of locations on the print. This has resulted in a slight disruption of the surface of the gelatin where the blood contacted the image. Blood is usually neutral pH and its components mainly protein and a small amount of lipids (some non-polar like triglycerides and cholesterol esters, but also some free fatty acids, vitamins and chylomicrons, see Shen, et al., 1977). Changes in blood as it ages is due to a number of factors

(Schwarzacher, 1930), but we could not determine significant factors for surface damage. Removal, however, in our tests indicated a nearly intact image under the blood. There were creased areas and scratches over the upper left area and traumatic delaminations in the upper right area with several significant losses in the surface of the print and paper. Scratching and abrasions were rife over the print surface. General damage can be seen in Figure 6. The mount board is a poor quality illustration board.



Figure 6

Treatment.

1. Treatment for mold was executed as described in #1.
2. Surface cleaning of debris and removal of debris in the paper support of the print and areas of loss was undertaken mechanically with a soft brush and then with solvents. Salvia removed some of the blood residue on the surface of the print, 2% Ammonia in water removed the rest and Marshall's P.M. Solution (which seems to be composed of some combination of turpentine and vegetable oils which we tested on cotton paper in a test oven for the equivalent of a usual artificial aging regime with little darkening) smoothed the area after. Hydrogen peroxide is often recommended for treatment of blood stains on fabric but should be avoided in regards to those on photographic images where it can produce characteristic oxidation (Reilly, et al., 1988). We were concerned that hydroperoxides in the water might have initiated peroxide associated staining due to the extensive damage to plumbing, walls and ceiling of the facility but none developed.
3. Consolidation of areas of loss was accomplished using warm gelatin. Photographic gelatin was prepared fresh in most cases though we have found that in some cases old gelatin, especially if left out for a few days has different qualities than fresh. Whether this is related to certain aspects of "aged" wheat starch paste in the Japanese practice of mounting is uncertain and needs to be investigated. Gelatin applied with a brush and with alternating the use of a bone folder and needles and pointed or rounded wooden tools to mold and flatten the gelatin surface often resulted in reforming a smooth association of the torn and mangled paper support layers and the gelatin. The delicacy of this operation can be appreciated as over working or too much pressure can enhance and spread delamination of the paper support layers and mangle or dissociate the gelatin film. Application of heated spatulas on raised areas reduced them and injected gelatin (using Tuberculin gauge needles, the 25 not 28 gauge) into raised and distorted layers followed by heat or pressure also had a flattening effect. "No Scratch" solution reduced slight surface abrasions along with small amount of saliva delivered on a fine brush.

4. The problem of restoring print loss areas is essentially an impossible one. Pigment, some of it carbon mixed with gelatin, some from the SpotPen and some applied by brush from Spotone colors (dyes) could be applied. A general leveling of loss areas was achieved by building up areas and blending tone. Some fiber could be added from acid-free scrapped photographic paper, and chalk, and then burnished with a bone folder after heating areas slightly with a hot tool specially made for each area out of aluminum (see figure 2c). Inpainting is similar in nature to that done in other works on paper supports, once the surface has been united by mending tears, filling losses and leveling with coatings of gelatin, etc. Inpainting media varies to the consistency of the surface, absorption and the mottling or design present. A number of popular texts recommend different pigments and methods (e.g., Schaub and Schaub, 1974; Shafran, 1967) and advice from professional photographers and avid amateurs is rife in publications of the trade like PhotoTechniques and Photography. While water color and gouache suffice for many problem losses, in many cases the surface features are unsatisfactory and an oil based pigment provides a stronger pigment layer more durable in later manipulation if necessary. This problem is mentioned in PMC Catalog, inpainting section, especially insufficient gloss and the “wetting” difficulty. Adding wetting agents or ethanol is recommended but practitioners but realize that these can produce irregularities in the pigment solution. Also, often only a small area needs to be compensated and mixing in additional volume can make difficult application given the surface tension required for a uniform layer to form. In these cases a product like the Grumbacher Gamma retouching colors is more effective. Nevertheless, later coatings, either of synthetic varnishes or gelatin are often necessary to achieve a uniform surface for the repair and surrounding areas. Often small areas are difficult to get a brush point into and the application of a small amount of adhesive with a few haired brush followed by crushed dry pigment on the end of a needle can be effective and reduce spreading or seeping of the pigment into cracks or fissures.

