

## NEUROSCIENCE AND ART

## Where Lines Are Drawn

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This past summer three major U.S. art institutions mounted concurrent retrospectives of James Turrell. For decades, his work has forced us to ask questions about perception. Given recent advances in technology, it would be nice if neuroscience could provide more answers.

Although many recent reports have trumpeted claimed implications of new findings from brain research, an opposing chorus of doubt is surging back [e.g., (1–3)]. The target of such neuroskepticism has often been the frontier outposts of the discipline, where neuroscience pollinates other fields and spawns new monikers such as neuromarketing, neuroeconomics, and neuroaesthetics. At a time when the popularization of using neuroscience to explain everything from love to economics is stirring a backlash, a book about how the brain experiences art could play a critical role in establishing neuroaesthetics as a subject worth taking seriously.

In his preface to *Experiencing Art: In the Brain of the Beholder*, Arthur Shimamura writes that what follows is a “personal account of the ways we experience art.” One wonders whether we are being set up to hear a personal opinion, the voice of an expert, or something in between. Is Shimamura (a psychologist at the University of California, Berkeley) speaking to artists or to other scientists interested in art? He never establishes a firm footing in either direction, leaving one to wonder.

The book reads like a walk through a museum with an author knowledgeable about neuroscience. Shimamura roughly organizes the tour by perceptual faculties: broad chapters on seeing, knowing, and feeling carry the reader through art history—lite tours of major movements, tapping specific works to aid discussions of basic perceptual science. He effectively and comprehensively summarizes the history of neuroaesthetics, illustrating his points using long-established, introductory-level psychology and cognitive science. It’s a familiar routine: most of the artworks discussed here have been pored over several times before by the heavyweights of neuroaesthetics [e.g., (4–6)]. As

a result, *Experiencing Art* treads in all too familiar territory.

The chapters have seductive titles (e.g., “The Eye as Canvas, the Brain as Beholder”), but Shimamura approaches the art history and scientific discourse within them with the sort of cross-disciplinary surface-skimming that only adds fuel to the fires of contemporary academic turf battles. Tangential oversimplifications abound, which feel more amateur than authoritative: “Warhol’s point was to bring the familiar and mundane up to the echelon of high art. The fact that these artworks are valuable and prominently displayed in art museums shows that Warhol succeeded.”

Shimamura paints a similarly oversimplified picture of the brain using diagrams that, for a book about aesthetics, seem especially oblique and confusing. He describes each region as doing its singular, modular task: “We engage the PPC [posterior parietal cortex] when we use our imagination, such as thinking about the future or reminiscing about a past experience.” The author neglects to point out how much we don’t yet know and how poor the resolution of the imaging technology he leans on for his descrip-

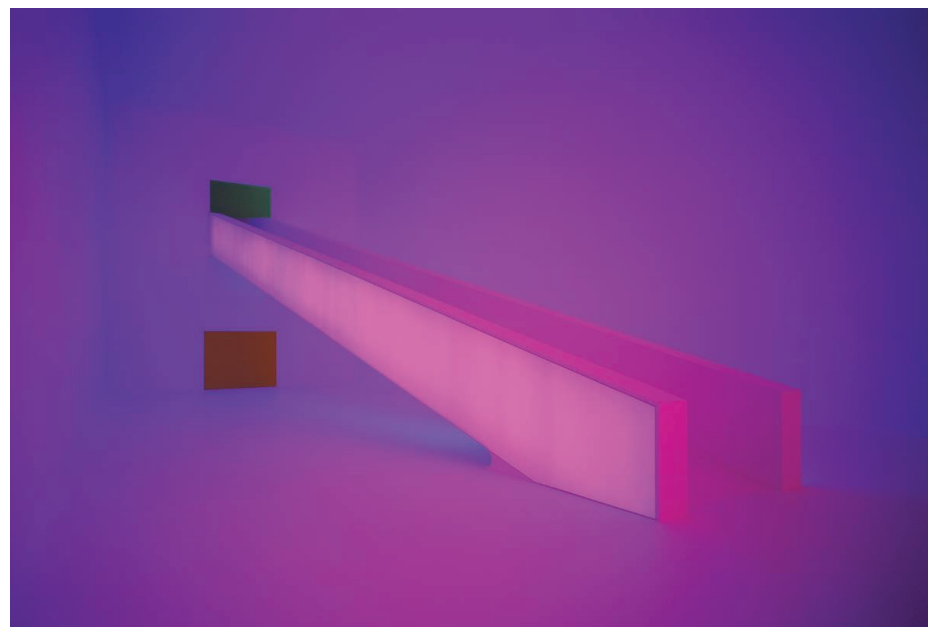
tions is. Nor does he point toward new lines of research ahead. The book’s content and Shimamura’s presentational tone lead us to believe that all the answers are known, neatly available in functional definitions symptomatic of this functional magnetic resonance imaging-heavy era.

Shimamura does propose an integrative model to describe the universal experience of art (I-SKE, for artist’s intention, then the beholder’s sensation, knowledge, and emotion). But it is still too simplistic; he needs to go further. How do knowledge, experience, emotion, and stimuli interact to create a response? For all its limitations, neuroscience is starting to tease these relationships apart. It isn’t clear why, for example, Shimamura omits Jesse Prinz’s recent studies on emotional responses to artworks (7) or Vittorio Gallese’s contributions to the field of embodied cognition (8) from his discussion while recapping classic cases such as H.M. and Phineas Gage.

