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DOI

[10.1086/690577](https://doi.org/10.1086/690577)

Publication date

2017

Document Version

Final published version

Published in

History of Humanities

[Link to publication](#)

Citation for published version (APA):

Dupré, S. (2017). Materials and Techniques between the Humanities and Science: Introduction. *History of Humanities*, 2(1), 173-178. <https://doi.org/10.1086/690577>

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FORUM: MATERIALS AND TECHNIQUES IN ART HISTORY

Materials and Techniques between the Humanities and Science: Introduction

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ABSTRACT

Collaborations and conflicts between the sciences and the humanities are central to disciplines from digital humanities to archaeology. The exploration of these tensions and synergies in the newly emerging field of technical art history is the focus of this forum. This is also a first step toward the writing of the history of conservation. The disciplinary conflict between science and the humanities in the study of materials and techniques relies on hierarchies of the material and the intellectual and of the hand and the mind. These same epistemic hierarchies are still at work in shaping processes of collaboration between conservators, conservation scientists, and art historians. The forum marks a few signposts that will help us to complete our picture of the long-term development of the study of materials and techniques in art from the eighteenth to the twenty-first century.

In the 1990s David Bomford coined the term “technical art history” to refer to a field of study concerned with the making of art that “goes far beyond the physical materials of works of art into questions of artists’ methods and intentions.”¹ Trained as a chemist, Bomford was a senior restorer at the National Gallery responsible for several publication projects in the seminal *Art in the Making* series before he moved to his current position as director of conservation at the Museum of Fine Arts in Houston. Bomford publicized the term “technical art history” in conference proceedings edited by Erma Hermens. Hermens was educated as an art historian and established the first master’s

This project has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation program (grant agreement no. 648718).

1. D. Bomford, “Introduction,” in *Looking through Paintings: The Study of Painting Techniques and Materials in Support of Art Historical Research*, ed. Erma Hermens, Annemiek Ouwerkerk, and Nicola Costaras (Leiden: Archetype, 1998), 9–12, 9.

History of Humanities, Volume 2, Number 1. <http://dx.doi.org/10.1086/690577>

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program in technical art history at the University of Glasgow before she returned to the Netherlands as the Rijksmuseum's curator of technical art history. Like Bomford, Hermens conceives of technical art history as a truly interdisciplinary field combining a variety of expertise (including scientific analysis of artworks) into one holistic approach concerned with the creative process in art. "Technical art history," Hermens argues, "aims at a thorough understanding of the physical object in terms of original intention, choice of materials and techniques, as well as the context in and for which the work was created, its meaning and its contemporary perception."² The practice of technical art history necessitates cooperation between conservators, art historians, and conservation scientists; Hermens speaks of a future of synergies between art (history), conservation, and science.

The scientific study of the materials and techniques of art has a long history stretching back to the nineteenth century. Museum laboratories were established first in Europe and later, in the first decades of the twentieth century, in the United States from the late nineteenth century onward.³ From this perspective, it is the marriage of the humanities and science that appears to be the significant novelty that defines technical art history. However, some scholars are more hesitant precisely because of the perceived history of technical art history in science. In a volume on materials and meaning, the art historian Ann-Sophie Lehmann observed that "in the past decades, the scientific analysis of art has evolved from a Hilfswissenschaft into the independent field of technical art history with its own institutions, conferences and journals," adding the reservation that "while this emancipation has helped to establish technique and materials as central subjects of research, the scientific apparatus that dominates technical art history has also increased the methodological distance towards more historical and especially theoretically oriented approaches."⁴ Conflicts and tensions between science and the humanities seem to be as present as cooperation and synergies.

The investigation of collaborations and conflicts between the sciences and the humanities in the field of technical art history is the focus of this forum. This situation is certainly not unique to technical art history; it is common in other disciplines in

2. Erma Hermens, "Technical Art History: The Synergy of Art, Conservation and Science," in *Art History and Visual Studies in Europe: Transnational Discourses and National Frameworks*, ed. Matthew Rampley, Thierry Lenain, Hubert Locher, Andrea Pinotti, Charlotte Schoell-Glass, and Kitty Zijlmans (Leiden: Brill, 2012), 151–65, 165.

3. Michael Graf von der Holz, *Kunsterhaltung—Machtkonflikte: Gemälde-Restaurierung zur Zeit der Weimarer Republik* (Berlin: Reimer, 2002); Francesca G. Bewer, *A Laboratory of Art: Harvard's Fogg Museum and the Emergence of Conservation in America, 1900–1950* (New Haven, CT: Yale University Press, 2010).

4. Ann-Sophie Lehmann, "How Materials Make Meaning," *Netherlands Yearbook for History of Art* 65 (2012): 6–27, 11.

the humanities, especially archaeology with which conservation science and technical art history share a past. In 1889 the German chemist Friedrich Rathgen established the first museum laboratory, at the Royal Museums in Berlin, for the scientific investigation of antiquities. Only later did conservation science move from the field of archaeology to art.⁵ The aforementioned tensions live on in present-day archaeology; a historian of archaeology recently noted that “even now, it is claimed that significant differences can be noted between work done by professional archaeologists whose undergraduate studies were in the humanities and in the natural sciences.”⁶ This issue is also at the heart of the newly emerging field of the digital humanities. The exploration of these tensions and synergies in technical art history is relevant then to both the history and the future of the entire humanities field.

