Sara Ribbans
Queen's University

PAST PRACTICES CAUSING MODERN PROBLEMS: THE CONSERVATION OF THREE JULES CHERET POSTERS

1. INTRODUCTION

Often treatments that were performed in the past have since proven highly detrimental to the condition of the object. This is readily apparent in the case of lamination and mounting for document repair. Lamination was first introduced in the 1930's and quickly became the primary choice for strengthening and repairing paper on a large scale. Due to the ease and relative inexpensiveness of materials, lamination seemed ideal and continued to be used well into the 1970's, at which point the degradation of lamination materials became noticeable (Munson 2003). The same polymers and adhesives found in lamination were also used for mounting documents, for the same reasons as those given for lamination, and provided similar problems for conservators as the materials degraded.

The problems caused by seemingly ideal past treatments were brought to the forefront of discussion when three posters by Jules Cheret, each having been mounted on polymer films, were treated in the Queen's University paper conservation laboratory.

2. BACKGROUND

2.1 ARTIST

Jules Cheret was a French lithographer who was very much a part of Paris life at the turn of the twentieth century. Born in 1836 to a family of artisans, Cheret was apprenticed to a lithographer at the age of 13. While he continued to search for work to support his art, even travelling to London in an attempt to gain success, it was not until 1866, with the help of perfume merchant Eugene Rimmel, that Cheret established himself as a great poster artist. It was then, because of his mastery of lithography and innovation of technique, that Cheret became known as the father of poster art (Cheret 2004).

2.2 LITHOGRAPHY

Colour lithography came to life under his mastery as he invented a new form that involved using only three to four stones to create a rainbow of colours. From 1869 to the early 80's Cheret used three stones; one black, one red, and one graduated background that changed from cool colours at the top to warm colours at the bottom (Fig. 1). He built up colours by superimposing them in delicate layers (Cheret 2004). In the 90's Cheret ceased to use black at all and instead all outlines are done in blue, as well as objects that are conventionally black (Fig. 2). In 1900 Cheret abandoned lithography and devoted himself instead to working in pastel and oil until his sight failed him after 1910. He died

in 1933, remembered for the gaiety and colour that he brought to the streets of Paris (Abdy1969).

Fig. 1 Cheret's "Pierrot and Violin"

Fig. 2 Cheret's "La Danse du Feu,"

2.3 CONDITION

Having now seen three of Cheret's posters up close, it is easy to see why they should have been so admired and collected in their time. Bought by a private collector, "Le Courier Francais," "Les Espagnoles," and "Le Miroir" (Figs. 3,4, and 5), were brought to the Queen's University conservation program after having been turned down by a private conservator in Toronto. In a highly objective manner, each of the second years chose a poster based on the colour of their hair and then began the long process of analysing the condition of their chosen object.

Fig. 3 Le Courier Francais

Fig. 4 Danseuses Espagnoles

Fig. 5 Le Miroir

Posters by Jules Cheret were mass-produced for the purpose of advertising, and as such each poster is printed on a thin, poor quality, wood-pulp paper. They were never intended for long-term display, which could account for their degraded condition and why they were not treated with concern for their longevity. At some point in their life each poster had been folded into sixteen squares, as can be seen by the grid-like pattern across their surfaces (Fig. 6). This was most likely for the purpose of storage due to their large size, each poster measuring around 123cm in height and 88cm in width. They had also received slight water damage at some point, creating tide-lines along the lower edge, and were severely stained. This, though, was not the worst of the damage. Indications of the real issue relating to the conservation of these three posters can be found in the overlapping of sections at the fold lines, and in the severe cockling, which can be seen dramatically in raking light (Fig. 7).

Fig. 6 Grid-like fold lines

Fig. 7 Image under raking light

Not only had pressure sensitive tape been applied along most of the folds, which would have been difficult enough to treat on its own, but each poster had also been lined with a heavily plasticized, pressure sensitive polyvinyl chloride, or PVC film (Fig. 8). Pressure sensitive PVC films similar to the ones we were now facing have often been sold and used for the purpose of document repair. Heavily plasticized PVC films are notoriously unstable and it was the degradation of these backing films that had caused most of the problems now faced in our treatment plan. The plasticizers had leached from the film and into the poster, causing an increased discolouration of the paper. The films themselves were yellowing, and, worst of all, they were shrinking. It was the strain of the PVC film shrinking that was causing the cockling of the posters and the overlapping of sections where the paper had already been weakened through folding.

