

Introduction

Arguing with Pictures

A little formalism turns one away from History, but . . . a lot brings one back to it.

—ROLAND BARTHES, “MYTH TODAY” (1957)

New thinking requires new pictures. As the seventeenth century’s natural philosophers began to know nature through corpuscles and geometry, woodcuts, etchings, and engravings were essential to their arguments. This book attends to the creation and fortunes of one particularly rich corpus of prints: those of René Descartes. In his best-known illustration, Descartes proposed an indefinite universe of celestial whirlpools full of matter in constant motion (see fig. 16). Forty-five years later, a successor etched the philosopher’s subvisible particles onto a Dutch realist tabletop (see fig. 50). These pictures, among dozens more, contributed to the eclectic formulations of a new physics in the years between 1619, when Descartes learned to draw, and 1690, when Jesuit priest Gabriel Daniel reproduced *Principia philosophiae*’s most recognizable woodcut to withering effect. I argue that Descartes transformed natural philosophy with the introduction of a new graphic language, triggering a wide range of pictorial responses shaped by religious affiliation, political commitment, and cultural convention. Presenting a detailed account of Cartesian visuality, this book pushes the study of seventeenth-century natural philosophy further into the realm of visual culture and mines the interconnectedness of building knowledge and making pictures in early modern Europe.

Outside of scholarly circles, Descartes is characterized as “the father of modern philosophy,”¹ and his pictures are all but ignored. Even inside the academy, his oeuvre is often subject to extraordinary compression, where the single (and still stunning)

dictum “I think therefore I am” (*cogito ergo sum*) provides a shorthand for his philosophical achievement. An inheritance from *Discours de la méthode* (1637) and *Meditationes de prima philosophia* (1640), that phrase has coursed through contemporary Western philosophy, cultural history, art and visual culture, and literary criticism and served as many things: the lynchpin that secured reason in the face of radical doubt, the rallying cry for deduction and geometry, the catalyst for subjectivity, and the foundation for a new epistemology proudly separate from Aristotelian scholasticism—an epistemology that entrusted knowledge to thinkers with minds of their own.² This book does not attempt to upend those long-standing interpretations. It follows the lead of philosophers and historians of philosophy who have investigated the reconstruction of the natural world through Descartes’s “metaphysical physics” and puts key prints—including those in the original editions of the *Essais* (1637) and *Principia philosophiae* (1644)—at the center of an episodic history of one of the seventeenth century’s new approaches to knowledge.³ It does, however, reconsider cultural and intellectual historian Martin Jay’s claim that Descartes was “a quintessentially visual philosopher, who tacitly adapted the position of a perspectivalist painter using a camera obscura to reproduce the observed world.”⁴ By starting with Descartes’s woodcuts, I demonstrate that the philosopher’s attentions to the visual were not tacit at all.⁵

His pictures were unusual for scholastic natural philosophy circa 1637. Aristotelian textbooks included inheritances from medieval manuscripts, such as Porphyrian trees, almond-shaped diagrams of the eye, and concentric circles of the universe.⁶ Allegorical broadsheets for the classroom recapitulated scholasticism’s natural-philosophical concepts, such as form and substance, and primary and secondary qualities.⁷ The woodcuts for the *Essais* and *Principia* refused to traffic in either the intricate mapping of epistemic concepts or the imposition of a single ideological template onto the stuff of the world. They instead took cues from Descartes’s seventeenth-century visual vernacular, combining sword-wearing musketeers with mathematical diagrams and bending dotted lines to make celestial matter. They approached knowledge building as an ad hoc procedure, vying for thoughtful engagement with one object after another—engagement that was geometric as much as qualitative. These pictures defined what natural philosophy was coming to be (mathematized, mechanical, and increasingly concerned with experience), how it could be practiced (by hand, in the physical world, with the help of military engineers and artisans, compromised by fewer and fewer nods to the ancients), and what all that meant (that nature had begun demanding new forms of attention because the instruments of knowledge had themselves been irreversibly altered). They laid claim to the pictorial field as a generator of knowledge. And in so doing, they elaborated on the philosopher’s argument about the deceptions of the eye. Descartes’s woodcuts demonstrated that a central problem of the new physics was the fitting of three-dimensional worlds onto two-dimensional surfaces.

Four centuries of historiography have all but obscured the significant shift effected by these pictures. But their impact was not lost on Descartes's contemporaries. Robert Boyle, promoter of experimental philosophy and the importance of descriptive drawing, acknowledged the debt that natural philosophy owed the Frenchman:

I have not hitherto mention'd a Service, that Mathematicks and Mechanicks may often do the Naturalist, which is not fit to be silently pretermitted, and it is, That by Lineal Schemes, Pictures, and Instruments, they may much assist the Imagination to conceive many things, and thereby the Understanding to judge of them, and deduce new Contrivances from them.