We also consider this an important step toward the writing of the history of conservation. Particular episodes have received ample attention in the historiography, especially when a conflict between science and art (history) was involved. The cleaning controversies surrounding the National Gallery in London provide a good example.⁷ The debate, which revolved around the limits of scientific evidence in picture cleaning, developed in two phases, the first following the exhibition of cleaned pictures of the National Gallery immediately after the Second World War, and the second more than a decade later, bringing into opposition, among others, the chemist Joyce Plesters and the art historian Ernst Gombrich.⁸ In reaction to the scientists of the National Gallery, Gombrich concluded in *The Burlington Magazine* in 1963 that “the restorers’ excursions into Italian philology, the Official Report’s discussion of the history of taste, the scientist’s interpretation of a classical author and the connoisseur’s explanations of colour theory have not exactly encouraged me as an art historian to follow the National Gallery’s invitation and inspect their laboratories. Such a visit can teach the historian no more than a visit to an operating theatre can teach the layman in medicine.”⁹ However, despite these spectacular controversies, the historiography of art conserva-

5. Mark Gilberg, “Friedrich Rathgen: The Father of Modern Archeological Conservation,” *Journal of the American Institute for Conservation* 26 (1987): 105–20. See Friedrich Rathgen, *Die Konservierung von Altertumsfunden* (Berlin: Spemann, 1898).

6. Bruce G. Trigger, *A History of Archaeological Thought* (New York: Cambridge University Press, 2006), 22.

7. Ernst H. Gombrich, “Controversial Methods and Methods of Controversy,” *Burlington Magazine* 105 (1963): 90–93; Cesare Brandi, “The Cleaning of Pictures in Relation to Patina, Varnish and Glazes,” *Burlington Magazine* 91 (1949): 183–89.

8. Bettina von Gilsa, “The Cleaning Controversy: Zur Diskussion der Gemäldereinigung in England von 1946–1963,” in *Firnis: Material-Ästhetik-Geschichte, Internationales Kolloquium, Braunschweig, 15.–17. Juni 1998*, ed. Anne Haermssen (Braunschweig: Herzog-Anton-Ulrich-Museum, 1999), 193–200.

9. Gombrich, “Controversial Methods and Methods of Controversy,” 93.

tion is a glaring lacuna in scholarship.¹⁰ The aforementioned episode makes clear though that the issue of conflict and cooperation between the sciences and the humanities is also the central issue in the historiography of art conservation.

The disciplinary conflict between science and the humanities in the study of materials and techniques relies on hierarchies of the material and the intellectual and of the hand and the mind. Historians of science and technology have recently argued against the application of these hierarchies to our understanding of early modern art and processes of making and knowing.¹¹ However, these same epistemic hierarchies are still at work in shaping processes of collaboration between conservators, conservation scientists and art historians. This largely unwritten history of synergies and tensions between science and the humanities, and conflict and cooperation among conservators, art historians, and scientists, is one focus of the ARTECHNE Project, supported by a European Research Council Consolidator Grant, at Utrecht University and the University of Amsterdam. This historical epistemology of technical art history, which this forum begins to develop, is of the utmost importance to the newly emerging field of technical art history, which promises to resolve tensions and allow for fruitful cooperation between the sciences and humanities.

Our forum explores this terrain, marking a few signposts that will help to complete our picture of the long-term development of the study of materials and techniques in art from the eighteenth to the twenty-first century. In her contribution, Marjolijn Bol shows that this interest in historical materials and techniques reemerged in the nineteenth century in response to the alienation of artists from their materials, the artists' lack of material knowledge, and the lack of stability and durability of industrially produced artists' materials. This interest in materials and techniques was reflected in Gottfried Semper's art theory and was followed by Alois Riegl's plea against *Kunstmaterialismus*, the idea that art could be reduced to materials and tools. Riegl's notion of *Kunstwollen* was used to distance art history from materials and techniques. In Italy, as Marco Cardinali argues in his contribution, the pervading influence of the philosopher Benedetto Croce resulted in an academic art history resistant to the value of the scientific analysis of works of art.

10. There are exceptions. See, e.g., the Art of Conservation series, of which the first issue was published in *Burlington Magazine* 157 (October 2015). The series aims to write "a new history of conservation and technical studies."

11. Pamela H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: University of Chicago Press, 2004); Lissa Roberts, Simon Schaffer, and Peter Dear, eds., *The Mindful Hand: Inquiry and Invention from the Late Renaissance to Early Industrialization*, History of Science and Scholarship in the Netherlands 9 (Amsterdam: Royal Netherlands Academy of Arts and Sciences, 2007).

This is not to say that synergies were absent. Bol reveals that already by the first years of the twentieth century the chemist Alexander Eibner made a plea for cooperation between the sciences and the humanities to grapple with the issue of artistic technique. Similarly, as discussed by Cardinali, Fernand Mercier and Henri Focillon argued for an integrated study of the artistic process, distinguishing between “external technique” and “internal technique” and based on the application of photography and radiography. This shows how intricately interwoven this history is with shifting notions of technique. The investigation of the concept and meaning of technique is crucial to a historical epistemology of technical art history. The meaning of the notion of technique is complex and complicated by demarcations of the fields of art and science and with the relationships between the sciences and the humanities.

It has been impossible to write a history of the notion of “technique” in the context of this forum, but Marieke Hendriksen’s contribution is a starting point for such a history. She identifies an important turning point in German philosophy in the eighteenth century. Her scrutiny of diverse texts by Winckelmann, Kant, and Goethe, among others, brings to light that the notion of *Technik* arose in connection to a process of distinction between processes of making and the works of art themselves. They relate to dichotomies between hand and mind that haunt technical art history to this day.

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