Many years ago, when I first became interested in paper conservation I had the good fortune to be introduced to the lady who was the chief paper conservator at the Pierpont Morgan Library in New York City. I had hoped that she would take me on as an apprentice. Minna Nagle was at that time on the verge of retirement and could not do so but she gave me some very good advice: She told me to read everything I could find on the subject and then go out, buy some dirty or torn prints and practice on them. Finding the dirty and torn prints was not a problem. In those days there were some wonderful old print shops in New York where for one dollar, or even less, one could find little historic prints badly in need of restoration. There was the fabulous print shop of Walter Schatzky, long since closed; Argosy, on 59th Street, where you can still find treasures for very little; and way downtown was the magical Dickensian Pageant shop run by two wonderful, somewhat eccentric gentlemen, now alas, no longer with us. Shoved into piles of dusty corrugated cardboard boxes were some real finds, dirty, stained, soiled, torn, fly specked etc. In short, a heavenly trove for an ambitious, idealistic student of paper restoration.

The next step was not so easy. I spent hours at the Main Branch of the New York Public Library where I got everything out of the stacks that had anything to do with restoration or paper. I read through quite a lot of nonsense until I finally found the book that was to become my bible for those first years, a book written by Max Schweidler in Germany in the thirties called "Die Instandsetzung von Kupferstichen, Zeichnungen, Büchern usu." (The Restoration of Prints, Drawings, Books Etc.)

Schweidler must have been an exceptional craftsman, meticulous, demanding and highly skilled. I still hear awesome descriptions of his work from art dealers. But it is clear from his writings how much he demanded of himself and of his readers, his deep respect for the works of art he was treating and his understanding of the needs for correct and careful treatment. Some of his chemicals are definitely outdated. For instance, he used Carbon Tetrachloride, which we would now avoid. On the other hand he used calcium hypochlor and peroxide which we only went back to after having touted and later abandoned Chloramine. But what was really important to me were his manual techniques, his mending methods and his attitude towards the work. I will now read you a few passages from his chapter on mending:

"The preparatory treatment of a tear or other flaws demands absolute cleanliness while working, and altogether, painstaking cleanliness. The plate glass on which the work is done must be cleaned several times a day. The floors must be vacuumed and wiped thoroughly. All airborne dust must be avoided. A good result can only be achieved if these conditions are maintained. If you have not grown up with clean habits and don't keep your hands clean, keep away from restoration work!

To put it simply and clearly, restoration is not ordinary work but is technically and artistically demanding. Good craftsmanship is worth it's reward and every client will therefore understand, that it will be costly depending on it's magnitude. This should be understood by any collector who may one day, with a heavy heart, make his way to a restorer in order to salvage his treasures. Should the owner decide to have it done, then he can also expect that the restorer will approach his work not only with great pleasure but with dedication. Sensitivity to the object must absolutely be the first prerogative of the restorer.

A cleaned print from which all truly disturbing stains have been removed or mitigated must under no circumstances give the impression that it has been treated. The character, tone and warmth must absolutely be preserved. If I have already finished the pre-treatment with the greatest care, I will be even more exigent when it comes to the mending. For this work one needs, not only patience, love and sensitivity, but also - and this is important - a serene and cheerful mood. One must not do a restoration unless these requirements are met. When the piece is finished and ready to be returned to the owner it will be to your advantage to let it remain with you a little longer. This time period, or convalescence, must be allowed. As with an illness, one must study the recovering patient for a while.
Some weeks after the completion of the work, and after a thorough and professional examination, the print may be pronounced healed and healthy. Some may believe this to be a gambit to increase the cost of the restoration.

Dead wrong!

This careful examination and the devotion of the restorer to his work, especially where it concerns a masterly restoration, allows him to say to the client, "You must wait!"

In any case, long experience is required to succeed with a difficult piece of work. Should you accept a difficult restoration on the basis of my teachings, you must ask yourself whether you are up to the demands of this job. This will shield you from many bitter disappointments and sense of failure: as the old saying goes: "Es ist noch kein Meister vom Himmel gefallen!" (No one is born a Master). I don't think I'm exaggerating when I apply this saying to the restoration profession.

Problems with tears

The tear is to be closed. The mending paper has been picked out and matches in tone, texture, feel and translucency. Now one must examine the tears:

1. Is there a loss?
2. Are the edges dirty?
3. Can the tear edges be closed over each other?
4. Are there signs of an earlier restoration?

