

## LEONARDO REVIEWS

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## REVIEW ARTICLES

### EINSTEIN PICASSO: SPACE, TIME, AND THE BEAUTY THAT CAUSES HAVOC

by Arthur I. Miller. Basic Books,  
 New York, 2001. 267 pp., illus.  
 ISBN 0-465-01859-9.

### INNER VISION: AN EXPLORATION OF ART AND THE BRAIN

by Semir Zeki. Oxford Univ. Press,  
 Oxford, U.K., 1999. 218 pp., illus.  
 ISBN 0-19-850519-1.

*Reviewed by Robert Pepperell, Polar (The  
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If we are to find a reliable way of integrating knowledge between science and art, then the intellectual traffic must pass in more than one direction. There seems to be no shortage of scientists willing to make low-level interventions in art theory using insights from their own fields to generate apparently novel interpretations of cultural artifacts. Along with the two authors reviewed here, we could also mention the surgeon Leonard Shlain, the physicist Erich Harth and the psychologist Nicholas Humphrey, along with the neurologist V.S. Ramachandran, whose ideas on the neurology of art appreciation form the basis of this year's Reith lectures for the BBC (available at <[http://www.bbc.co.uk/radio4/reith2003/reith2003\\_lecture3.shtml](http://www.bbc.co.uk/radio4/reith2003/reith2003_lecture3.shtml)>).

One is hard pressed, however, to name any prominent artists who have attempted equally serious interventions

in, say, advanced neuroscience, laparoscopic surgery, particle physics or evolutionary psychology. Were they to try, it is likely their efforts would receive—let's put it diplomatically—a “guarded” reception. Indeed, my experience when commenting on matters scientific, or even philosophical, to members of those communities is that an artist's views can often be entertained with polite interest and then bracketed. The fact that specialists from a wide spectrum of disciplines feel qualified to critically engage with art may be a positive testament to its pervasive cultural resonance. But there must be other reasons why so many scientists feel compelled to devote so much intellectual energy to revealing what art seems to keep hidden: are such projects the indulgent byproducts of an already well-established reputation, are they symptomatic of an inadequacy in orthodox art history, or do they actually represent an emerging kind of human knowledge that harmonizes hitherto inconsonant disciplines?

In his book *Einstein Picasso*, Arthur I. Miller, the eminent historian of science, stokes the ongoing debate about the connections between avant-garde Parisian art and theoretical physics in the period leading up to the First World War. As we approach the centenary of the birth of both cubism and relativity, it seems the possibility of their having had some contemporary symbiosis continues to fascinate. Miller produces a “parallel biography” of two titanic figures in order to demonstrate how in their early careers “they were both working on the same problem” (sleeve note and p. 174)—the problem being the limitations of classical representations of space and time. It's worth saying that this is a hotly contested claim with heavyweight art historians, including Linda Dalrymple Henderson and John Richardson, categorically rejecting any cross-pollination between Einstein's theories and the development of cubism. (The other significant volume on the subject, *Art & Physics: Parallel Visions in Space, Time and Light* by Leonard Shlain [1993], is oddly not mentioned by Miller.)

There are undoubtedly some striking parallels between the early circumstances of both Picasso and Einstein: both experienced periods of poverty and rejection, both relied on a close circle of friends for intellectual nourishment, and both produced—almost simultaneously—seminal work that entirely reshaped their respective disciplines. Moreover, they each drew on the work of polymath Henri Poincaré, Einstein quite directly and Picasso through the conduit of his friend Maurice Princet. But it is the philosophical proximity of cubism and relativity that seems, in retrospect, to need accounting for, and it is the nature of this proximity—in what ways were cubism and relativity similar?—that to my mind leaves the greatest scope for misinterpretation. Miller is among those who see both projects as essentially *reductionist*, which is to say that each seeks to expose some underlying, geometric sub-structure of reality that would remain otherwise concealed.