5. Compensation of areas of loss to unify image was a primary concern of the owner and translated to a detailed effort to locate any fragments pressed into the paper matrix of the print support. Where a loss existed the creation of a flexible fill to match the layers of the print was assessed. Often photographic paper fibers could be ground up or teased and added to wheat starch paste or BEVA D-8 and burnished or slightly heated with the hot tool. Leveling was monitored under the microscope with raking light and small volumes of D-8 or gelatin could be added with a narrow pipette or a thin brush (00).

The same procedure as above for assessment of the need to remove the print from the support to reattach or flatten, or consolidate was followed. Where a blow to the surface of the print has created a depression without breaking the surface is a terribly difficult one to correct. Local injections from the verso can result in correction but are nearly impossible to control. Removal of the entire print seems overly invasive, however, and a real dilemma results for the practitioner. In cases of tears or loss of the print’s surface however, the situation is a bit clearer. One often feels that a depression may still exist after all the fibers have been aligned and logically the impression is that there should be a visual correction, but instead a depression remains even though all the fibers are aligned. Certainly this is not always the case, but when this is the impression it usually results from the compression of the fibers in the area of damage and hydration does not always correct this situation. Therefore compensation can go too far in what may not be entirely reversible since addition of more material or pigment (etc.) can result in a

rise in the locality when the impression is perhaps incorrect and the result of a viewing error. Then one is driven to treat a larger area which only compounds the problem. This is why minimal intervention is best and the problem is made worse by coated photographs as Norris and Kennedy (2005) have noted.

6. Clean surface of mount and restore surface as described for above item #3. “after” image in Figure 7.

2.5 Ansel Adams Hot Monday Afternoon, 14 x 18, (clothes line) image, a gelatin silver print mounted onto a 4 ply board 11 x 14. (Figure 8.)

Condition. There was significant adherent foreign debris stuck to the surface. The emulsion was degraded and distorted in many areas. There was blood residue dried onto the surface. The mount was torn and stained. There was a general loss of adhesion seen partly in Figure 9 in the sky area as bubbles. Gouging and deep scratches were present. We were told that blue from a bed frame or bedding had covered the photograph when found and is seen staining the print. Mat board stain of the same source is also possible.



Figure 7



Figure 8



Figure 9

Chemical Tests. The blue staining seemed to respond to reagents at first when some movement or lightening occurred using organic solvents, especially with Dioxane, but no transfer could be achieved onto swabs and therefore more testing was undertaken. A Teas Chart was referred to for extensive chemical tests but results were negative, no window of solubility could be

identified. Characteristics of different pigments were considered along with their potential sources, paper, fabric, paint, plastics. Daniels (1995), Cook & Mansell (1981) and numerous chemical manuals like the CRC Handbook of Chemistry and Physics, 54 ed. 1974-5, offered no solutions, though tests were conducted using a number of steps suggested for microanalysis (e.g., C.H. Sorum, Introduction to Semi-microqualitative Analysis, 2n ed., Prentice-Hall, 1953. However, Grubenmann's (1993) suggestion to consider virtual liquid states versus hypothetical liquid states of molten solids at solution temperature, and related cues concerning dye reactivities, finally produced a methodology.

Further tests were necessary to determine the potential extent of removal. These demonstrated a diminishing return in solvent reduction. Even considering Grubenmann's arguments, solubility was limited no matter how the physical nature of the solvent action was applied to the potential windows of solubility. Considering the idea of physical attributes was of value, that is the physical state of the coloring agent and binding in the gelatin, brought the possibility that the nature of the pigment/agent could be approached by the same hypothetical means, that is a physical process, heat, etc.. Analysis of the stain indicated that sun bleaching was unlikely to reduce the stain entirely, but UV exposure did show promise. Exposure times were controlled and carefully monitored (Figure 12). Distance varied with experiments on the mat stain and eventually the lamp was placed within 10 inches of the photograph's surface. This was a "dry" exposure, and ventilation was provided by a small fan at about 3 feet. Eventually the staining was entirely reduced.