My answers to these questions:

1. If a tear does not close and it shows a lacuna when it is put together, it is advisable to bathe the sheet, for it is possible, after stretching the moist paper, to see if anything is indeed missing. Often nothing is missing, the paper has merely warped.
2. Dirty edges on the tear? They exist on every tear and must be completely removed with the scalpel. On the recto the dirt must be completely removed, otherwise the result will be that a black or gray line will remain.
3. Does the tear show edges that could overlap? Recent tears can often be restored invisibly when one applies starch paste directly to the edges. A fresh tear, that tore recently, can be closed invisibly if the tear has remained clean. Otherwise the edges must be scraped clean.
4. Has the tear been treated previously? A print previously treated by a skillful restorer shows thin areas on the verso which get thinner near the edges of the tear. Care must be taken not to do further damage by a wet treatment.

In answering the above questions I am only giving approximate advice, so that it can be seen how important it is to begin each job thoughtfully and not rush heedlessly into a restoration.

It is understandable that the verso of a print cannot be flawlessly clean, because even with great care it has been handled a lot. This barely visible soil must be given special attention. The sheet must be treated once again on the back. The area around the tear must be cleaned with a semi-soft eraser. If the dirt is still somewhat noticeable and does not respond to the semi-soft eraser, even with stronger pressure, then the sheet must be treated moist with a soft bristle brush. The immediate area around the tear must be flawlessly clean. If this is successful, the sheet is rinsed off once more and laid between blotters until completely dry.

When the sheet is dry, the area around the tear must be erased once more with a semi-soft eraser even though it appears clean.

Now one chooses a matching mending paper. This paper must match the original perfectly. It should now be a real pleasure to close the tear. Naturally this mending paper has to go through the same cleaning process so that no dirty edges can form. After cleaning the original and the mending paper one now begins the preparatory scraping by laying the paper face down. A piece of perfectly clean paper is laid between the tear edges so as to cover one half of the original. The exposed edge is now scaped tissue thin with a scalpel. One begins thinning the edge approximately 4 to 10 millimeters, depending on the size of the tear. At first one shaves off a thin layer, then some more until the edge of the tear is tissue thin. This thinning action forms a chamfered edge and must be handled very skillfully in order to avoid creating little tears or holes. The more carefully this is done the better the final result will be!

When the first edge is finished, one proceeds with the other in the same manner. The thinned edges must now be examined against the light to determine if the chamfered edges are evenly thinned. I would like to emphasize here, that the scraping procedure must proceed so as to always protect the paper from any injury.

The mending paper is now placed on the tear so that the laid lines completely match when held against the light. With the back of the knife, carefully score the shape of the chamfered tear into the mending paper.

The mending paper is then torn out along the scored lines. One must not simply cut this shape out with a scalpel because it will make the edges too smooth. For the same reason one must also avoid scoring too deeply. The little fibers which are created by tearing the paper are very important and must not be removed. The bonding of both pieces demands that these fibers or fringes are retained.

The mend or patch is now precisely torn to fit exactly over the chamfered tear.

The mending paper also has two sides; one which becomes the back of the tear, and the other which is to be implanted in the paper. It is this side which is to be thinned down and in exactly the opposite way to the tear: Where the tear has been thinned down the most is where the patch must retain its original thickness. The edges of the patch must not be thinned as much as the tear; one shaves just enough so that these edges also are somewhat chamfered. The center of the patch, on the implant side must be scraped lightly so that no soil appears afterward.

If both pieces have been well prepared then one lays the patch over the tear so that everything that has been chamfered is completely covered. Markings are now drawn in so that the patch may then be put in place exactly.

If a corner of a print is missing then you must be careful to set in a new one correctly. The edges of an old page often have a pleasant warm tone. In order to avoid retouching later you must
find a good matching paper. You must also remember that old pages, having been handled a lot, are often soiled. This soil must be carried over on to the newly added corner to even out appearances.

A retouch is immediately noticeable if the mend bulges or has not been previously evened out.

As an exercise I recommend precise copying of parts of other prints because you must get used to painstaking copying and casual draughtsmanship is of little use. Hand and eye rapidly become too independent if you draw line drawings with a loose freehand. It is easier to make a casual drawing than copy a model. The inescapable conditions demand greatest attention and give the eye and hand individual style which must never be noticeable or it will not be a restoration. The restorer only recreates. In our field one must never produce anything "new" but must bring the "old" back again.

Prints exist in many copies and one must, in order to do an exact restoration, obtain another copy of the print or a photo of it.