He is not alone in taking this line, and it chimes with views about cubism that were expressed at the time cubism came to critical notice. So, for example, we read that: “For their [Picasso and

**Reviews Panel:** Peter Anders, Fred Allan Andersson, Wilfred Arnold, Roy Ascott, Curtis Bahn, Claire Barliant, René Beekman, Roy R. Behrens, Andreas Broeckmann, Annick Bureauud, Chris Cobb, Robert Coburn, Donna Cox, Sean Cubitt, Nina Czegledy, Shawn Decker, Margaret Dolinsky, Dennis Dollens, Luisa Paraguai Donati, Victoria Duckett, Maia Engeli, Enzo Ferrara, Deborah Frizzell, Bulat M. Galejev, George Gessert, Elisa Giaccardi, Thom Gillespie, Dene Grigar, Diane Gromala, Rob Harle, Craig Harris, Josepha Haveman, Paul Hertz, Amy Ione, Stephen Jones, Richard Kade, Curtis E.A. Karnow, Nisar Keshvani, Julien Knebusch, Daniela Kutschat, Mike Legget, Roger F. Malina, Jacques Mandelbrojt, Robert A. Mitchell, Rick Mitchell, Mike Mosher, Axel Mulder, Kevin Murray, Frieder Nake, Maureen A. Nappi, Angela Nalainis, Simone Osthoff, Jack Ox, Robert Pepperell, Kjel yngve Petersen, Cliff Pickover, Patricia Pisters, Michael Punt, Harry Rand, Sonya Rapoport, Edward Shanken, Aparna Sharma, Shirley Shor, George K. Shortess, Joel Slayton, Christa Sommerer, Yvonne Spielmann, David Surman, Pia Tikka, David Topper, Rene van Peer, Stefaan van Ryssen, Ian Verstegen, Stephen Wilson, Arthur Woods, Soh Yeong.

Braque's] new art they conceived a new aesthetic: reduction to geometric forms" (p. 239) and "Cubist work starts with a subject that is then represented in ways that attempt to illuminate its deeper structure" (p. 157). Or more strangely: "[Cubism] sought to avoid ambiguity while representing objects in a manner closer to their deep structure" (p. 136). This latter statement is strange because cubism was a form of art that elevated and celebrated ambiguity in a way no previous art form ever had. Miller's failure to recognize this characteristic of cubism—its preoccupation with contradiction, uncertainty and indeterminism—amounts to an elided reading of the paintings.

Despite the quantity of scholarship and the enthusiasm of the author for his subjects, *Einstein Picasso* tends to undermine its own authority. Some of the misdemeanors are minor but embarrassing, such as when Henri Matisse is referred to as being "twelve years younger than Picasso" (p. 24) when the reverse is true. Others are less forgivable, such as the tendency to turn well-founded speculation into hard fact. The contents of imagined late-night, drink-fuelled conversations among the "*bande à Picasso*" and their impact on the development of *Les Femmes d'Alger* are an example. Despite these errors, the biographical images Miller paints are sharp and vivid, the historical threads he draws together are fascinating, the section on the role of photography in Picasso's pictorial development is compelling, and much of the discourse on early relativity theory is illuminating although not entirely original.

But the central promise of the book—to rectify the neglect of the "scientific, mathematical and technological roots of Picasso's *Les Femmes d'Alger*" (p. 85) and establish its commonality with Einstein's relativity project—remains unfulfilled. This is not because there are no points of commonality between cubism and relativity, but because of the inappropriate scientific motives that Miller imputes to Picasso's paintings. What makes cubist art so great is precisely that, with its ambiguity and uncertainty, its anti-geometricism (at the very least in its rejection of mathematical perspective), its occult leanings, and its fragmentation of the coherent viewing subject, it resists the conventions of science. Cubism displays qualities that, in fact, eschew empiricism at the same time as suggesting the very indeterminacy Einstein was so famously unable to bring

himself to accept when he rejected the Copenhagen interpretation of quantum field theory with his famous remark about God and dice. If anything, cubism was less to parallel relativity theory than to foreshadow the stark incomprehensibility of quantum theory, with its stress on the probabilistic nature of an unknowable physical world.

Semir Zeki offers an alternative analysis of cubism, among other forms of art, in his sumptuously produced book, *Inner Vision*. As a neurologist with a specialist's interest in the study of the visual brain, Zeki attempts to apply the latest neurobiological research to account for artistic production and reception. One of his main theses is that we do not see with our eyes but with our brain, which is to say that the process of seeing is less the passive reception of a coherent image than an "active process in which the brain, in its quest for knowledge about the world, discards, selects and, by comparing the selected information to its stored record, generates the visual image in the brain, a process remarkably similar to what an artist does" (p. 21). By this selection and construction the brain and the artist are both searching for "constants" or "essentials," which are the qualities of the visual world that are accumulated through experience rather than fleeting impressions. Hence he states: "I shall therefore define art as being a search for constancies, which is also one of the most fundamental functions of the brain" (p. 12).