Fig. 8 Verso of poster with PVC backing film

3. TREATMENT

Faced with all these issues, a treatment plan was devised. The basic steps included; removal of the backing film, removal of any residual adhesive, washing the posters, repairing tears, lining the posters with a more benign support, infilling losses and inpainting media losses. A simple enough treatment in theory, but what turned into an eight-month ordeal. Four of those months alone were spent on backing removal. After all, there was a reason these posters had been turned down by a conservator in Toronto. While the backing for "Le Mirroir" came off in two days by mechanical means, the other two posters were not as simple. Because the adhesive was not as degraded as it had been on "Le Mirroir," the carrier was not delaminating in a similar manner and solvents had to be used in order to separate the backing from the paper. While Fourier transform infrared spectroscopy had shown that the adhesive was likely a poly(2-ethylhexyl acrylate) and that methanol would bring it into solution (Fig.9), we were hoping to use less toxic chemicals. For this reason, tests were run on various solvents and it was found that the adhesive on "Les Espagnoles" would soften in ethanol, but "Le Courier Francais," was less forgiving and required much more drastic chemicals. In the end, xylenes proved the most effective.

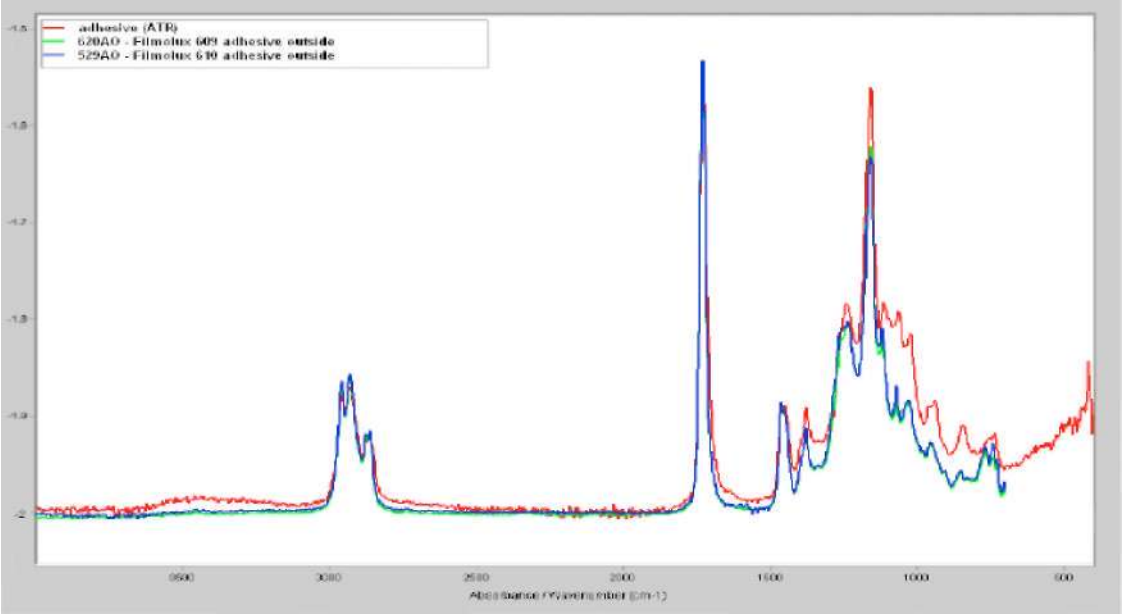

Fig 9. The adhesive being analysed (red trace) is compared to Filmolux 609 (green trace) and Filmolux 610 (blue trace), which have adhesives based on poly(2-ethylhexyl acrylate). Filmolux products are sold for use in document repair

3.1 BACKING REMOVAL

Due to the severe staining of the posters it was decided that solvent vapours would be the best course, rather than risking the tide-lines solvent application was most definitely going to create. Vapour application still posed some difficulties, as the fumehoods were just not large enough to hold the posters. It would also be impossible to have the

appropriate level of control while peeling away the backing when it was necessary to lean over the counter and under the fumehood sash in order to reach the area that was being treated. Because of this, solvent vapours could only be applied to small areas under the fume trunk with personal protective gear. The process of solvent vapour application outlined below was used for both ethanol and xylenes.

