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Yves Gaucher's *Homage to Webern No. 1:* A Multidimensional Treatment

ABSTRACT

Showing an expertise in paper manipulation worthy of any paper conservator, Montreal artist Yves Gaucher produced a series of prints in the early 1960s where the paper surface itself was raised and lowered in relief, creating the compositional elements. The neat geometrical shapes molded into laminate paper supports remain structurally stable to this day. Unfortunately, shortly after creation these prints developed numerous small orange stains. These stains severely detract from the formal quality and the impact of the art work. Traditional methods of paper conservation are not designed to deal with the third dimension; as a result even the most basic treatments undertaken had to be modified. This paper discusses the method of production of these prints as well as the treatment developed, which included temporary consolidation of the three-dimensional elements using cyclododecane, chelation and bleaching of the stains, overall washing, and returning the object to its original shape.

INTRODUCTION

On a microscopic level, the fibers and particles that compose a sheet of paper show three-dimensional contours and interstices. However, on a human scale, we are accustomed to a sheet of paper being flat. Many paper conservation techniques are premised on working on a flat sheet: we remove cockles and creases, reattach tented media, and return supports to plane after aqueous treatment.

In most works of art on paper, the microscopic three-dimensional nature of the paper does not affect the treatment options. Less commonly, works of art on paper have visible and deliberate three-dimensional structure. Examples of this may include blind stamps, embossments, or heavily impastoed media. These areas of relief in mostly flat objects can be vulnerable to the use of moisture and subsequent flattening.

CONDITION

This paper discusses the treatment of *Homage to Webern No. 1*, by Montreal artist Yves Gaucher. This print is one of a series produced by sending a double layer of paper through a shaped press. The image produced was not inked, but rather consisted of a composition of raised and lowered shapes in the paper plane. These shapes created a subtle image that was most visible from the shadows cast by the embossments (see fig. 1). The two papers, Arches printing paper and moriki Japanese tissue, were adhered

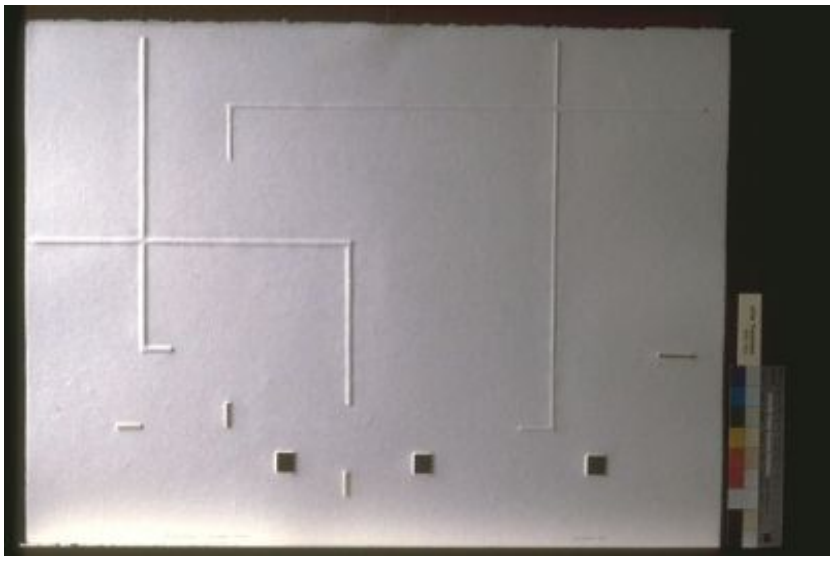

Fig. 1. Before treatment, raking light. The lines visible are all created by shadows from embossments in the paper

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to each other using a water-based wallpaper paste. Therefore both the image and the laminate support were quite sensitive to aqueous treatment.

Since their creation in the early 1960s, most prints in this series have developed scattered orange stains. While most of the stains are less than a millimeter in diameter, they are widespread and often clustered to result in an overall orange spot. The stains are particularly distressing because of the formal, subtle quality of this piece; prior to treatment, the National Gallery of Canada had considered it unexhibitable. The orange stains were caused by tiny iron particles on the recto of the print. They were identified by their characteristic color, the presence of visible metallic particles, and by a successful test of a chelating agent.

Two theories have been proposed for the origin of these metallic impurities. Over the years, Gaucher began to believe that the road salt which he added to the paste to prevent odors held metallic particles. It has also been suggested that the Japanese tissue may have been dried on metal drums during production, causing iron transfer; several other Japanese papers produced in the 1960s display similar orange speckles. At any rate, the stains were significantly interfering with the intention of the artwork.

Prior to treatment, *Homage to Webern* displayed excellent planarity and the embossed image was clearly defined. Some small areas of delamination were present, which could be reattached locally. However, the orange stains were so widespread as to require an overall aqueous treatment. Even if a treatment were applied locally to remove the stains, the chemicals would have to be rinsed away in an overall bath. But treatments of mock-ups clearly showed that some form of pressing (used in this paper to refer to the use of a blotter stack and plate glass, not a mechanical press) would be required to return the print to plane after immersion.

TREATMENT

The embossments, which were between one-eighth to one-quarter inch high, simply could not survive dampening and pressing. It would be unacceptable to lose any portion of the height or clarity of the embossments during treatment, as they were the major image elements. It was clearly necessary to find a way to protect the embossments while returning the object to plane, if any aqueous treatment was to proceed.

