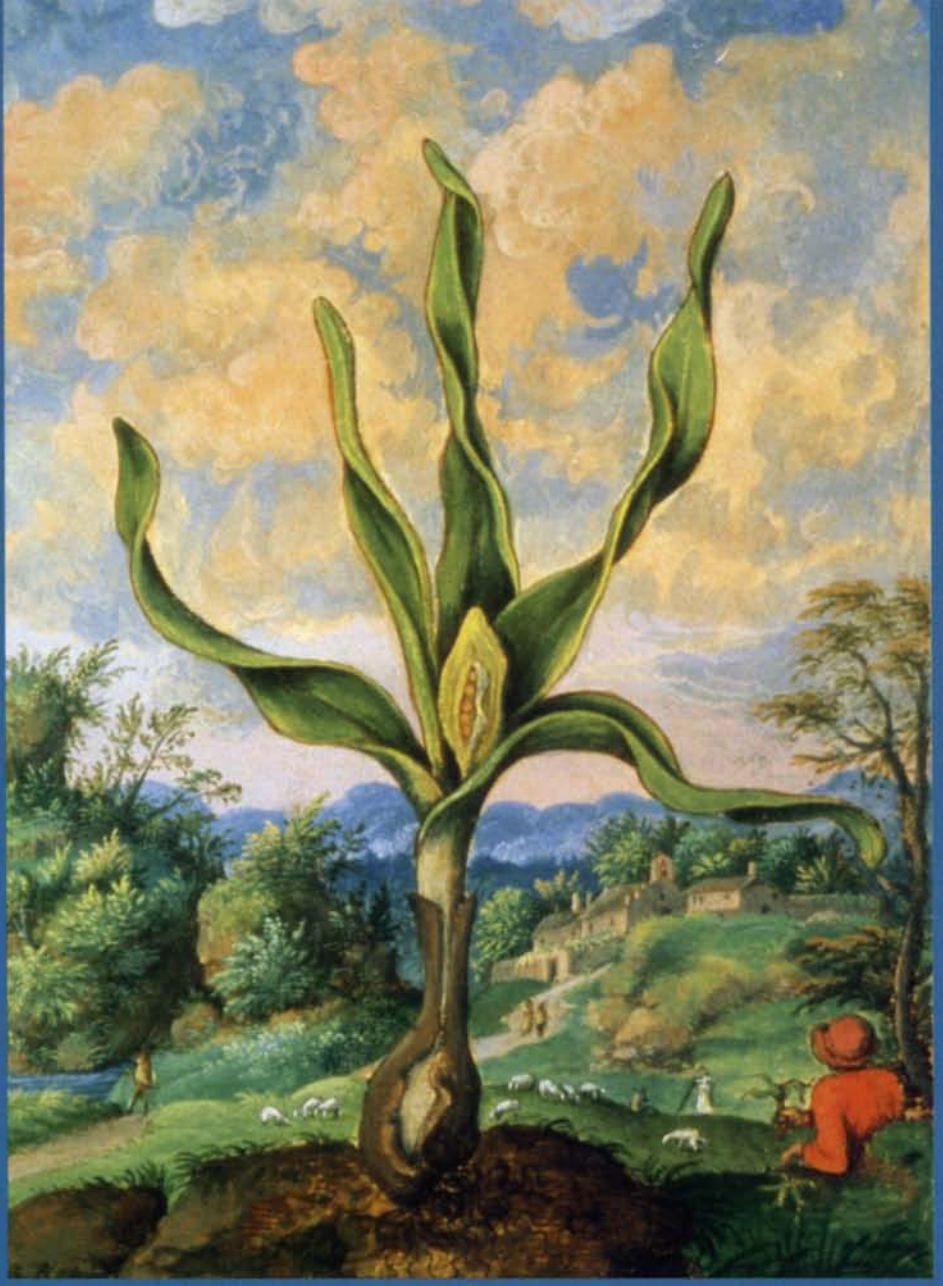

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COVER ILLUSTRATION
Gherardo Cibo, "Colchico," folio 17r of *Herbarium,* ca. 1570. Courtesy of the British Library.

FRONTISPIECE
Detail from Jan Baptiste Collaert, *Color Olivi,* 1566–1628. After Johannes Stradanus. Courtesy of the Rijksmuseum-Stichting, Amsterdam.