The poster was first laid face down, with the backing film facing upwards for easy access. A blotter saturated with solvents was sandwiched between Mylar and Goretex and then slipped under the poster so that the solvent vapours could access the adhesive through the more permeable paper layer. A piece of Plexiglas, intended to keep the solvent vapours in the adhesive layer longer, was placed on top and then weighted. This was left in place for about 20 minutes for the ethanol and 45 minutes in the case of the xylenes. Once the solvent vapours had adequately softened the adhesive, the PVC carrier could be easily peeled away with tweezers. A sample diagram of the vapour application can be seen in Fig. 10. In the case of "Le Courier Francais," where areas of thicker ink hindered the solvent vapours from passing as easily through the paper layer, there was a slight skinning of the paper surface. This was unavoidable in the circumstances and while it meant a loss of paper fibres, it also meant that the adhesive was removed with the PVC carrier instead of being left behind on the surface, as was the case with most of the poster.

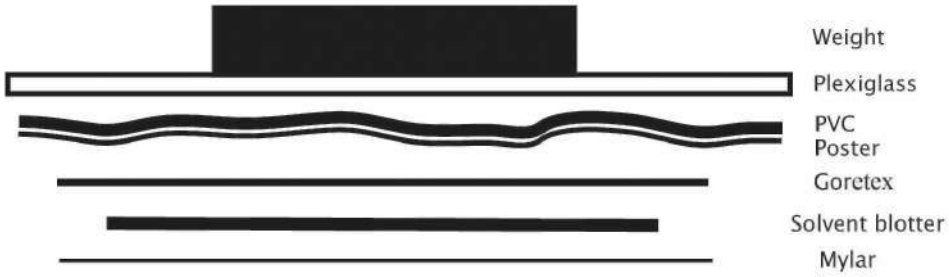

Fig. 10 Diagram of solvent vapour application

3.2 ADHESIVE REMOVAL

As can already be seen, each step of the treatment seemed to lead to another problem. Once the backing was finally removed, the posters were in a number of pieces given that many of the folds had split: most likely the reason for the application of the backing in the first place. In addition to the larger sections, there were many small pieces that had broken off due to the increased brittleness of the paper, especially at the intersections of fold lines. The verso of each poster was also still coated with the adhesive that had not been removed with the PVC carrier. It was therefore necessary to go back over the poster with a crepe eraser in order to remove the remaining adhesive little by little (Fig. 11). The brittleness of the paper meant that it was very important to work cautiously, especially since areas that had cockled or wrinkled were abraded and ready to split at the slightest pressure. The edges were so delicate that the crepe eraser could not be used at all, but instead solvents were gently rolled on with a swab in an effort to remove as much

of the adhesive as was possible without allowing the solvents to soak into the paper and cause tide-lines. No matter how gently treatment proceeded, there were always additional losses that had to be bagged and labelled (Fig. 12).

Fig. 11 Adhesive removal with crepe eraser

Fig. 12 Labelled bags of losses

3.3 WASHING

Once as much of the adhesive as was possible had been removed from the verso of the posters, the next stage was to remove the remaining discolouration by washing. It was definitely impossible to immerse the pieces, because of the brittleness and deterioration of the paper, so it was decided that the best course of action was to wash them on the suction table. This would give the paper stability while wet, draw out the discolouration, and limit the amount of time that the posters were saturated with water. One of the first issues that emerged with the consideration of washing was that the posters were no longer in one piece and sections were being washed separately. This meant that it was necessary to ensure that the same procedure was carried out for each portion in order to guarantee that an equal amount of discolouration was removed from each piece and that the tone of each section would match when the poster was pieced back together.

Before treatment began, all of the inks had been tested in water and ethanol and were found to be stable. These tests, though, are not always 100% accurate, and so washing proceeded with caution. Each piece was sprayed out with a 50:50 solution of distilled water and ethanol to ensure an even wetting and then transferred onto a blotter that had already been put in place on the suction table. The pieces were then washed with distilled water raised to a pH of 8 with Calcium hydroxide and a 50:50 solution of distilled water and ethanol (Fig. 13), depending on the severity of discolouration. Each piece was washed for the same amount of time and stained blotters were exchanged for clean blotters the same number of times. While washing it was discovered that in the areas of thickest ink application, the water could not pass as easily and little to no discolouration was removed (Fig. 14). This was not as much of an issue as the overall tone had been since the discolouration was not as visible in the areas of densest ink.