Treatment.

1. Treatment for mold was undertaken as in #1.
2. Surface cleaning of debris and removal of debris in paper support was done as in #1.
3. We consolidated surface damage of print as in the above examples.
4. Compensation for loss in silver image and sheen was also undertaken as in those above.
5. Flattening of image and mount was a goal but the same problems as above required some consideration for possible removal of print from the mounting board. "Bubbled" areas of detached adhesion between the print and the mount were restored with the use of a heat press.
6. Cleaning the area of mount at the signature and on the rest of the matting board was done using hydrogen peroxide and isopropanol (ISOH) 1:1 followed by saliva.
7. The abraded and torn areas of mount were restored. In many cases torn edges could be realigned by use of a brush and gelatin, aided with a dissecting needle to tease out fibers turned under or otherwise out of order. Extreme care has to be taken in this action with emulsion that has detached as any untoward movement can result in more damage that is difficult to correct. A small amount of BEVA D-8 can be used to plasticize areas that are bulked by damage and cannot be replaced and then low heat activates the D-8 providing a smooth and secure flat surface.

8. Reduction of staining followed research as noted above. Eventually research (as noted above) led to exposure of the print to UV light. After more than 40 hours of exposure the stain was gone (Figure 10).

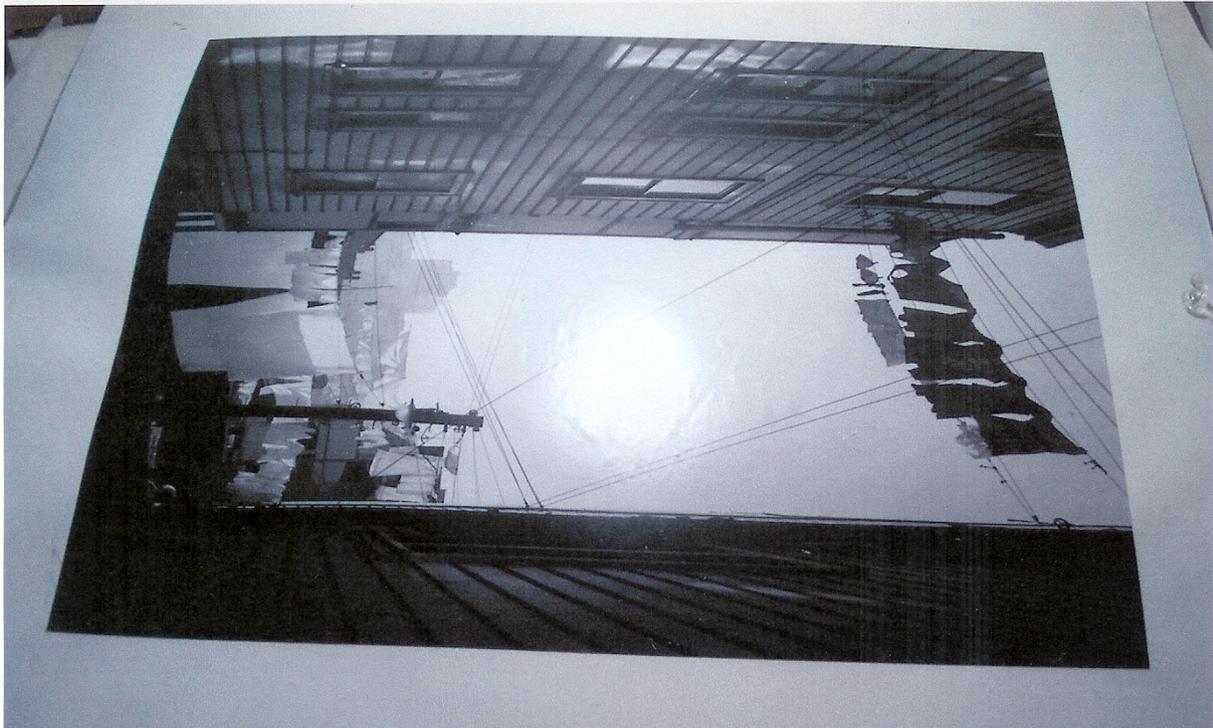


Figure 10

3.0 Treatments: Mundane Problems

This section includes three works by Ansel Adams that are not substantial treatments or did not require invasive operations:

3.1 Ansel Adams, “Mirror Lake” subject landscape of Yosemite with Lake, number 193.

Condition. This photographic silver gelatin print was mounted onto a paperboard that tests near neutral pH that is recommended for photographs. The signature is on the paper mount and the image measures 9 and 1/2 inches by 7 and 1/2. There was a slight ripple in the photographic image.

Treatment. No treatment was recommended for the print. This is the way Adams mounted his prints and there appear to be no problems. Reduction of this ripple may result from treatment, however, it may be that this is how the print was mounted by Adams or one of his staff. The affect is slight and seems insignificant.

3.2 Ansel Adams, “Half Dome” Yosemite Valley.

Condition. This print was mounted onto a back mat using ATG tape. The tape has no carrier once applied and is just a mass of adhesive laid down by a “gun” device that transfers the adhesive from a carrier roll in the “gun.” This adhesive is thermoplastic and has been applied across the signature of the artist (Figure 11 & 12)



Figure 11

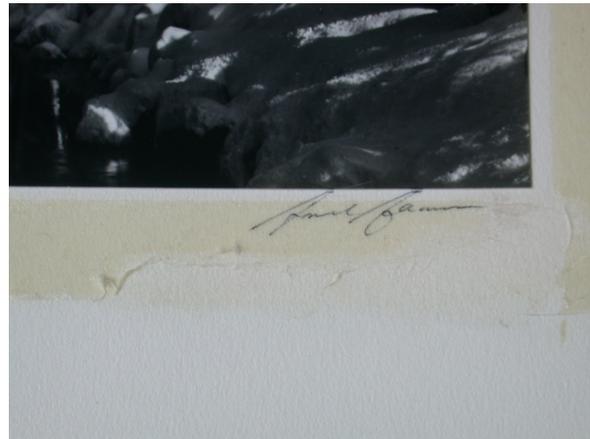


Figure 12

Treatment. Most of the adhesive could be removed manually using an eraser (Architect’s Pickup Square). However, that mass near and covering part of the signature had to be removed using toluene and swabs, delivering the toluene with a brush or pipette and removing the gelled adhesive with a pointed cosmetic swab. Very little of the signature was disturbed in the process.

3.3 Ansel Adams, “Mirror Lake” subject landscape of Mt. Lyell, number 91.

Condition. This photographic silver gelatin print was mounted as in the one above. It also had an acidic face mat adhered to it by pressure-sensitive thermoplastic tape. (Figure 13.) The tape adhesive layer has affected the mount, mainly by yellowing but also by a slight change in surface texture. Perhaps the ATG “gun” used to apply the tape pressed down too hard and resulted in this feature, or the degradation of the tape itself is the cause for perceived change. There is an acidic interleaving paper as well that has been attached to the top mat with an “Elmer’s” style glue (PVA).



Figure 13

One corner has been lifted in the past resulting in minor skinning of the photo mount. The signature, apparently in an ink, has faded somewhat either by exposure to light or by light and the effects of an acidic mat in contact.

Treatment.

1. The top mat was removed mechanically using the aid of a stream of hot air from a hair dryer, and other acidic materials, tape and tape residue were also removed mechanically using a spatula and hot air or a hard eraser. ATG adhesive residue with fragments of the liner paper attached were a characteristic of this combination over time.

2. Minor repairs were made to correct skinning to the surface of the mount using wheat starch paste and paper fiber and the surface was also cleaned using Groomstick and kneaded eraser.