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Abstract

This paper discusses aspects of paintings executed on a photographic substrate. Inspired by Mervyn Ruggles's research into the use of this practice in the nineteenth century, this discussion presents examples of materials and techniques that have been proposed, manufactured, or employed for this purpose over the last 100 years. Information on this subject was gathered from the available literature and through personal communication with artists engaged in producing this type of artwork, as well as through discussions with manufacturers and museum personnel. North American and European instances are included, and details regarding the works of contemporary artists, such as Lynton Wells, Shirley Wiitasalo, Anselm Kiefer, and James Turrell, are noted.

Painting on a Photographic Substrate: Notes Regarding Materials and Techniques over the Past 100 Years

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Introduction

The idea of painting over photographic images has been present since the invention of photography. Sources regarding materials and techniques appropriate to this process have varied; some information has appeared in scientific and photographic publications. Communication with a number of contemporary artists, though, has shown that such literature rarely directly influenced their work. The principal factors guiding their production tended to consist of a willingness to experiment, a general awareness that such media may be combined, and the fact that this combination may serve their particular aesthetic or intellectual aims. The photographic image has also not only served as a replacement for the underdrawing, as was noted by Mervyn Ruggles in cases of nineteenth-century portraiture, but has been employed for a variety of purposes (1).

The following presents a brief discussion outlining the evolution of materials and techniques over the last 100 years. The discussion culminates in a focus on contemporary practice since the 1960s, a period in which the painter's use of a photographic substrate became more widespread.

From the late nineteenth century to 1950

In the late nineteenth century, improvements in photographic technology and the availability of commercial products made it far easier for the artist to utilize such means in the painting studio. M. L. Winter of Vienna, for example, established an operation in 1877 for the extensive production of enlarged photographs on linen, and proprietary brands of gelatin-silver emulsion-coated linen were available from the 1890s (2, 3). The introduction of faster bromide emulsions in the 1880s also greatly reduced the difficulties associated with producing enlargements, thus de-emphasizing the need for specialists (4).

Oils were frequently used for painting on photographic images, but other materials were also proposed. Instructions published during the 1890s and thereafter commonly referred to the coloring of photographs on paper supports and were directed at those lacking artistic skills. Details regarding the media proposed for this purpose have been included here because this information provides a more complete range of the materials that may be encountered, as well as indicating the interests and concerns of the time.

A number of proposals for the coloring of photographs appeared in *Scientific American* during the 1890s. An 1894 article, reprinted from *Anthony's Bulletin,* recommended the use of transparent and covering colors. These colors were to be made by mixing dry powdered pigments with a medium consisting of 100 cc filtered albumin, 5 g ammonium carbonate, 3 cc glycerin, 4 cc liquid ammonia, and 25 cc water (5). Another article, deriving from *Photographisches Archiv,* noted the use of aniline dyes. These were dissolved in alcohol and applied on the reverse (6). Another article noted the use of oils, watercolors, and pastels. These materials were only to be applied over a preparatory layer. Gelatin was recommended for oils; shellac was recommended for watercolors and pastels (7).

A proposal, reprinted from the *British Journal of Photography,* for the use of wax media appeared in a 1919 issue of *Scientific American Supplement* (8). Two

recipes were described. The first recipe suggested combining 1 oz. white wax (bleached beeswax), 1 oz. carbon tetrachloride, 1 oz. turpentine, 1 oz. benzene (refined naphtha) and 1 dr (1/8 oz.) 0.88 ammonia. The second medium was described as an improved version consisting of 1/4 oz. white wax (Cera Alba), 1/2 oz. spike oil of lavender, 1 dr hard primrose soap, 2 dr gum elemi and 3 1/2 oz. turpentine. The author proposed using wax, based on the fact that wax, employed since ancient times, had proven its durability. The author's rationale was also based on the notion that many of the negative effects resulting from the use of oils and varnishes, such as darkening and yellowing, would be avoided.

A 1934 edition of a manual describing the use of various media for coloring prints on paper noted that enlargements were to be mounted on beaver board, three-ply board, or linen canvas, and then stretched (9). Adhesive residue and dirt were to be removed before the application of a preparatory layer. This layer was to consist of either a 25% solution of glacial acetic acid, gelatin, and Lepage's Liquid Glue in water (1:20), or a mixture consisting of 3 oz. of paste (made from 1 oz. pure casein, 180 g powdered borax, 3 oz. water), 3 oz. alcohol, 5 drops glycerin, and 5 drops carbolic acid. The image was then ready to be painted with oils, watercolors, or a medium consisting of tempera colors and the casein mixture.