I must repeat that retouching (inpainting) is visual work. The eyes must be trained to truly see. Often one thinks that black is merely one color but printing inks change over time. But with a good hand and a perceptive eye, combined with a sense of the appropriate, the result cannot fail."

With Herr Schweidler as my spiritual guide, I taught myself some very good techniques. I treated a large number of worthless prints, made a lot of mistakes and learned quite a bit. Armed with these samples, some time later, I went back to the Pierpont Morgan Library. The chief conservator, Jens (Alexander) Yow, took me on as apprentice and I worked under him for nearly a year. What I mainly learned from him was to think first and restore later! This invaluable advice was echoed later on by Prof. Wächter under whom I studied in Vienna at the Akademie der Bildenden Künste. My experience at the Akademie was enormously varied. Art works from the early middle ages on came into our workshop from every provincial museum, cloister and library around Austria. Although I have been in practice now for over twenty years, I have never again had the privilege of handling such a variety of treasures.

Prof. Wächter also wrote a book entitled Restaurierung und Erhaltung von Büchern, Archivalien und Graphikten.(Restoration and Preservation of Books, Archives and Graphics.) He deals with a much larger variety of problems and in much greater detail, than Schweidler. He gives clear and concise advice on almost every ill that can befall a work on paper or parchment. On the other hand he spends only two pages on mending techniques where Schweidler writes a chapter of seventeen pages. However, his methods of removing stains and soil of all kinds is invaluable.

Contrary to Herr Schweidler's detailed leisurely descriptions, Prof. Wächter barks out his advice in terse one-liners:

"Releasing pasted or mounted papers:
Dry with scalpel or knife.
Spray with water (blow sprayer).
Cover with white, wet blotter (somewhat weighted) allow to wick.
With warm water if inks and pigments withstand it.
With hot water if inks and pigments withstand it.
With steam. Paper funnel over pot with boiling water, opening above or with moist white blotter and iron.
Alumpaste: hot water and wetting agent.
N-Methyl-pyrrolidon to dissolve old wheat paste.
Vinegar solution to dissolve animal glue, rinse well."

The mending of tears and holes was discussed in less detail by Wächter. He agrees with Schweidler (whom he occasionally quotes) on thorough cleaning of tears and holes before mending. He describes how to mend holes with Japanese paper in the usual way. He describes the use of laid paper for mending in a few lines of essentially the same information as we get from Schweidler. The only noticeable difference being that the chamfered edges should only be 2mm. Here are his instructions on intarsia (inlay) mends:

"Lay paper with hole on lightbox.
White blotter underneath.
Repair paper over it.
Perforate repair paper closely (hole next to hole) along the edge of the lacuna with a needle.
Moisten perforated edge and tear along it.
Brush methyl cellulose along corresponding edges.
Cover with Japanese paper and press between sheets of wax paper (Ölpapier)."

At that time there was greater interest in pulp mending or pulp filling which, in the seventies was just being perfected and experimented with. Herr Schweidler practically sneered at pulp fills, and no wonder. According to his description, restorers in his time made a thick paste of ground up paper, rolled it into a gluey ball from which they later filed off what they needed, mixed it with glue and made a paste which they smeared over the repair. The results were clumsy and obvious. The technique of flooding pulp in large amounts of water had obviously not been thought of yet.

Since the students at the Akademie were all art students originally who had then decided to study restoration, it was natural to them to work in an aesthetic manner. Their fills and inpainting were beautiful and expertly done. They understood without having been told that the final result had to be visually perfect. In my practice I have maintained that standard wherever possible. Of course not everything can be resuscitated to its original appearance. Not once has any client asked me to do an "obvious" restoration. To do
a less than perfect repair is to do a great injustice to any work of art on paper since they are mostly small in size and more delicate than other works of art. This is of course more true of earlier old masters but even a twentieth century print, especially one with large white areas, diminishes aesthetically because of some blemish when imperfectly restored.

If a restoration is done so perfectly as to be invisible, is there a deception practiced here? Not if it is visible on the verso. And it always should be.

I have on occasion been asked by a client to examine a work before he buys it. If one suspects that a print or drawing is not completely intact, then it should be examined under the blue light as well as examined front and back with a magnifier. It also helps to look at a sheet over a light table and always do an examination in bright light, preferably natural light.

It is our mandate, as restorers, to protect the art buying public but also to protect the work of art that we are handling. This is done not only by correct and careful chemical treatments but the best craftsmanship and artistry we can muster.

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