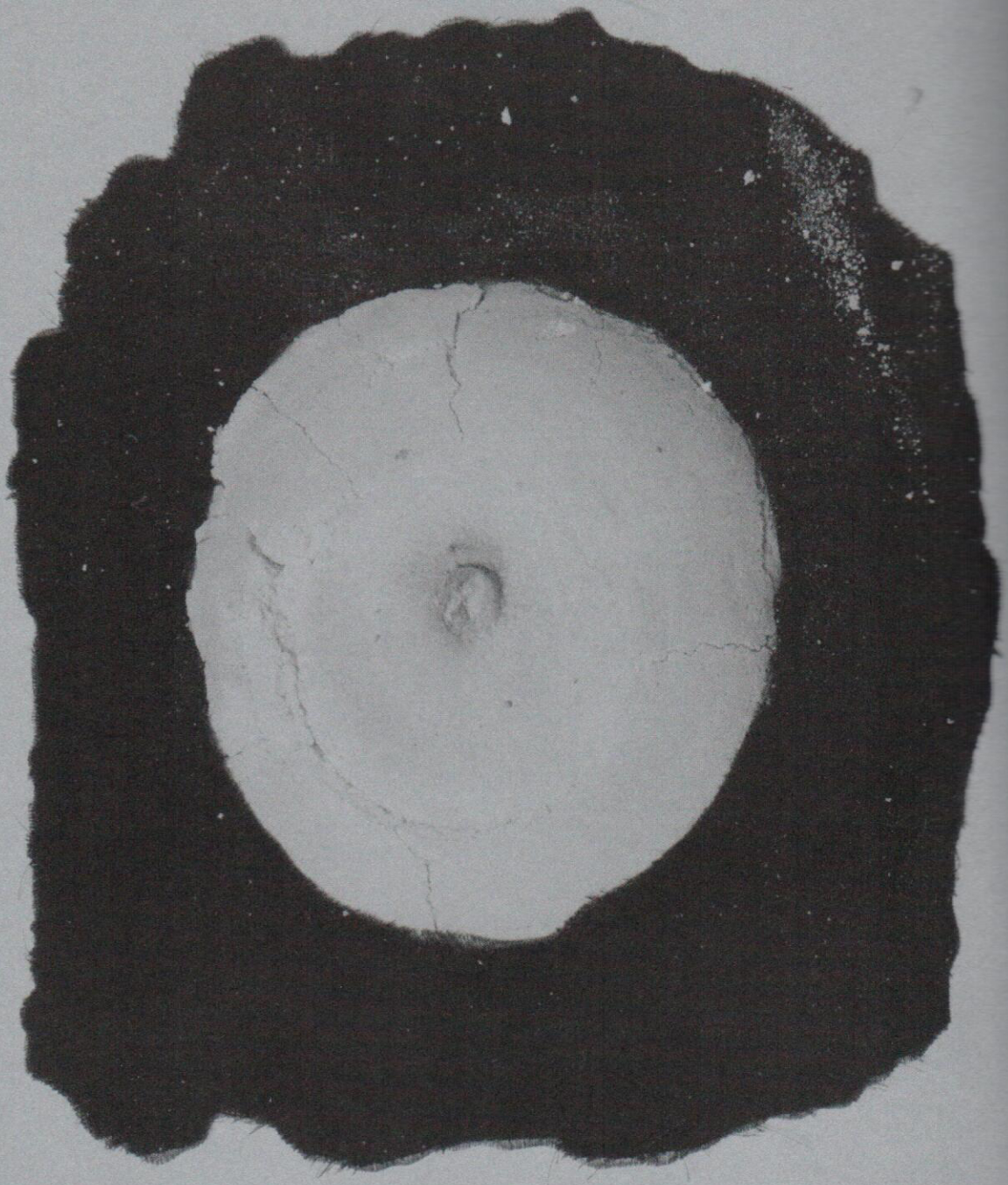

LECTURE 010
MARCEL DUCHAMP AND ENRICO DONATI'S *PRIERE DE TOUCHER:* CONSERVATION OF LATEX FOAM

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ABSTRACT

In 1947, Marcel Duchamp and Enrico Donati created 999 versions of *Prière de Toucher,* a deluxe exhibition catalogue featuring a latex foam breast adhered to its cover and surrounded with black velvet. The breasts were falsies, mass-produced foam pads meant to be worn inside a brassiere. These were hand-painted by the artists to resemble real breasts. This work was intended to be fondled, as *Prière de Toucher,* translates to Please Touch. The book was sold in a protective slipcover. This slipcover applied pressure onto the foam breast, which over time resulted in condition problems. Prior to treating a degraded version of *Prière de Toucher,* the authors conducted extensive materials testing to develop treatment methods for the deep cracks, areas of loss, and overall brittleness the breast presented. Using aged latex foam samples, the authors determined the amount of consolidant that could be applied by nebulization to the foam breast. Two layers of fill were developed. The first layer was coarse, applied to the deepest areas of loss and under the breast to support a space that had developed as the breast started to detach from the book. A second fill layer, easier to refine mechanically and shape, imitated the foam's surface. Finally, pastels and gouache were used to integrate the fills with the original material.