The 1936 edition of a manual on retouching stated that the best results for a portrait in oil were to be obtained by painting over a carbon print on canvas. A priming, consisting of a starch solution to which some mucilage had been added, was to be applied to the print before it could be painted. Reference was also made to the "Russian method" of coloring, in which layers of transparent oils were rubbed on with cotton (10). Materials recommended for this process included Marshall's Transparent Photo Oil Colors, Roehrig's Photo Oil Colours, or a combination of artists' oils and megilp.

The 1930s were also a period in which photographic developments expanded into an architectural context. Articles in architecture journals noted that photographic murals could be realized through the use of photo-mural paper or the spray application of light sensitive emulsions directly onto architectural surfaces (11, 12). The notion that a variety of materials could be employed as supports for photographic images was also reaffirmed by new developments in industry. The Glenn L. Martin Company of Baltimore, for example, reduced aircraft production time by developing an emulsion that enabled the full-scale reproduction of designs on aircraft materials (13). A commercial form of this emulsion was marketed following World War II (14). Articles outlining the use of such materials frequently noted the need for preparatory and protective layers, should the images be colored with oils or other media (15, 16).

After 1950

At the middle of this century, painters' attitudes toward the photographic image began to change. Manifestations of this attitude change included the Photo-Realist movement and Robert Rauschenberg's and Andy Warhol's use of photomechanical processes. The American artist James Couper, who has made use of 3M's Scanamural process (a computerized spray painting technique) to generate large-scale underdrawings for his paintings, has stated that he was drawn to this technique after learning how some Photo-Realist painters transferred images to canvas through an emulsion process (17). Studies published in the United States on the work of such painters, though, have contradicted this view. Patton, for example, has held that the intention of these painters was to comment on photography, not include it, and interviews conducted with a number of these artists have also not confirmed the use of any light sensitive coatings (18, 19).

This change in attitude toward the photographic image was also affected by a new interest in early and alternative processes that occurred during the

1960s in North America. Requiring both a hands-on approach and minimal resources, these processes appealed to those who felt that the elements of urban life, such as high technology and mass-produced goods, were worthy of rejection. Interest in these processes became widespread and resulted in a number of publications that provided information on various techniques (20, 21, 22, 23).

Commercial products, such as emulsion-coated canvas and ready-to-use emulsion, became more widely available at about the same time. Argenta, which operated in Munich, Germany, developed an emulsion-coated canvas in the late 1950s and early 1960s (24). Designed for theater use, advertising purposes, and the reproduction of stitches, this Photoleinen, or photo linen, was first marketed in 1962. The product was actually made from a cotton fabric prepared with a pigmented gelatin layer. The pigmenting agent comprised a mixture of baryta sulfate and titanium oxide. The photographic emulsion applied to the gelatin-coated fabric was the same as that used in the manufacture of baryta papers of medium gradation. It was also unwashed, that is, all superfluous salts were left in the emulsion. A 1991 product list from Luminos Photo Corporation of the United States listed the availability of sheet and roll forms of a similar product. The sheet form had been impregnated with a bromide emulsion, and the roll form with a chlorobromide emulsion (25).

New lines of ready-to-apply photographic emulsions also became, and continue to be, available. One version, developed by Argenta of Munich, was described as suitable for most surfaces (26). Poor adhesion was to be remedied with a preparatory layer of varnish; metallic surfaces were to be precoated with gelatin. Print-E-Mulsion, a version developed in the United States, first appeared in the mid-1970s (27). At the end of the 1970s, the name was changed to Liquid Light.

Contemporary painters

Several contemporary painters have employed such materials in their work. The American artist Lynton Wells generally used a canvas manufactured by Argenta. This was used in the production of paintings and sculptures from the late 1960s until about 1983. In some of these paintings, a single image spanned multiple panels, where the total length could exceed four meters. To create these works, the artist tacked the photo linen to the studio wall and exposed the material in situ. To ensure that the image was properly aligned when the canvases were stretched, the tacking margin of each section was carefully folded under, before the edges of the canvas were put in contact. Processing was done in homemade developing trays and the images finished with one or more media. Oils, acrylics, aniline dyes, pastels, and charcoal were applied in varying densities. Frequently, these additions mimicked elements present in the photographic portion of the image. Wells also normally applied two to three layers of an acrylic polymer before painting with oils (28).