The treatment followed the initial proposal from the examination with the exception that it was found that the inner lining of the mat was glued to the face of the print with an Elmer's-like PVA adhesive. This was removed using a mixture of solvents and a poultice. Areas of tearing caused by the owner or framer were readhered using wheat starch paste. The lower area of the print sheet was stained with the back inner lining paper due, I think, to the ATG tape or some process



Figure 14

used by the original matter. No method could be found to reduce this staining. Slight areas of buffing were noticed on the print near the signature. These were reduced with a surface treatment devised by Kodak (1985). In similar situations Kodak Film Cleaner containing fast evaporating solvents can reduce surface adherent substances, and the formula for removing lacquer (page 137), mixing ethanol and ammonia is also useful. (See figure 14 “after treatment” image).

4.0 Comments on Artist’s Working Method and Conservation Treatments

One interesting aspect of treatment has brought up a point of art historical note, perhaps. While dismounting the Market Street from Twin Peaks, print it became clear that the print was attached to the mount by a unique adhesive system. In figure 4 you can see that the print has been entirely dismounted and the surface of the mounting sheet is uppermost and a scalpel is laying on a turned up piece of this sheet revealing a yellowed adhesive field below. This is curious since

the back of the photograph also has a slight yellow tinge but the mounting sheet it self is free of yellowing.

At any rate, this curiosity did not affect the treatments. I knew that I would have to remove the mounts for some of the prints and remount them to achieve a flat surface. In doing this I have had to save the original matboard that is signed and, in some cases, stamped.

Addressing the Ansel Adams, Market Street from Twin Peaks print, there was some concern in maintaining the association of the mounting materials and the print, especially since Adams signed both the recto of the mat below the photograph and the verso in a stamp. Today many photographers and collectors differ on how to preserve photographs, some continue to mount, others deplore the practice. There are various opinions about the archival nature of mounting adhesives. It is obvious from the oral history of Ansel Adams, "Conversations with Ansel Adams," conducted between 1972 and 1975 by Ruth Teiser and Catherine Harroun (Regional Oral History Office, Bancroft Library, 1978), that Adams felt strongly that archival materials should be used on his prints and was concerned with methods of mounting. Unfortunately few Adams prints' conservation treatments have been published so we do not know precisely what methods and materials he used or were used by technicians and restorers he chose to work with. Perhaps Paul Fredericks will allow publication of his treatment reports which would be a great help. It is clear from the oral history that he used acid-free boards, Strathmore and then Schoeller boards. In speaking with Alan Ross, who was his assistant from 1974 to 1979, Adams used Kodak dry mount adhesives until 1975 and then Seal MT-5 for one year, then ColorMount after that.

This information produces some dilemma. It gives us some general idea about his use of Kodak products, but since the tissue and adhesive are not well characterized in the literature there is some question still about the mounting. Also, many of the prints we are treating are older than this information details. While the mounting tissue noted above in the case of Golden Gate Bridge #2, appears to be made with some rag fiber and has not darkened or yellowed, it does not conform to any known by other photographic conservators I have contacted (at least 15 responded in one way or another nationwide to a query on the Photographic Conservators' DisList). The adhesive could be a Kodak product, though it is not noted as used for this purpose in the literature. As the adhesive has yellowed the verso of the print I have removed it, though it has not affected the image it could continue to age and stain the emulsion or embrittle the paper. The area on the mat where the print was attached has also yellowed, and much more so. I have removed much of this residue and attached a barrier paper over the area to prevent any transfer.

5.0 Final Note on Form and Organization

The form of this article is derived from that of the treatment report for two reasons. One reflects comments and questions many conservators have addressed to me about the nature of the working method in their own practice. How does one use research materials in treatment design and decisions and organize treatments of a number of objects together into a coherent program of treatment, based on experience? The second derives from efforts by Nathan Stollow, Robert Organ, John Asmus and myself to develop materials and an approach for a book on conservation treatments. While these materials lay now as notes, unfinished chapters and ideas, I have utilized

some of our discussions in the development of treatment design in this article as a step by step template. Since the demise of the old Preprints format, the AIC has gone to a “scientific” format. What I would like to achieve here is to open a discussion concerning how useful our articles are to practitioners? Who are authors speaking to, what kinds of information are people (practicing conservators) interested in finding in the JAIC and specialty publications? My central interest is to find what is the most useful format for papers? What are the criteria for our publications, their goals and purpose? Hopefully this will be useful to others and spark discussions on treatment design and development.

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