That I do not groundlessly say this you will grant, if you consider how difficult (not to say impossible) it were to go through with a long Geometrical Demonstration, without the help of a visible Scheme, to assist both the Fancy and the Memory; and how difficult it is to give Beginners an Idea of the Grounds of Cosmographie and Geographie, without Material Schemes and Globes, your own very recent Experience, as well as that of others, will, I presume, inform you. As it also may, how useful, not to say how necessary, Pictures, and in some cases, Models, are wont to be, when Engines, Houses, Ships, and other Structures are to be judg'd of, that they may be approv'd, or improv'd: but I shall rather take notice that not onely Mechanical, Mathematical, and Anatomical things, need Schemes and Pictures, to represent them clearly to our Conceptions; but many things that are look'd upon as more purely Physical, may, in my Opinion, by much illustrated the same way. Of which if Des Cartes has, as some say, been the Introducer, I think he deserves our Thanks for it.⁸

Boyle did not limit his comment to Descartes's pictures for the *Essais* and *Principia* in and of themselves. He was identifying those woodcuts as consequential for having necessitated a visual response. This is what makes the Cartesian case remarkable. Descartes's successors not only relied on copies of his pictures; they crafted their own, whether abstractions of the glass-tear experiment (see fig. 35) or landscapes infused with the new philosophy's vortices (see fig. 49). Their dramatic alterations were not merely new illustrations. These pictures exacted arguments.⁹ They corrected, reworked, adapted, and tailored the *Essais'* and *Principia's* woodcuts to new contexts. If Descartes had offered a thoroughgoing renovation of the graphic foundations—and thereby the visual culture—of natural philosophy, a handful of his interlocutors in Paris and Leiden conscripted familiar epistemic forms to persuade skeptical audiences of the new philosophy's virtues.

The visual acuity of early modern natural philosophers has a long historiography. Art historians and historians of science—even literary critics and philosophers—have

poured over the pictures that made for a new science outside the universities, especially those of adjacent fields—like natural history, medicine, mechanics, alchemy, astronomy, and geometry—that enlivened the new philosophy.¹⁰ The invention of perspective has long spearheaded this scholarly conversation.¹¹ More recently, cartography has gained wider notice.¹² And the pictures made by those who gathered outside the schools—like Matthew Hunter’s “pantheon of tricksters” and his Royal Society’s clever and “crafty” visualizations of experimental philosophy—are enjoying wider attention.¹³ But the visual grammar of scholastic natural philosophy has been left largely untapped. Véronique Meyer and Susanna Berger have done much to historicize the broadsheets introduced to Continental natural-philosophical classrooms throughout the sixteenth and seventeenth centuries.¹⁴ But woodcuts in natural-philosophical books and textbooks, whether they were produced expressly for scholastic consumption or to put pressure on the interpretation of nature in the schools, have enjoyed less intensive treatment.¹⁵ I think this may be due to their deceptive reasonableness. Many of these diagrams look familiar to us inheritors of the so-called scientific revolution.¹⁶ They appear neither masterly enough to prompt art-historical scrutiny nor epistemic enough to attract the historian of science. But perhaps this is only because we are well practiced—*too* well practiced—in their conventions and blind to their cultural specificity. Descartes’s pictures demand close attention to the world for which they were made.

This, I think, means following pictures and diagrams into the books, manuscripts, prints, drawings, paintings, beliefs, and rituals early modern natural philosophers engaged; tracking their figural resonance; and identifying the shapes of representation that informed them. Some may read this concern with the formal particularities as a preoccupation with style, whether philosophical or graphic. The question of style is less urgent for me, though I identify as a historian of science with investments in art-historical methods. If pressed, I would recall Horst Bredekamp’s recent description of those art-historical commitments as “shift[ing] the problem of style from a matter of psychological-mental disposition to form as it has become”¹⁷ and say that I explain Descartes’s woodcuts as forms that would not have been possible without minds conditioned by early modern image making of all kinds. With Gabriele Werner, I share a belief that pictures made to express natural knowledge “show or reveal *something* that both exists outside of them and yet does not come into being without them.”¹⁸ To get at that “*something*,” the guidance of classic art-historical texts has been invaluable. It was in *Painting and Experience in Fifteenth Century Italy* that Michael Baxandall reminded us that “a picture is sensitive to the kinds of interpretive skill—patterns, categories, inferences, analogies—the mind brings to it. [Someone’s] capacity to distinguish a certain kind of form or relationship of forms will have consequences for the attention with which [she] addresses the picture.”¹⁹ Natural philosophy’s woodcuts and engravings

were no different. They were shaped by pictures outside the field for which they were created because materials and experiences outside of natural philosophy shaped natural philosophers themselves.