In a limited way it is a reasonable hypothesis, yet one that leads Zeki almost immediately into some very deep and dangerous waters. I only have space to mention his analysis of cubism, which exposes the limitations not only of his argument but also of his grasp of the historical data, including the pictures themselves. He sets up and then knocks down a straw man, beginning by claiming cubism was an attempt to "mimic what the brain does" (p. 54), insofar as Cubism synthesized multiple views and hence accumulated knowledge. He then concludes that in trying to do this, it was "a failure—an heroic failure perhaps, but a failure nevertheless" (p. 54). The reason for this failure, according to Zeki, was that during the so-called Analytic phase the subjects of the paintings become so unrecognizable that it is only the painting's titles that allow us to identify a *Man with Violin* or a *Woman with Mustard Pot*. Speaking of the difficulty of deciphering the representational content of

Picasso's works, he goes on: "It was probably hard for Picasso himself, which is presumably one reason he used objective and recognisable titles to describe his paintings" (p. 55). In stating all this, Zeki compounds three errors: first, the idea that Picasso's and Braque's cubism is primarily about the depiction of simultaneous viewpoints is a naïve simplification repeated by commentators since the work was first exhibited. Second, cubist paintings are never abstract or unrecognizable; they abound with visual clues that, when given appropriate attention, reveal the paintings' subject. Third, Picasso certainly did not title his cubist works; those titles that are now commonly used were given by subsequent critics and catalogers.

As with *Einstein Picasso*, this is by no means a worthless book. As one would expect from Zeki's academic profile, the passages on neurology are expertly written and absorbing, offering all sorts of avenues for further speculation and investigation. To find such a comprehensive and accessible compendium of data on current work on the neurology of vision is invaluable, not least for the references. But like Miller's book, it is the application of scientific (or at least certain kinds of scientific) methodologies to the analysis of artistic practice that is both the central purpose of *Inner Vision* and, at the same time, its greatest weakness. In both instances it is not only that one can accuse the authors of misreading the works (we can all be guilty of that), but more importantly each adopts, in a different way, a reductionist stance that is incompatible with artistic appreciation. In Miller's case, it is the reduction of cubism to geometry; in Zeki's case it is the reduction of art to a formalistic response by specialized modules in the brain, thereby taking little account of the social, cultural or historical significance of the work, let alone the emotional response of the body (Arthur Koestler is one of the only critics I have come across who has acknowledged the importance of the corporeal dimension of aesthetic appreciation).

Of course, one welcomes Miller's works on cubism, as well as Zeki's putative *neuro-aesthetics* as a sign of increased integration between scientific and artistic knowledge. But our desire to see such integration should not blind us to the constraints of each discipline's methodology. If science seeks certainty and predictability while art (in certain significant cases) seeks the opposite,

there is a danger of eternal antagonism. Unless science can find a way of embracing ambiguity, it will never be able to fully account for the emotive power of art. On the other hand, I would not want an artist with a tangential interest in experimental surgery, however enthusiastic, to operate on me.

### OTHER AMERICAN VOICES

Corinna Belz and Nel Hollander.  
First Run/Icarus Films, Brooklyn, NY,  
U.S.A., 2002. Documentary, 52 min,  
color.

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The global response to the 9/11 attack on the World Trade Center was an immediate recognition that something unthinkable had taken place. In the United States we understood how solidly the world stood with us when we saw the images of Yasser Arafat giving blood and heard that the headline in the French newspaper *Le Monde* cried out “*Nous sommes tous américains.*” Yet today the policies of France and Arafat are frequently at odds with the approach endorsed by U.S. governmental officials. The lines that have been drawn inevitably raise the question: why did things happen as they did?