KEYWORDS

Prière de Toucher, latex foam, consolidation, latex treatment, Marcel Duchamp, Enrico Donati

INTRODUCTION

In 1947, André Breton and Marcel Duchamp organized an exhibition to celebrate the return of Surrealism to Europe after the Second World War. In collaboration with Enrico Donati, Duchamp prepared catalogues for this exhibition. The ‚deluxe' edition, known as *Prière de Toucher,* featured a latex foam breast surrounded with black velvet, which was adhered to the catalogue's cover. The breasts were falsies, mass-produced foam pads meant to be worn inside a brassiere. These were hand-painted by the artists to resemble real breasts. It is clear that the artists intended for this breast to be fondled as indicated by the title, *Prière de Toucher* which translates to Please Touch. The book was sold in a protective slipcover. Reportedly, Duchamp and Donati produced up to 999 versions of *Prière de Toucher.*

When asked to conserve a degraded version of *Prière de Toucher,* the authors first conducted a literature search, revealing that a few examples had been conserved in the past. This led to a survey of 15 editions of painted and unpainted foam breasts from the Donati Foundation, private collectors, and other institutions in the greater New York City area. Our survey of the condition and treatment methods of multiple versions of *Prière de Toucher* was presented at the New Approaches to Conservation of Contemporary Art Conference in Scotland (06/28-30/2017), where we also considered other treatments, replicas, and the implications of treating a readymade object. The present paper will summarize the research and material testing which led to the treatment of the edition of *Prière de Toucher* we were asked to conserve. Being private conservators, this research was done on a limited budget.

PRIÈRE DE TOUCHER: HOW THEY WERE MADE

For *Prière de Toucher* the foam breasts were purchased by Enrico Donati from a warehouse in Brooklyn. The falsies were then hand painted by the two artists in Paris *(McDonald 2009).* The foam breasts were adhered to a square piece of cardboard, which was in turn attached to the book, and a piece of black velvet was cut and adhered over the breast, thus literally and figuratively ‚reframing' the falsie. The Philadelphia Museum of Art, which houses the Duchamp archives, says that Donati recollected: "When we were finished, I told Marcel that I never thought I would get tired of handling so many breasts, and he replied: Maybe that's the whole idea." (1)

