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Technical Study and Conservation Treatment of Roy Lichtenstein's Screen Print on Plastic, *Sandwich and Soda*, 1964

INTRODUCTION

This technical research project studies three impressions of the Roy Lichtenstein print *Sandwich and Soda*, 1964, owned by the Harvard Art Museums. Each impression is screen-printed in blue and red ink on clear plastic (fig. 1). The prints are part of the portfolio *X + X (Ten Works by Ten Painters),* a set of 10 works made by 10 painters: Stuart Davis, Robert Indiana, Ellsworth Kelly, Roy Lichtenstein, Robert Motherwell, George Ortman, Larry Poons, Ad Reinhardt, Frank Stella, and Andy Warhol. It was published by The Wadsworth Athenaeum in Hartford, Connecticut; 500 portfolios were printed in 1964. The artists were selected by the curator of the Wadsworth Atheneum, Samuel J. Wagstaff, Jr., who states on the back of the title folio, "This portfolio was commissioned and printed in an attempt to extend as much of the visual impact as possible of ten artists to paper and to make these prints available to collectors who might not otherwise have such a vivid slice of the artist."

In this study, the three *Sandwich and Soda* prints owned by the Harvard Art Museums were examined and analyzed to better understand their history, production techniques, and degradation processes. There are many screen prints on paper by Lichtenstein, but few are ink on clear film. The technique and materials that Lichtenstein used for this work are more linked to commercial practice than the fine arts, and many questions arise from this choice: Was *Sandwich and Soda* the first time Lichtenstein made a screen print on plastic, and why? Did Lichtenstein keep using plastic as a support for printmaking after *Sandwich and Soda?* What processes and materials were used to print *Sandwich and Soda*? What are the condition problems conservators can see today?

Sandwich and Soda was selected for an in-depth technical study only in part because of its unusual support material. The prints were also selected because two of the three copies have pressure-sensitive tapes applied to the ink side, presumably as hinges. In this case, the inked side is the verso, since the object was meant to be seen through the transparent film (the recto). The tapes are different from each other: two pieces of what appears to be Scotch Magic Tape are on one print, and two pieces of what appears to be Filmoplast Tape are on the other print (fig. 2). The carriers have lifted slightly, and the adhesive is accessible on the sides. A previous attempt to test the sensitivity of the inks caused some visible damage, which prompted the need for more information about the materials before coming up with an appropriate conservation technique.

Fig. 1. Roy Lichtenstein, *Sandwich and Soda*, 1964, blue and red ink screen print on clear plastic, 48.3 x 58.4 cm

METHOD

In order to understand the materials and techniques of the objects better and to devise the best conservation treatment options for these prints, analysis was performed in the scientific lab of the Straus Center for Conservation and Technical Studies at Harvard Art Museums. The sampling was challenging since the surface of the object is shiny and very flat.

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Fig. 2. Filmoplast tape attached to the ink layer on the verso of one of the prints (Harvard Art Museums, M14194)

Fig. 3. Sampling the tape carrier under the microscope

Micro-samples of each ink (blue in the edge of the printed area and red in the overlapping area) were taken under a microscope, as was a sample of the clear plastic support, shaved from the very edge of the object. A sample of each type of tape was also taken at the lifting edges (fig. 3).

Fourier transform infrared spectrometry (FTIR), Raman spectrometry, gas chromatography-mass spectroscopy (GC-MS), and laser desorption ionization-mass spectrometry (LDI-MS) were used in order to determine the composition of the plastic support, pigments (red and blue), and tapes (carrier and adhesive).

RESULTS

The GC-MS results revealed that the clear support is not made of acetate—as stipulated in all the descriptions and catalogs, and even on the invoices the printing company sent to the Wadsworth Athenaeum—but polystyrene. It is interesting to note that today polyvinyl chloride, polyethylene, polyester, and cellulose acetate have mostly replaced polystyrene as clear, thin plastic printing surfaces. Polystyrene is now mostly sold as extruded white foam.

LDI-MS suggested that the blue pigment was phthalocyanine blue (PB15), which was commonly used in printing inks. The red ink sample contained chrome red (PR63) and barium sulfate. The binder of both the red and blue inks was polystyrene-based: these were plastic inks specifically for printing on plastic. GC-MS confirmed that the carrier and adhesive components of the Filmoplast-like tape were cellulose-based; the office tape was determined to be PVAC-based.

These results led to the development of a specific conservation procedure. Because the support and the ink binders were both based on polystyrene, and were thus probably well bonded, the prints were likely strong enough to support gentle mechanical removal of the tape.

CONSERVATION TREATMENT

After various tests, mechanical removal of the tape and tape adhesive was found to be the best option. In the initial attempts, tweezers held at an acute angle were used to peel back small strips of the tape carriers, and many white vinyl eraser pencils of different hardnesses and shapes were used to try to reduce the adhesive residues. But all the white vinyl eraser pencils tested presented some disadvantages (too hard, white residues, not convenient to use, etc.), and eventually another option had to be considered to reduce the adhesive residues. Every step was carried out under microscopic observation to prevent any scratches or physical damage to the surface of the prints.