Although *Other American Voices*, filmed in 2002, does not look at these questions from our vantage point as the Iraq war draws to a close (it was produced before the war and the politics directly leading up to it), the video does communicate the concerns of those within the U.S. who criticized the course of action taken after that fateful day. To their credit, Belz and Hollander provide a platform for some who have articulated pointed questions. The value of this is inestimable. In the States, I believe, the media has muted critical voices in the name of patriotism. This production, as the title emphasizes, introduces *Other American Voices*. Amy Goodman of *Democracy Now* sets the stage with her memory of how people began displaying pictures of the individuals reported missing after the attack. The inexplicable loss of so many innocent lives remains as hard to reconcile today as it was then. Goodman’s thoughtful reflections and manner reminded me of the photographs shown to those of us far from the New York area. We were transfixed by the

walls plastered with these gripping signifiers of those who had vanished into thin air. Goodman aptly compares these heart-wrenching images with those held by the mothers of the disappeared in Argentina, who would walk around with the photographs of loved children they had lost, asking if anyone had seen those of their family long missing. Another voice, Asif Ulla of the War Resisters League, speaks of the Muslim community’s fear after the attack. Noam Chomsky, Richard Deats and Katrina van den Heuvel (editor-in-chief of *The Nation*) are similarly convincing as they reflect on the curtailment of policy debate that accompanied the promotion of patriotism after 9/11.

The film parallels footage of the World Trade Center cleanup with all of the interviews, which returns the viewer to those days and their aftermath. Although each interviewee brings a different focus to the events that transpired, as a whole they articulate how 9/11 brought the face of terror to the United States. One recurring concern is that an Orwellian repression has prevailed since the attacks. Carmen Trotta of the Catholic Workers Party expresses this with great passion. His view is that one of the most disturbing aspects of the government’s actions since that day has been its attack on the Bill of Rights, the very cornerstone of American democracy. Somewhat alarming is his statement that, based on his experience, he now assumes his phones are tapped. Jerry Lefcourt and Joshua L. Dratel of the National Association of Criminal Defense Lawyers lament that we have moved into an era of political spying in which secret evidence and secret proceedings increasingly deny people basic rights. Overall, the consensus of *Other American Voices* is that the United States, born in dissent, could become exactly what it historically has stood against.

An effective technique adopted by the filmmakers is grouping the responses by theme. I had the impression they asked each of the figures filmed specific questions and then collaged their answers to create the script and pace. While it is hard to say precisely what these questions were, it is clear they include whether dissent is a patriotic act, whether the United States is once again entering a repressive period similar to the McCarthyism of the 1950s, and where Iraq fits in the post 9/11 world. What is perhaps most striking about the opinions presented is

their ability to convey fragments of my own experience of that time and the political climate that has taken hold since the devastating events of that tragic day. Even in the San Francisco Bay Area, one of the most radical spots in the country, there was evidence that times had changed almost immediately. Looking through my office window in downtown Berkeley shortly after the tragedy occurred, I saw protestors take to the streets almost as quickly as George Bush defined a black-and-white, good-vs.-evil position as the basis for the United States response. With signs of support for the victims, and speaking in favor of justice not revenge, the crowds grew larger each day. Many weeks passed before there were media reports acknowledging these ongoing protests, and even then the coverage was scant.

Surprisingly, this very serious, down-to-earth film seemed surreal as I watched in light of all that has transpired since. Politically, it was to the point. Each contributor spoke clearly and passionately, and effectively raised issues that need a platform, ranging from the lack of foresight in the administration’s approach overall to the loss of civil rights and civil liberties that was triggered by the attack on the World Trade Center. Several mentioned how clear it was by 2002, when this project was in production, that the Bush team would use 9/11 as an excuse to wage a second war in Iraq, as they did. These voices also joined with other critics in noting that the new world that emerged after 9/11 has aided the present government in obscuring a sluggish economy, rising unemployment, the growing number of people without health insurance, and other maladies.

As a United States citizen I believe *Other American Voices* is a tremendous contribution to social history and to the political discourse as well. As a writer on topics relating to art, science and technology, I found that this tape reminded me of the close links between art and politics. Although artistically shot, and definitely contrived using technological tools, the theme is explicitly political and not intended to be characterized as art. Yet it is this tension between the need to ask questions and the script’s focus on a particular point of view that allows the tape to fulfill a function often associated with art: stirring our emotions and presenting complex points of view in a way that allows us to wrestle with a larger picture. In this case, given the current mood in the United States, Belz and