FOAM COMPOSITION

The foam material used in *Prière de Toucher* was identified as

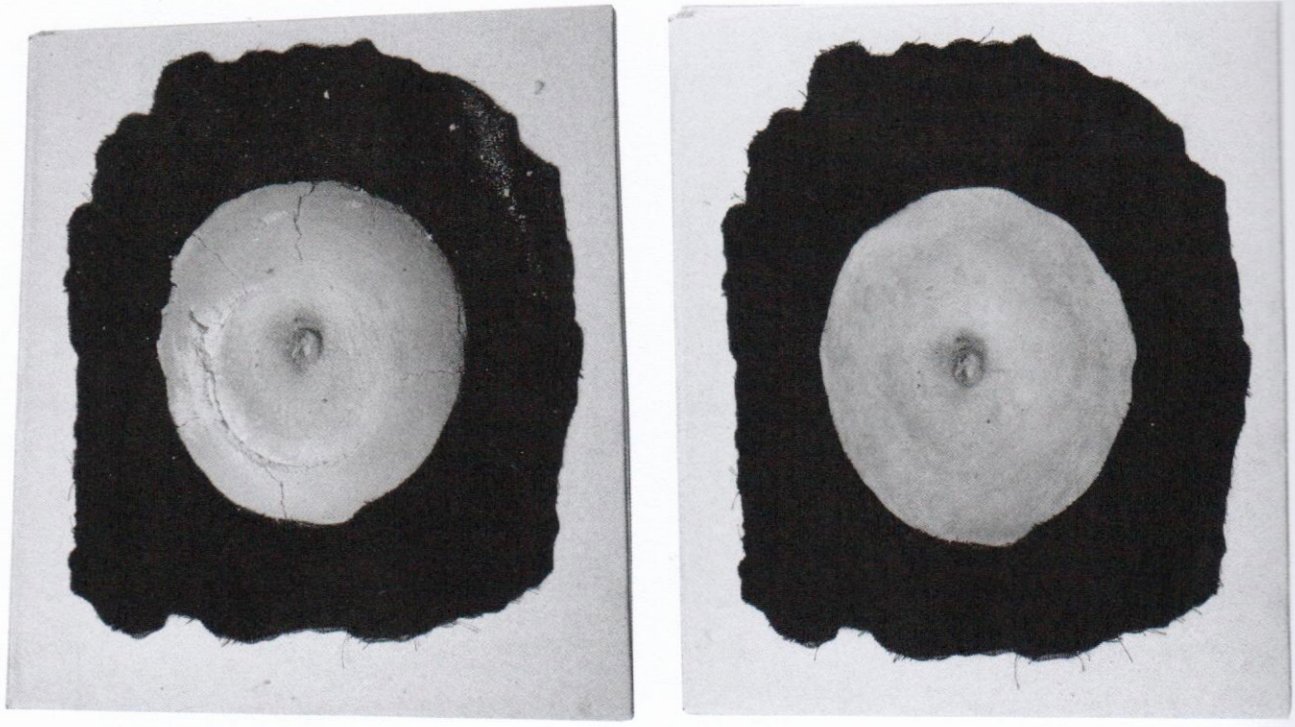

Figure 1
Before (left) and after treatment (right) photographs of *Prière de Toucher* made by Enrico Donati and Marcel Duchamp.

see colour plates

latex foam by Scott Williams at the Canadian Conservation Institute (CCI) when he worked on a version owned by the Williams College Library and National Gallery of Canada. Using Fourier-Transform Infrared Spectography, Scott Williams determined that the foam from the Williams College version is mostly natural latex, based on the main component, cis 1,4-polyisoprene, and that it does not include a synthetic portion. Williams also found some proteins, which further suggest that the falsie was made of natural latex. [2] In addition, Jamie Martin found traces of aluminium and silicon, suggesting a clay filler *(Wolfe 1997)*. [3]

In 1947 when these falsies were produced, there were only two major types of industrial rubber foams: natural latex (cis 1,4 isoprene) and styrene-butadiene copolymer (SBR) *(International Institute of Synthetic Rubber Producers 1973; Loadman 2005)*. The two were often blended and it is uncertain if the various foam breasts have different amounts of the two foams *(Allen 1972)*. Although Williams believes the two breasts he examined were made of latex, if different batches of falsies were purchased, there could be compositional variation.

PRIÈRE DE TOUCHER: HOW THEY DEGRADE

Latex foams are known to degrade through oxidation *(Grattan and Williams 1999; Waentig 2008: 187-189)*, usually photo-oxidation but other factors such as heat or ozone can catalyse the reaction. Consistent with this, our survey and literature search revealed that while foam breasts in ideal storage conditions fared better than others, most had degraded badly over time, possibly from being handled more than typical museum objects and also from being slipped in and out of the slipcover. Many of the breasts, including our example, presented deep cracks, large areas of loss, and were very brittle. This decay was to be expected since most breasts were not in an anoxic environment, which is known to protect such materials *(Grattan and Williams 1999: 70)*.

CONDITION OF THE BREAST

The breast in our care had been shipped in its slipcover to various book fairs around the world, packed in a box. By the time it arrived to us, it was quite degraded *(Figure 1, left)*. The foam was cracking and crumbling. Typical for this series of books, our breast presented a main circular crack located between its brittle

outer rim and the thicker central area, where the breast still retained some spring. The relatively good condition of the central area likely resulted from the fact that it was painted therefore slowing oxidation. Consistent with this explanation, the unpainted periphery of the breast lacked paint and was brittle. There were also smaller cracks radiating from the main circular crack. The breast's edges were no longer attached to the book cover and, lacking support, were vulnerable. Generally, the surface of the breast had a greyish tone, assumed to be grime. Consistent with other breasts in the series, the nipple was compressed and abraded from the pressure of the slipcover *(Wolfe 1997)*.

Our treatment goals were to stabilize the structure of the breast and reduce future losses by consolidating the crumbling foam. In addition, we hoped to restore its appearance to match the artists' intent.

THE CONSOLIDATION OF LATEX

We carried out various tests to determine if and how the foam could be consolidated.

In 1997, Julie Wolfe, treating a breast at the Williamstown Art Conservation Center in collaboration with the CCI, tested various solvents and consolidants. In the end, she treated the breast with Parylene. However, when re-evaluating this case 16 years later, CCI felt the treatment had not saturated the foam enough to provide complete consolidation.