Figure 1. Shirley Wiitasalo, Interior, *1981. Oil and photo emulsion on canvas. Photograph courtesy of National Gallery of Canada, Ottawa.*

Other painters who have made use of photographic bases in their work have included Arnulf Rainier of Austria, Shirley Wiitasalo and Kathleen Vaughan of Canada, Anselm Kiefer of Germany, and Fariba Hajamadi and James Turrell of the United States. From the late 1960s through the 1970s, Arnulf Rainier used photographs, photographs mounted onto wood or aluminum, and photo linen (29). The range of media employed in these works included oils, oil crayon, pencil, and ink. Portions of the photographic image remain visible in many of his works, but in some it has been completely negated by the thick application of paint.

Shirley Wiitasalo created the 1981 painting *Interior* by applying Liquid Light over a stretched cotton canvas prepared with an acrylic gesso (Fig. 1). Exposure was carried out using a slide projector. The image was then finished with Bellini oils and left unvarnished (30). As one of a series of paintings dominated by the television screen and featuring ambiguous and distorted

imagery, it was the only work in which a photographic emulsion had been employed (31).

Kathleen Vaughan's painting technique has also involved the use of Liquid Light. In some of her work, the emulsion was applied directly to the canvas and processed by sponging chemicals over the support. Areas of the canvas that the artist intended to appear similar to the photographic portions were stained with a distemper medium. These layers were then isolated with a coating of an acrylic varnish; texture was applied with acrylic media and the final details in oil. Due to allergies, the artist has only used linseed oil to thin her oil paints (32).

Anselm Kiefer has become well known for his robust paintings in which photographic enlargements, mounted on canvas, support oil, acrylic, shellac, straw, sand, and lead additions. Kiefer's photographic underdrawings have been printed on Dokumentenpapier P 90. The harsh or catastrophic appearance of these images was created through the manipulation of lighting or processing methods (33). Although the photographic image remains visible in some of the paintings, a number of them have been completely overpainted. In such cases, only the excess of support material on the reverse of the stretcher may provide evidence as to the presence of a photographic substrate (34).

Since the late 1980s, Fariba Hajamadi, an Iranian-born painter living in New York, has combined paint and photographic images to produce fictitious interiors (35). These paintings have been made by brushing a commercially available photographic emulsion directly onto cotton canvas or wood. This method was selected to enable the texture or grain of the support to contribute to the composition. Following exposure and processing, an airbrush was used to apply color. The paint, a commercially available transparent oil paint, had been thinned to the appropriate consistency with lacquer thinner (36).

In the planning for his "Roden Crater Project," James Turrell has produced studies on frosted drafting mylar in which wax, photographic emulsion, and various paint and graphic media have been combined (37). These studies were created in the following way: A coating of hot beeswax was first sprayed onto the mylar. This wax layer was then coated with a photographic emulsion and the desired image of the crater exposed and processed. The image was then manipulated and elements may have been removed with an eraser or by scraping with a knife. Frequently, wax pastels were used to replace removed portions, make additions, or enhance or blur particular details. The colors used were carefully chosen so that the additions might stand out or coalesce with the existing image. In some cases, a type of sandwich was made by dry mounting drafting vellum to the emulsion-coated surface. Further details were then added to the front or back of these studies with ink, paint, graphite, or wax pastels (38).

Conclusion

Painting and photography are techniques that have frequently been used in conjunction with each other. For the most part, this relationship has been based on visual and intellectual concerns, not the material union of media. This paper has attempted to illustrate that although painters may not always have utilized photographic materials in their work, information regarding this possibility remained available and contributed to related and/or contemporary forms of art production. The genre of traditional portraiture was excluded from the discussion; while some portraitists may have utilized such materials in the past, recent examples of this were not found.