To date, Descartes's natural-philosophical figures have attracted a rethinking of the epistemic categories the philosopher endorsed. Scholars have used the *Essais*' and *Principia*'s woodcuts to complicate Descartes's rationalism with the brightness of his imagination.²⁰ They have also framed his pictures as little feats of cognitive engineering, whether "models of how things might work" that "sharpen our mechanical intuitions"²¹ or as "bridge[s] between logical deduction and rhetorical persuasion"—a murky, mnemonic "twilight zone" that hovers between representation and resemblance.²² Scholars including Rebecca Wilkin, Claus Zittel, and Eleanor Chan have taken up the reception of the new philosophy, accounting for the dramatic discrepancies in posthumous illustrations accompanying the first two editions of *L'homme*. Though somewhat outside of natural philosophy, Florent Schuyt's highly descriptive engravings for *Tractatus de homine* (1662) and Claude Clerselier's diagrammatic woodcuts for *L'homme* (1664) reveal that, on the one hand, Descartes himself made no visual prescriptions, and, on the other, interpreters of the new philosophy brought different priorities, alternative graphic techniques, and circumstantial anxieties to their depictions of the new philosophy, as I will explore in chapter 3.²³ Indeed, the themes of unfixity and local revision recur throughout all these studies. It turns out that, in an age torn asunder by skepticism, a philosophy aimed at recovering certainty was liable to produce irony.

What is more, history is fickle. The past is constituted by near-endless specificity, and so its study demands specific attention. This is why I locate Descartes's pictures within a cultural history of the new philosophy. My treatment extends a historiography that puts Descartes back in his milieu and reshapes his intellectual program with context in mind.²⁴ So, too, does it sync up with reminders of the philosopher's intellectual debts, like the scholastic traditions to which he was introduced at La Flèche.²⁵ But somewhat differently from its predecessors, *Skepticism's Pictures* begins with the formal attributes of its corpus of natural-philosophical figures. It is sustained by identifying the historically specific arguments those attributes attached to—and the cultural logic that dictated—each picture's composition. (This leaves most methods of book history and histories of print and publication beyond this book's scope.) My analysis develops less a genealogy of the new philosophy's pictures and something more like an archaeological recuperation of the contemporary pictures and representational habits in which the new philosophy's pictures were fluent.²⁶ A near-contemporary portrait of Descartes dramatizes what I have in mind (fig. 1). Made by Frans van Schooten Jr., the philosopher's only known pictorial collaborator, this engraving portrays the buttoned-up, stately body of the sitter. But, more than anything else, the philosopher's exaggerated sidelong glance dominates the entire frame: he is not simply looking straight forward



FIG. 1 Frans van Schooten Jr., *Portrait of René Descartes*, 1659. Etching. Rijksmuseum, Amsterdam. Photo: Rijksmuseum, Amsterdam.

or to the side. His eyes strain toward the more extreme, inconspicuous corners of his world. A viewer of the portrait may chuckle at the sitter's side-eye, but then they may be compelled to ask: What exactly was Descartes looking at? And what about this philosopher's work—and specifically the pictures he produced—compelled his close contemporary to depict him looking so hard? This line of inquiry also animates my project as a whole. I look to seventeenth-century broadsheets, textbooks, perspective manuals, student notes, fantastic voyage narratives, and maps of places far from the Netherlands and France to discover the surprising, even seemingly far-fetched visual resources at my historical actors' disposal.

The discursive affiliations of the new philosophy's pictures make them extraordinary examples of the seventeenth-century crisis of representation.²⁷ This was what Michel Foucault characterized as the move away from epistemologies founded on likeness and toward those that depended on something standing in for another. Some thinkers, like Peter Burke, have already acknowledged this upending in natural philosophy. But instead of noting an interaction between *scientia* and the vitality and stylistic range of the period arts (whether sculpture, painting, decorative arts, or architecture), Burke has separated these activities.²⁸ This presupposes that there was no traffic between the

two realms and especially assumes that natural philosophy had no truck with pictures at all. Recent scholarship, like Susanna Berger's, as well as classic studies, like Svetlana Alpers's, have taught us otherwise. With their guidance, we learn, first, that the picture was a tool of early modern intervention (Berger describes allegorical broadsheets as integral to the teaching of sixteenth- and early seventeenth-century philosophy)²⁹ and, second, that artists were encouraged by naturalists' heightened attention to empiricism (Alpers shows that art was infused with new ways of knowing the world).³⁰ The figures wrought by Descartes and his successors help map another aspect of this exchange. Throughout this book, I argue that they chart natural philosophy as a locus of epistemic crisis in part because its pictures were undergoing such radical renegotiation.