After consulting conservation scientists Yvonne Shashoua and Thea van Oosten [4], we decided to test diluted solutions of Sturgeon Glue and Plextol® D498. Both adhesives have good stability *(Schellmann 2007; Snijders, Weerdenburg, Timmermans 2011)* and adherence to latex foam. However, their mechanical properties are quite different. After drying, sturgeon glue is more rigid than Plextol® D498. Thus, we tested the suitability of both adhesives for the consolidation of latex. In addition, we hoped to use the same adhesive for fills in order to minimize the variables of the treatment.

To apply the adhesive, we chose a DeVilbiss 8650D nebuliser, as this approach had proven successful on degraded polyurethane foam *(van Oosten 2011)*. Since Thea van Oosten's recipe for nebulizing degraded polyurethane foam had worked well, we adapted her recipe: 125 ml demineralized water, 12.5 ml isopropyl alcohol and 50 ml Plextol® D498 *(van Oosten 2011)*.[5]

MINIMIZING THE SURFACE TENSION PROBLEM

A significant obstacle to the consolidation of latex foams is the difficulty of making the consolidant solution penetrate deep into the foam. In our case, a major constituent of the solution was water whose surface tension interferes with penetration of the consolidant. Thus, we tested whether the addition of isopropyl alcohol to the solution would alleviate this problem. Natural latex, thought to be the primary material of the breast, did not react when exposed to isopropyl alcohol. Nevertheless, as a precaution we tested whether our aged foam samples were soluble in isopropyl alcohol. The aged samples, taken from a Martin Visser 1960s sleeping couch, were provided to us by Thea van Oosten and Suzan de Groot. When exposed to isopropyl alcohol, the aged foam swelled, darkened, and remained dark even after the solvent evaporated. When minute fragments from two different Donati/Duchamp breasts were exposed to isopropyl alcohol, they dissolved. [6] Fortunately, subsequent tests revealed that when nebulised in low concentrations (< 9 %), isopropyl alcohol had no adverse effects while markedly improving penetration of the consolidant into the latex foam.

TESTING WITH THE NEBULISER: OPTIMIZING THE CONCENTRATION OF ADHESIVES AND NEBULIZATION VARIABLES

Using samples of aged natural latex, we systematically tested various nebulisation times of our two adhesive solutions (5-10 % Sturgeon or 36 % Plextol® D498). The nebuliser output was directed to the latex surface via polyvinyl chloride tubing of 1 cm (i.d.). With the nebulization pressure selected, the apparatus output was barely detectable when directed to the back of the hand. During nebulisation, the end of the tubing was positioned approximately 4 cm above the sample's surface. In order to assess penetration of the two consolidants into the foam, we added a blue dye (thionin, 0.5 %) to the solution and examined the samples under 10x magnification after drying.

We tested various concentrations of sturgeon glue (5-10 %) but found that solutions above 5 %, were too thick to nebulise. Irrespective of how long they were nebulised, these solutions could not penetrate the foam. Thus, we abandoned the idea of using sturgeon glue as a latex consolidant. Fortunately, the penetration of the Plextol® D498 solution was sufficient. In fact, we found that with the longer application periods, the consolidant completely filled the pores of the foam cells. An application duration of three minutes was judged optimal to preserve the surface texture of latex.

Examining our results produced under our optimal parameters, the sturgeon glue consolidant solution did not significantly increase the wall thickness of the foam cells. [7] In contrast, the Plextol® D498 solution caused a significant (~13 %) increase in the thicknesses of the walls. [8] In cross-sections of samples consolidated with a thionin-containing Plextol® solution, it was determined that the consolidant solution penetrated 0.2 to 0.4 mm below the surface.

TREATMENT OF *PRIÈRE DE TOUCHER* - APPROACH

Based on the tests summarized above, the following approach was used to consolidate the version of *Prière de Toucher* under our care. Our consolidant solution (125 ml demineralized water, 12.5 ml isopropyl alcohol and 50 ml Plextol® D498) was nebulised for three minutes, except in cracked and open areas where the solution was applied for up to two additional minutes. During nebulisation of the affected areas, the painted central region was protected with Mylar. After nebulisation and drying of the consolidant solution, the areas of loss were filled, as described below.

FILLS

Previously, Snijders et al. used a two-layer structure to construct fills on polyurethane ether foams *(Snijders, Weerdenburg and Timmermans 2011; Snijders, personal communication, 12 September 2012)*. The upper and lower layers performed different functions. The first fill layer was coarse and applied to the deepest areas of loss. It imitated the original material in its structure and density. In contrast, the second fill layer was much finer and thinner, and was destined to be harmonized with the material's original surface through mechanical refinement and colour toning. We used this approach on our version of *Prière de Toucher*.

