

**SCIENCE IN CONTEXT.
SPECIAL ISSUE: WRITING
MODERN ART AND SCIENCE**

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Comparing recent writings on art and science with comments from earlier centuries brings to mind the degree to which our conclusions reflect the con-

text of our era. Often discussed is how the process of adapting our minds and sensitivities to new views of reality and living systems re-frames ontological and epistemological debates, influences scientific theory and experimental design, and imprints art theory and practice. Less discussed are the roots of contemporary activities, many of which are traceable to late 19th through mid-20th century events. This is the period primarily covered in Linda Dalrymple Henderson's special edition of *Science in Context* titled "Writing Modern Art and Science." This superb collection offers methodological models that contextualize how developments in science play a critical role in an artist's cultural context. One of the strengths of the book is that the contributors offer well-researched information that illustrates conjunctions among art and science without trying to "prove" conjunctions exist, or conflating science with technology. As a result, the volume offers research that elevates the field on its own terms by elucidating points of intersection.

This is not to say that issues joining art, science and technology are absent. Anne Collins Goodyear's essay "Gyorgy Kepes, Billy Klüver and American Art of the 1960s: Defining Attitudes toward Science and Technology," for example, juxtaposes the two figures named in her title. After acknowledging that, due to similarities in their work, the two names are frequently linked, Goodyear demonstrates that there were philosophical and practical differences between the artist Kepes and the engineer Klüver. Her vehicle for distinguishing their contributions is a comparison of the organizations they nurtured (Kepes, the Center for Advanced Visual Studies at the Massachusetts Institute of Technology, and Klüver, Experiments in Art and Technology).

Goodyear's stated intention was to reveal both how the cultural conditions of the 1960s contributed to the perceived need for such agencies and how interactions between art, science and technology reflected, at once, the culmination of aspirations reaching back to the opening decades of the 20th century and a perceived break with the past. Yet, what was most impressive was the power of her tightly argued essay to reach beyond its own focus through the questions she examined. The author's unique insight into the distinct origins of such organized collaborations between art, science and technology

ties the personal to societal concerns so effectively that she touches on issues that continue to haunt the many practitioners. One of the most thought-provoking aspects of the text is the way it brought to mind the many who wrestle with whether collaborative projects work best within academic settings or without a traditional base.

Barbara Larson's contribution, "Odilon Redon and the Pasteurian Revolution: Health, Illness, and *le monde invisible*," was remarkably contemporary despite its focus on an historical figure. Larson speaks of how the Symbolist Odilon Redon incorporated the invisible world of microbes into his works on paper. Centering the argument on scientific/medical issues that stimulated this artist's creative process allowed the author to expand on Redon's work beyond his metaphysical and symbolist views. Of particular interest is her discussion of his anxiety over invisible biological danger, a perspective that resonates among many still.

Equally compelling were Peter Geimer's "Picturing the Black Box: On Blanks in Nineteenth Century Paintings and Photographs" and Oliver A.J. Botar's "László Moholy-Nagy's New Vision and the Aestheticization of Scientific Photography in Weimar Germany." Although both interrogate the status of photography in relation to art and science, the differences between the two essays serve to accentuate the range we find in the literature related to these topics, and in this volume as well. Geimer looks at the work of Edouard Manet, Thomas Kaife, Albert Londe, Arthur Worthington and others to show how scientific and artistic practices were re-configured in the 19th century. Two reproductions—one comparing Worthington's photographs of a falling drop of milk into water, the other his etchings of a falling drop—were among the most articulate contrasts I have seen. In this case, the juxtaposition demonstrates how photography altered the imaginative process and the visual products as well. The two images vividly record similar information, but they are conceptually quite different. The photographs provide a sequenced account of the actual falling. The drawings, which needed to rely on attentive observation and a longer rendering time, appear static and more contrived. Thus, we can see that both are imaginative creations, and yet placing the drawings next to the photographs provides a stunning statement of how dramatically

the use of photography altered visual options.

Botar's essay, on the other hand, speaks of Moholy-Nagy's suggestion that products of applied—particularly scientific—photography be employed as exemplars for art photography. The author explains that the artist integrated such applied photographs with art photographs in his practice, publications and exhibitions. This in turn laid the groundwork for an aestheticization of scientific photography within the 20th-century artistic avant-garde. According to Botar, the science at play was "biocentrism," and his key inspiration was the biologist and popular scientific writer Raoul Heinrich Francé and his conception of *Biotechnik* (bionics). Botar's discussion is well argued, particularly his description of this artist's desire to teach people to see more, a goal that greatly influenced Moholy-Nagy's work. Also of value was Botar's integration of several figures of the time (such as the preeminent biological illustrator Ernst Haeckel). Like that of Geimer, Botar's writing shows the crucial role of the imagination in photography and the role of the photographer in this intervention.

Two additional essays round out the volume. Gavin Parkinson's re-thinking of connections between quantum mechanics and surrealism tracks the diffusion of the new scientific findings into French sources. In doing this, Parkinson establishes the way in which Surrealists (such as Wolfgang Paalen and Robert Matta) worked to find a language for quantum physics that would aid them in assimilating its findings with surrealism. Stephen Petersen's essay moves to the mid-20th century, exploring how artists reacted to the Atomic Age. Both of these essays would have benefited immensely from color reproductions. The analysis of artists associated with the Atomic Age (Dalí, Pollock, Fontana, Dova, etc.) translated better, perhaps because I am more familiar with the work that was shown to illustrate the text. Reading the Surrealism chapter, admittedly, I had some problems envisioning the images. For example, Paalen's *Figure pandynamique* has enough contrast to convey its dynamism in the half-tone reproduction. *Polarités majeures*, however, translated into a monotone that seemed both muddy and scratchy.

Overall, the publication is delightful. One shortcoming is its lack of attention to art and the brain, an area that I believe could benefit from more atten-

tion in general. Nonetheless, as a whole, the six well-developed case studies come together to illustrate that reactions to altered perceptions of the physical, the invisible, and what lies in between stimulated projects that rewrote our view of the world, transformed the human story, and added new avenues for artistic innovation as well. The composite is enhanced by Henderson's introduction, which broadens the terrain covered by the papers and demonstrates that terms like "science," "art" and "modernism" have significations that have varied over time. To her credit, Henderson points out that the contributions of Leonardo and the Society for Literature, Art and Science have aided the field's development. "Writing Modern Art and Science" does this as well.

Indeed, the essays in this volume are so integral to the Leonardo mission that the publication struck me as an indirect tribute to all that Leonardo's many venues have done to elevate awareness of art and science intersections. As a whole, members of the Leonardo community will find the essays useful in their own research. They are meticulously researched, provide extensive bibliographic references, and are supplemented by a wealth of details in the footnotes. I highly recommend the book. Those who have access to a university library can find the contents on-line through <journals.cambridge.org>.