The current din of territorial squabbles among philosophers, scientists, artists, and art historians makes positive collaborations in neuroaesthetics and the responsible, useful crossing of disciplines all the harder to hear. For the critics, these frontier outposts of a doomed discipline signal the most irresponsible applications of science around today, with excessive reduction and intractable explanatory gaps as the chief concerns. As Noë wrote, “What is striking about neuroaesthetics is ... that it has failed

**Experiencing Art**  
In the Brain of the Beholder

by Arthur P. Shimamura  
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Oxford, 2013. 312 pp.  
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James Turrell's *Bridget's Bardo* (2009).

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to produce interesting or surprising results about art” (2).

One would have hoped, then, that *Experiencing Art* had presented its arguments in a sensitive manner, acknowledging the sharply critical climate it faces. Neuroaesthetics needs responsible advocates who can bring to light the contributions that scientific research undoubtedly has and will continue to bear for art theory and art history, and perhaps vice versa. In the meantime, let us be wary of the expense of bridges built where there is no new ground to be covered.

#### References

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## PSYCHOLOGY

# Rewriting Milgram

Ruud Abma

“The experiment requires that you continue, teacher.” It is August 1961. While the “learner” in the next room is begging him to stop, the person filling the role of “teacher” is urged by a stern-looking scientist to keep testing and, if the answer is wrong, administering electric shocks. The teacher had been told that the experiment addressed the effect of punishment on learning, but in reality it was about obedience: with each wrong answer on the memory test, teachers were to increase the voltage. How far would people go? Far, it appeared: 65% of the teachers continued to the possibly deadly level of 450 volts. (In reality, of course, no shocks were given.)

The experiment was one of a series carried out by Stanley Milgram, an ambitious young psychologist at Yale University, who presented the results as evidence that even

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**Misleading machine.** Milgram and the simulated shock machine that he used in his experiments.

ordinary American citizens could be pressed to torture fellow humans. The experiments brought Milgram to center stage in experimental psychology as well as the mass media: He seemed to offer an explanation for the obedience of Nazi officials such as Adolf Eichmann. Moreover, he claimed to have captured a universal truth about human nature: in the face of authority, human conscience is frail.

In *Behind the Shock Machine*, Gina Perry challenges the received view of these experiments. After setting out to produce a story on the subjects who participated in Milgram’s study, Perry (an Australian psychologist and writer) discovers a disturbing reality behind the standard account of the experiments. Listening to the audio tapes and studying the Milgram documents in Yale’s archives, she found that both the resistance and the distress of the subjects were much greater than suggested by the cold figures Milgram presented. Moreover, a substantial number of the 780 participants did not receive an adequate debriefing, which means they went home not knowing what had really happened.

The experiments, which were run between August 1961 and May 1962, comprised a variety of conditions, many of which did not produce the high levels of obedience that made it into the standard account. Their results depended crucially on the degree of pressure exerted on the subjects. Furthermore, there were subjects who saw through the disguise of the experiments: They could simply not believe that a prestigious university such as Yale would allow its researchers to risk the lives of citizens, whereupon they concluded that the “teachers” were the real subjects—not the “learners.” This shift of

perspective obviously lowered the threshold for administering shocks.

Perry’s precise reconstruction of the 24 conditions also cast doubts on the methodological rigor of Milgram’s experiments. Rather than testing hypotheses, they were aimed at demonstrating that anyone could be talked into torturing a fellow citizen—a pedagogical lesson for all of us. Making them work this way took a lot of preparation, training, and trial and error. Milgram’s students, Perry’s interviews revealed, saw him as a “genius” in the designing of the experiments, bringing “art to science.”

Perry also considers what happened to the participants who took part in Milgram’s study: Did the experience change their lives?

Were they traumatized by the experience or instead thankful for an increased self-knowledge? Follow-up interviews in 1962–63 had shown a variety of responses—which belied the idea that this complex emotional situation could be reduced to a single outcome measure (i.e., the maximum voltage administered). Perry managed to track down a few participants. Her interviews with them further undermine Milgram’s carefully crafted renderings. Their varied personal interpretations of what had been going on ranged from disbelief in the setup (“I’m not delivering shocks at all”) to anger and grief about the way they were deceived.

Milgram usually advertised his results as “profound and disturbing truths of human nature.” Privately, however, he would acknowledge that his experiments were more successful as drama than as science: “Whether all of this ballyhoo points to significant science or merely effective theater is an open question. I am inclined to accept the latter interpretation.” The merit of *Behind the Shock Machine* is that Perry gives us a thorough look backstage and helps us understand the interpretations and emotions of the actors. Moreover, her elegant and well-written account teaches us that scientists are both investigators and storytellers—and that in both capacities, they should be critically assessed.

### Behind the Shock Machine

The Untold Story of the Notorious Milgram Psychology Experiments

by Gina Perry

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Australia, 2012. 432 pp. AU\$32.95.

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