The coarse fill was made up of small pieces of latex foam (up to 2 cubic mm in size) suspended in a diluted water-based solution of 50 % Plextol® D498 and Arbocel® BWW 40 (cellulose fibres, around 200 µ in diameter). Using latex fragments allowed us to form a fill that approximated the physical properties of the original material. The function of the Arbocel was to reduce shrinkage during drying. First, we filled the area under the breast to support it and reduce movement. [9] Then, we applied the fill material into the deep cracks.

The finer fill material had to be light, smooth and imitate the original foam surface. During casting of latex foam, small bubbles form, giving the surface a distinctive appearance. We determined that the surface texture of latex foam could be reproduced by adding glass microspheres (20-200 micron size in diameter) to the fill, allowing us to harmonize the fill with the overall appearance of the breast. The fills were comprised of a dilute solution of 50 % Plextol® D498 in water, Arbocel and microspheres. When adding the materials together, we first mixed the adhesive with the Arbocel, then added the microspheres in batches. The fill was applied under microscopic guidance with a micro-spatula at a thickness of up to 4 mm, but generally approximately 2 mm. After drying, the fill edges were reduced with Micro-Miniature Surgical Blades [10] and using micro-finishing paper of various grits (400-800 grit). So that fill shrinkage during drying would not result in a gap between the fill's edges and the breast, 1-2 % methylcellulose with Arbocel was added. This small bridge does not shrink. However, it is not strong enough to cover a large surface and can only be used between the finer fill and original, if needed. It is also very easy to remove and reform, if necessary. Finally, we adjusted the colour of the upper fill by adding appropriate pigments to it. Further toning was accomplished with pan pastels *(Figure 1, left)*.

CONCLUSION

Tests on aged latex samples led the authors to conclude that consolidation of *Prière de Toucher* was best accomplished by nebulising a diluted Plextol® D498 solution that included a low concentration of isopropyl alcohol to reduce surface tension and facilitate penetration of the consolidant into the foam. However, we observed that in contrast with recently produced natural latex, aged samples are soluble in isopropyl alcohol, thus its concentration in the consolidant solution must be kept low. After consolidation, a two-layer fill system was successful for restoring the areas of loss. The first layer was coarse and made up of small pieces of latex foam (up to 2 cubic mm in size) with D-498 and Arbocel® BWW 40. The second fill layer was made with Plextol® D498 and included glass microspheres to imitate the foam's surface texture. Because Plextol® fills can shrink, a thin bridge of methylcellulose and Arbocel was used to connect the fill to the piece. Toning the fills was accomplished with a combination watercolours, gouache and pan pastels. An important challenge for future studies will be to test the suitability of other potential consolidants for the treatment of artworks made of natural latex.

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ENDNOTES

(1) Retrieved from http:// www.philamuseum.org/collections/permanent/91455. html; (accessed April 10, 2019).

(2) Personal Communication via email with Scott Williams, then at Canadian Conservation Institute, on 18 October 2012.

(3) Jamie Martin (1997) Analytical Report AS#95-AS-235, Williamstown Art Conservation Center, Williamstown, MA *(Wolfe 1996-97)*.

(4) Yvonne Shashoua, Senior Research Scientist, National Museum of Denmark. Thea van Oosten, Senior Researcher Cultural heritage Agency of the Netherlands, retired.

(5) Van Oosten's original recipe included Imprani© DLV (Bayer) and the yellow coloured liquid Tinuvin© B75 (Ciba-Geigy), as heat, light stabilizer and UV absorber. The authors worried that the yellow color of the Tinuvin© would discolour the foam breast where applied and intensify with age, thus further damaging the art work.

(6) It remains unclear why the aged latex samples and breast fragments reacted differently. Presumably, their composition differs. We plan on studying this question further in the future.

(7) The wall thickness from sturgeon glue was not increased significantly (from 0.092 ± 0.007 mm to 0.096 ± 0.007 mm, n = 11, paired t-test, p = 0.08).

(8) The wall thickness from Plextol® D498 solution caused a significant increase (from 0.094 ± 0.006 mm to 0.106 ± 0.008 mm, n = 11, paired t-test, p = 0.017; values expressed as average ± SEM).

(9) Later, when treating another breast, supporting the breast was refined. The breast was separated from the coarse fill with silicone release Mylar, so that the breast was supported, but did not adhere to the 'pillow' below. When the lower fill was finished, we pulled out the Mylar.

(10) Micro-Miniature Surgical Blades are made by Havel, serial number SC6700MIS.