Fig. 13 Washing on the suction table

Fig. 14 Effect of heavy ink application on washing

Additionally, the caution taken towards washing paid off as some of the inks that had tested stable proved to be somewhat sensitive to ethanol. For example, the red ink on "Le Courier Francais" turned out to be slightly soluble in even a 50:50 solution of ethanol and water. While ethanol could have removed more of the discolouration it was impossible to apply it to the entire upper portion of the poster, therefore using it on stains in any other area would have caused an uneven appearance in the tone of the paper. The inks on the other two posters proved more stable, so that ethanol could be used more freely in the reduction of staining. Since "Le Mirroir" and "Les Espagnoles" were more discoloured to begin with, the ability to use ethanol for washing meant only that the final tone of all three posters matched more closely. As can be seen in Fig. 15, it was possible to reduce the discolouration of the posters to a large degree.

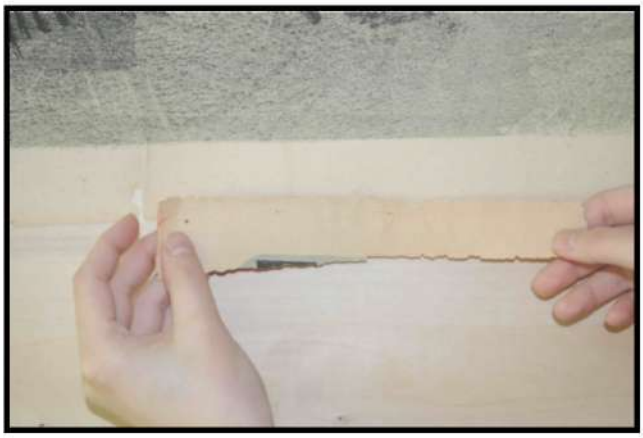

Fig. 15 Difference between the colour of the paper before and after washing.

3.4 TEAR REPAIR AND REALIGNMENT

While the need to piece the posters back together is apparent, there were also a number of smaller tears on each section that had to be aligned and repaired before the entire poster

could be re-adhered (Fig. 16). Difficulties arose in aligning these small tears since many had been pulled apart due to the distortions caused by the degradation of the PVC backing. It was necessary to align the image and match the edges back up, then repair the tears with Japanese tissue and wheat starch paste. The large number of tear repairs became an issue later, when approaching the lining of the posters.

Fig. 16 Smaller tear repairs on one section

Aligning the larger sections was another issue, since it was important to make sure that all the image areas matched. Not only was this difficult since it was necessary to work out a way to see the image while repairing from the verso, but the distortions due to the degradation of the PVC backing meant that the sections did not always line up easily. Two methods were developed that worked with the individual abilities and comfort levels of the students. For one student a light table that was large enough to work on the entire poster was rigged so that the poster could be worked on from the verso. The other two students chose to work from the front, aligning the sections and sliding the tissue repairs underneath on holytex and blotters. In either case, it was never certain once the repairs had been weighted whether they would stay in place or shift. This caused a certain amount of stress, but also forced a deeper understanding of the papers reaction to moisture and the different approaches to tear repair.

3.5 LINING

Once all the sections were finally together as a whole the posters required a strengthening lining, one that was much more benign than that which had just taken months to remove. A Japanese tissue of a weight that was strong enough to support the poster, but not too thick that it would create tension, was chosen. The method of lining, though, had to be adapted to the condition of the posters.

Factors that had to be considered were:

1. The size of the posters
2. The thinness of the paper and its brittleness
3. The sensitivity of the inks
4. The different coefficient of expansion between the tear repair tissue and the paper

As can be seen in Fig. 18, the size of the posters meant that the lining process took over the entire paper lab and everyone became involved. In addition to the size, the brittleness of the paper meant that the posters were unlikely to withstand their own weight if moved while wet. After some discussion it was decided that it would be best to set up the lining paper and the poster on sheets of Mylar, which could act as supports during the lining process. The lining was then pasted out with a thin wheat starch paste while the poster was sprayed with a 50:50 solution of ethanol and water followed by distilled water raised to a pH of 9 with calcium hydroxide. This was intended keep the poster moist and to deacidify the paper at the same time. Once the lining was entirely pasted out, it was lifted over to the poster and brushed down from the centre outwards. Fig. 19 shows where problems began to arise in the lining process.

Fig. 18 Lining set-up

Fig. 19 Cockling of the poster when moistened

When the posters were sprayed out with water, instead of relaxing they cockled quite drastically due to the number of tear repairs. The tear repair tissue and the paper were expanding to different degrees, and this tension was causing the cockling. Because of this reaction, we were faced with the problem of smoothing out wrinkles that formed as we tried to brush the lining paper onto the poster. This entailed gently manipulating the wet poster as the lining paper was lowered down. While many of the more severe wrinkles were smoothed out, some minor ones remained that would hopefully be smoothed by drying under tension.