Notes

1. Ruggles, M. 1983. A study paper concerning oil paintings on a photographic base. *AIC Preprints,* 104–12.

2. Eder, J. M. 1945. *History of Photography.* New York: Columbia University Press, 791, note 4.
3. Coe, B., and M. Haworth-Booth. 1983. *A Guide to Early Photographic Processes.* London: Hurtwood Press, 19.
4. Gernsheim, H., and A. Gernsheim. 1969. *The History of Photography.* London: Thames and Hudson, 315.
5. Joe, J. 1894. Coloring photographs. *Scientific American* 71 (11):163.
6. *Scientific American.* 1895. Coloring photographs. *Scientific American* 73 (1):27.
7. *Scientific American.* 1899. Coloring bromide prints. *Scientific American* 81 (21):323.
8. Godbold, A. V. 1919. A wax medium for the permanent coloring of photographs. *Scientific American Supplement* 87 (2248):74–75.
9. Tobias, J. C. 1934. *The art of coloring photographic prints in transparent water-color, tempera, opaque and transparent pastel, wax crayons, opaque and transparent oils, chemical coloring, and coloring lantern slides.* Boston: American Photographic Publishing Co., 54, 57–58, 60–61.
10. Johnson, R. 1936. *The art of retouching photographic negatives and photographic enlargements, etc.* Revised and rewritten by T. S. Bruce and A. Braithwaite, 13th ed. (2nd American, revised and enlarged by A. Hammond. Boston: American Photographic Publishing Co., 143, 148–150, 152.
11. Duryea, D. 1936. Notes on murals by photography. *Architectural Record* 80 (1):57–58, 60, 62.
12. *Architectural Review.* 1937. The true photo-mural: a new technique of decoration. *Architectural Review* 81 (February):86–87.
13. Perry, H. W. 1940. Photography speeds up aircraft production. *American Photography* 34 (12): 886, 888.
14. *Progressive Architecture.* 1946. Photographic emulsion makes any base possible. *Progressive Architecture* 27 (110):110.
15. Duryea, op. cit., 60.
16. Hochman, L. 1947. Print your photos anywhere. *Popular Science* 150 (June):196.
17. Corbino, M. 1986. James Couper. *American Artist* 50 (529):66, 68–69, 84–86.
18. Patton, P. 1976. Super realism: a critical anthology. *Artforum* 14 (5):52.
19. Chase, L., N. Foote, and T. McBurnett. 1972. The Photo-Realists: twelve interviews. *Art in America* 60 (6):73–89.
20. Wade, K. E. 1976. *Alternative Photographic Processes.* Dobbs Ferry, New York: Morgan and Morgan, Inc.
21. Howell-Koehler, N. 1980. *Photo Art Processes.* Worcester, Massachusetts: Davis Publications, Inc.
22. Eastman Kodak Co. 1982. Photographic sensitizer for cloth and paper. Photo information bulletin PIB–6. December 1982.
23. Eastman Kodak Co. 1983. Making a photographic emulsion. Photo information bulletin PIB–7. February 1983.
24. Hegenbart, W. 1994. Personal communication. Division Manager, Finishing Europe, Tetenal Vertriebs GmbH, Norderstedt, Germany.
25. Luminos Photo Corp. 1991. B & W Products for the Professional. Yonkers, New York 10705.
26. Hegenbart, op. cit.
27. Cone, R. 1993. Personal communication. Rockland Colloid Corp., Piermont, New York 10968.
28. Wells, L. 1991. Personal communication. New York, New York.
29. Fuchs, R. H. 1989. *Arnulf Rainer.* Vienna: ARGE Gabriele Wimmer & John Sailer, 147–48.
30. Gagnier, R. 1991. Personal communication. Conservator of Contemporary Art, National Gallery of Canada, Ottawa.
31. Monk, P. 1987. *Shirley Wiitasalo.* Toronto: Art Gallery of Ontario, 13–14.
32. Vaughan, K. 1993. Personal communication. Toronto, Ontario.
33. Winter, P. 1989. Manipulieren, ironisieren, malträtieren: Das Foto unter der Hand des Künstlers. *Kunstwerk* 42 (March):11.
34. Penn, S. P. 1993. Personal communication. Associate Conservator of Paintings, Philadelphia Museum of Art, Philadelphia, Pennsylvania 19101.
35. Cotter, H. 1990. Fariba Hajamadi at Christine Burgin. *Art in America* 78 (7):169.
36. Hajamadi, F. 1991. Personal communication. New York, New York.
37. Adcock, C. 1990. *James Turrell: The Art of Light and Space.* Berkeley and Los Angeles: University of California Press, 187–96.
38. Turrell, J. 1993. Personal communication. Flagstaff, Arizona.