Previously, paper conservators have used Paraloid B-72 as a temporary consolidant to protect embossed areas during aqueous treatment. In this case, there were several significant drawbacks to this method. A local impregnation of B-72 would interfere with the wetting of the paper, resulting in an uneven treatment of the scattered stains. It was also a concern whether B-72 would be strong enough to hold the shape of the embossments under the weight of pressing, as it is designed primarily as a varnish, not a structural adhesive. As well, it could not be removed in the normal way, using solvents and local suction, because the suction pressure would threaten the structure of the embossments.

After rejecting Paraloid B-72, another temporary consolidant, cyclododecane, suggested itself. Cyclododecane is hydrocarbon wax which has been recently used in sculpture, painting, and paper conservation. Paper conservators have typically used cyclododecane to seal off water-sensitive ink or watercolor during aqueous washing. In this case, cyclododecane held three very appealing qualities. It is best known for its ability to sublimate at room temperature, which means that no invasive action is needed to remove it. As a wax, it can be applied either molten or dissolved in organic solvents. In this case, applying it molten to the heavily sized Arches paper meant that it solidified before penetrating deeply; it penetrated enough to bond to the top layer of paper, but did not saturate it. Finally, cyclododecane is a bulky physical object. It was not a strengthening agent that impregnated the paper, rather, it was used as an easy way to create a perfect mold of the embossments. This wax mold was securely bonded to the embossments by the penetration of the wax into the top paper fibers, but it would evaporate when it was no longer needed.

Testing of mock-ups developed the following method of application of cyclododecane. A suitable amount was melted in a beaker placed in a hot water bath. After the wax was fully melted, the beaker was removed from the bath and placed on a Salton mug warmer to keep it molten during treatment. The mug warmer produces enough heat to melt cyclododecane (m.p. 62°C), but it will take twenty minutes or more to melt it completely. No solvents were added to the wax, a choice made to minimize impregnation of the paper fibers and also to prevent any changes in the size of the wax fills due to solvent evaporation.

The artwork was placed face down, so that the embossments appeared as troughs on the verso. The troughs were filled with cyclododecane using a small spoon. Any small lacunae were then filled with a fine-pointed *kistka,* which is a Ukrainian Easter-egg decorating tool used to make fine lines of molten wax. After the wax had resolidified, the fills were planed down to the level of the surrounding paper with a microspatula.

The print was then placed face up on a sheet of Hollytex. A bath of 0.2% w/v disodium EDTA (a chelating agent) and 0.5% w/v sodium dithionite (a bleach for iron stains) in distilled water, buffered to pH 7.5 with sodium hydroxide was prepared. A complete discussion of the use of these chemicals in reducing iron stains is presented by Burgess (1991). The print was prehumidified by misting with distilled water in a dahlia sprayer. A more concentrated solution of 1% w/v EDTA and 2% w/v dithionite was applied locally to the most severe clusters of stains.

The print was then immersed in the prepared bath for fifteen minutes, until the stains were visibly reduced. It was then immediately washed in two successive twenty-minute baths of calcium hydroxide in distilled water (pH 8.5).

After washing, the print was lightly blotted. Areas of delamination were smoothed down with a Teflon spatula. The embossments were also lightly smoothed from the recto; the wax fills on the verso maintained their original shape throughout this.

The artwork was then immediately placed between one-half-inch-thick papermaker's felts. The felts were chosen because they could conform to the raised contours of the artwork better than blotters. Blotters were placed above and below the felts to absorb moisture and the stack was weighted with a piece of plate glass. The blotters were changed after three hours and then twice a day for three days. After three days, when the print was dry, it was removed and placed on a drying rack to let the cyclododecane sublimate.

It took approximately one month for the cyclododecane to evaporate. A small amount of powdery white residue remained where the cyclododecane had evaporated (less than one percent of the original wax mass). A similar residue has been observed by other users of cyclododecane; Caspi and Kaplan (2001) discussed their analysis of an example and concluded that the residue is a mixture of several chemicals which are similar to cyclododecane, such as alcohol and ketone versions of this alkane. At any rate, this powder is not bonded to the paper support. It can be easily removed with a soft brush or mini-vac.

CONCLUSIONS

It should be noted that cyclododecane requires a period of days or even weeks to sublimate. When molten, it is a hydrocarbon solvent, chemically similar to other cyclical alkanes such as cyclohexane, and should be treated as such. When solid, it is comparable to paraffin wax. These unique qualities make it suitable for any number of conservation properties; it provides a rapid and non-invasive method of supporting vulnerable three-dimensional paper elements. Even so, the handling of cyclododecane requires practice. And as always, any aqueous treatment of paper relief must be carefully monitored throughout the procedure.

This treatment addressed a type of work of art on paper which can be very difficult to treat. Creative adaptations of several paper conservation techniques combined to provide a successful solution. This procedure has since been used to treat other stained Gaucher prints at the National Gallery of Canada. It can also be extended to other papers which contain three-dimensional relief such as blind stamps.

SUPPLIERS

Cyclododecane: Kremer Pigments, New York
Mug warmer: department and hardware stores
Kistka: craft supply stores
EDTA and dithionite: Fisher Chemical

REFERENCES

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