Once complete contact between the lining paper and the poster had been ensured, the Mylar was peeled away and the edges of the lining paper were pasted with a thick wheat starch paste. An interleaving sheet of holytex the size of the poster was placed over the lining to ensure that there would be no adhesion between the lining and the drying board. The whole piece was then lifted on the second sheet of Mylar, up to the drying board, and brushed into place. The Mylar and holytex protecting the recto of the poster were peeled away revealing the lined poster mounted to the drying board (Fig. 20). The process was completed by covering the posters with polyester batting for a day to slow the drying

time down and then allowing them to air dry for several more days before continuing with the treatment.

Fig. 20 Les Espagnoles mounted to the drying board after lining

3.6 INFILLING AND INPAINTING

When the posters had dried completely it was time to infill the areas of loss, those often-gaping holes. All the pieces that had detached after the backing was removed and during the adhesive removal had been collected, bagged, and labelled. These were now washed and fit back into place as best they could. Often the pieces were so small that while the section of the poster from which they came had been indicated, it was not certain where they were actually meant to go. Time and patience ensured that as many of the original pieces of the poster were put back into place as was possible, and the few small pieces that remained were bagged and kept with the posters. The remaining areas of loss were filled with a paper of similar weight and texture to that of the poster, which was toned with watercolour; first to the colour of the paper and, once adhered into place with wheat starch paste, to the colour of the surrounding image (Fig. 21-22).

Fig. 21 Initial area of loss

Fig. 22 Area of loss after infilling and toning

It was at this point that an understanding of Cheret's working method came in handy. To match the image on the poster, an understanding of how Cheret superimposed colours was necessary. For example, all of the colours of the section shown in Fig. 23 are made up of only four colours in total: yellow, cyan, blue, and red. The shading in the yellow of her dress is created with small dots of cyan overtop of the yellow undercoat, and the purples are made by superimposing red over either cyan or blue. To try and mix the colours directly would not have been effective because it is often simply small dots of one colour on top of another that creates the final effect. Once this colour theory was understood, it was much easier to tone the fills and inpaint.

Fig. 23 Sample of colour layering on "Le Courier Francais"

Small areas of loss were filled with a pulp paste instead of a paper fill. The paste was made by mixing cellulose powder with water and wheat starch paste until a uniform, creamy mixture was produced. It could not be too wet or the water would simply leach into the surrounding paper and cause tide lines. A very small amount of paste was applied to the area with a micro spatula and then smoothed over with a bone folder (Fig. 24). These areas were toned in the same manner as the paper fills.

Fig. 24 Infilling loss with Pulp paste

Finally, those areas that had media loss due to abrasion and wear were inpainted. The area was first coated with 2% methylcellulose A15C to create a barrier, and then inpainted with watercolour. The final effect was one that the infills and inpainting

blended into the poster when viewed at a distance, but would be noticeable to those who looked more closely.

4. CONCLUSIONS

In the end, the posters are in a much more stable condition, with repair and lining materials that have been proven over time. Posters by Jules Cheret, which were once so prolific on the streets of Paris, are now becoming more rare. The already poor quality materials used for poster art have been combined with poor preservation decisions to the detriment of Cheret's art. It is therefore important to ensure that what remains is taken care of as a testament to the father of poster art. These three posters, at least, are no longer faced with further deterioration due to inappropriate preservation methods and they face the next century with a much better chance of survival.

The treatment of "Le Courier Francais," "Les Espagnoles," and "Le Miroir" was a challenge, and often frustrating, but also proved to be an incredible learning experience. One that will influence our future decisions and make us think before performing a treatment that could come back to haunt us somewhere down the line.

ACKNOWLEDGEMENTS

I would like to thank Dr. Herbert (Gus) Shurvell and R. Scott Williams for their help in interpreting the FTIR spectra of the polymer backing. I would also like to thank Professor John O'Neill for his help and support during the treatment process. Finally, I would like to thank Rebecca Craigue and Natalie Boruvka for their input on this presentation and their fellowship as we undertook the treatment together.

REFERENCES

2004. The Life and Art of French Painter Jules Cheret. http://www.cheret.info (accessed March 30, 2006)

Abdy, Jane. 1969. *The French Poster: Cheret to Cappiello.* London: Studio Vista.

Munson, Marit, ed. 2003. *Guidelines for the Care of Works on Paper with Cellulose Acetate Lamination.* Washington DC: National Museum of Natural History Smithsonian Institution. http://www.nmnh.si.edu/ (accessed September 13, 2006)