On one copy, it was possible to remove the Filmoplast-like tape carrier by first applying warm water with a very small brush; this softened the tape carrier, allowing it to be removed with tweezers without affecting the ink. Cellulose powder[1] was then scattered on top of the sticky residual adhesive, and the resulting mixture could be pushed away with the silicone tip of a Colour Shaper modeling tool[2] without scratching the surface or removing ink. The tip of the Colour Shaper modeling tool had been cut to obtain the most convenient shape for removing the adhesive residue.

The same treatment (without the application of warm water to the tape carrier) was carried out on the acrylic-based

Fig. 4. Removal of tape adhesive residues with cellulose powder and a Colour Shaper tool

office tape on the other copy with great success. In both cases, the Colour Shaper tool was better than any white vinyl eraser pencils for reducing the adhesive residues. The results were very satisfying (fig. 4).

CONCLUSION

This object had a groundbreaking role in Pop Art and in art history in terms of materials, techniques, and subject matter. *Sandwich and Soda*, printed on thin, clear plastic in 1964, was one of Lichtenstein's first attempts to use an unusual support; he went on to print on other experimental materials. He also kept using plastic as a support, as in *Seascape I* (1964), *Moonscape* (1965), and *Landscape 5* (1967), which are screen prints on Rowlux, a multi-lensed effect film that can create moiré-like visual patterns.

Artworks on plastic and their inherent degradation processes are relevant topics for museum staff. For example, at the Museum of Fine Arts, Houston, a gallery talk was entitled "Spotlight on *Synthetic Supports: Plastic Is the New Paper*" (December 2011), which illustrates the importance of this type of research. Conservators now have to deal with unusual surfaces and materials, which is challenging, interesting, and requires adaptability.

This research project also served to remind the author that collegiality is the most effective approach for understanding a complex object and its condition and for choosing the best option for its treatment. It was very helpful to be able to consult object conservators and conservation scientists at the Straus Center for Conservation and Technical Studies to better understand plastics in general, the objects under study, and the available treatment options.

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- At the Yale University Art Gallery: Theresa Fairbanks-Harris
- Roy Lichtenstein's assistant, Jerry Simon

NOTES

1. Alpha-cellulose powder, Sigma Chemical Co., No. c-8002
2. Royal Sovereign Ltd UK, Colour Shaper, Firm, Taper Point, #2

FURTHER READING

Amaya, M. 1966. *Pop Art ... and after.* New York: Viking Press.

Bianchini, P. 1970. *Roy Lichtenstein drawings and prints*. New York: Chelsea House.

Boatto, A., and G. Falzoni. 1967. *Lichtenstein.* New York: Wittenborn.

Centre Beaubourg. 1975. *Roy Lichtenstein: Dessins Sans Bande.* Paris: Établissement public du Centre Beaubourg, Département des arts plastiques. Exhibition catalog.

Corlett, M. L. 2002. *The prints of Roy Lichtenstein: A catalogue raisonné, 1948–1997*. 2nd ed. New York: Hudson Hills Press.

Cowart, J., and R. Fine. 2007. *Roy Lichtenstein: Beginning to end*. Madrid: Fundación Juan March. Exhibition catalog.

Doris, S. 2007. *Pop Art and the contest over American culture*. Cambridge: Cambridge University Press.

Foster, H. 2001. *The hardest kind of archetype: Reflections on Roy Lichtenstein*. Edinburgh: National Galleries of Scotland.

Guggenheim Museum. 1993. *Roy Lichtenstein*. New York: Guggenheim Museum. Exhibition catalog.

Learner, T. 2004. *Analysis of modern paints.* Research in Conservation. Los Angeles: Getty Conservation Institute.

Tate Gallery. *Roy Lichtenstein*. 1968. London: Tate Gallery. Exhibition catalog.

Pincus-Witten, R. 1984. *Roy Lichtenstein, a drawing retrospective: April 10 to May 12, 1984, on the occasion of the twenty-fifth anniversary of the Gallery*. New York: James Goodman Gallery.

Pluchart, F. 1971. *Pop Art et cie*. Paris: Martin-Malburet.

Hilles Library. 1968. *Pop Art drawings.* Cambridge, MA: Hilles Library, Radcliffe College. Exhibition catalog.

Rhode Island School of Design. 1966. *Recent still life.* Providence, RI: Rhode Island School of Design. Exhibition catalog.

Russell, J., and S. Gablik. 1969. *Pop Art redefined*. New York: Praeger.

Spalding, J. J. 2000. *ABC's of Pop Art: America, Britain, Canada, major artists and their legacy*. Tallahassee: Florida State University Museum of Fine Arts. Exhibition catalog.

Symmes, M., ed. 2008. *Pop Art & after: Prints + popular culture*. New Brunswick, N.J.: Jane Voorhees Zimmerli Art Museum, Rutgers, The State University of New Jersey. Exhibition catalog.

Whiting, C. 1997. *A taste for pop: Pop Art, gender, and consumer culture.* Cambridge: Cambridge University Press.

Zerner, H. 1975. *The graphic art of Roy Lichtenstein*. Cambridge, MA: Fogg Art Museum, Harvard University. Exhibition catalog.

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