This project began as a response to what surrounded me during the summer of 2010—or, rather, what did not. Archive fever comes in different forms,³¹ and, in this case, it was the symptom of archival failure—my failure, really, to retrieve any interesting evidence about the concept of progress as a seventeenth-century invention. (I had hoped Bernard Le Bovier de Fontenelle's *Nachlass* at the archives of the Académie des sciences would yield some insight.) In some listless, desultory bit of searching for an early modern something—anything—on Gallica, the Bibliothèque nationale de France's online repository, I came across a late seventeenth-century text. As its thumbnails filled my screen, I recognized a JPEG of Descartes's notorious vortices woodcut. But the title of the book to which this image belonged was not *Principia philosophiae*. I realized the picture was a copy that had been introduced to a fantastic voyage narrative, Gabriel Daniel's polemical *Voyage du monde de Descartes* (1690). Historical instinct, coupled with training in art history—and a healthy familiarity with Walter Benjamin's "The Work of Art in the Age of Mechanical Reproduction"—made me burrow deeper. The picture revealed itself to be a jester's toy. It was a copy that exploited the notoriety of Descartes's woodcut; indeed, it was a copy that had been made to render the original picture flimsy, ridiculous, and meaningless. There will be more to say about that copy in this book's final chapter, but, for the moment, this origin story helps me lay a few more of my cards on the table. My thinking and research have been driven by archival curiosity and a predilection for historical detail. It has also been guided by a general commitment to the history that comes out of comparing one picture to another. Daniel's vortices copy was just one example that made me wonder: How had Descartes's pictures mattered beyond Descartes's own texts? Where else might I find evidence of visual debate over the philosopher's compendium of woodcuts? These questions have led me to the book before you.

The surprising variations in Cartesian picturing began to make more sense when I framed them as indices of their respective religious and political climates, as products of cultures whose truth making relied on appropriate kinds of picture making. Because

each mark could be freighted with meaning—could be inflected with a French Catholic or Dutch Remonstrant approach to the image—the privileging of one form over another was a consequential choice. Such wild flexibility in the making of certainty kept stunning me. My interest in epistemic procedures, and, thus, historical epistemology, will ring familiar to historians of science who study how knowledge changes over time. But it is also engaged in restoring paradox to these pictures. My taste for paradox is owed to an eclectic range of scholarly debts—especially work that takes seriously the case study as method.³² My inclination toward the strange, stubborn object is also the result of an orientation to the world that wonders at reconstructing what an object was, what it meant, and how both object and meaning changed over time. Sometimes this has required me to face down piles of paper, reams of text, and the early modern period's proliferation of images. (The archive—and a scholar's notes from visits to the archive—can feel like an endless funhouse designed for exhaustion and distortion.) But I take an approach Erika Naginski taught me during my master's program: to find an object of historical interest, learn what its form meant, and build a history—and a world—according to the evidence of that object. Though sometimes the things one chooses to historicize prove to have been outliers that bucked the patterns of their age, it is precisely in their rejection of the typical—or, better put, their wish to make novelties conventional—that one can learn more about the values that contributed to making them. Indeed, the friction between the form of Descartes's pictures and the pictures that surrounded them is precisely what permits a more meaningful set of cultural histories.

The following chapters have been written in this spirit. Before introducing them, a note on terminology may be useful. Throughout this book, I use the term “picture” to describe the visual output of Descartes and most of his successors. “Image” has always struck me as spreading not only a very broad tent, evoking visual representations in every medium, but also the shadow play confined to one's own mind. It also gestures toward the opinions one has about something or someone.³³ This is too diffuse for my purposes. “Illustration” sounds better, though the word seems to characterize visual representation as serving a single text rather than cocreating with it. This strikes me as too limited. “Picture,” though, seems just right. The term brings with it the exigencies of two-dimensional materiality, bundles of visual strategies, and a rich historiography of art. While “picture” has been most consistently used by connoisseurs to designate paintings, I have been helped in thinking of the word as a formalization of “depiction,” which art historian Michael Podro usefully defines as “the recognition of [a] subject, and this remains so even when the subject is radically transformed and recognition becomes correspondingly extended; it remains so not because we seek the subject matter *despite* the complications of painting but because recognition and complication are furthered by the other each serves the other.”³⁴ This sense of complicated recognition, echoed by those who contributed to the more recent interdisciplinary research

project “Das Technische Bild,”³⁵ has informed my analysis. “Figure,” a term my historical actors employed, is a handy alternative. I also use the word “graphic” in the hopes of emphasizing the medium of the black-and-white print and the graphic arts. Most important, in widening the aperture for understanding natural philosophers’ engagement with graphic representation, I emphasize the recruitment of recognizable visual forms for expediting the adaptation of new ideas. I ask my reader to keep that intention in mind in the pages to come and even in this brief overview of the book’s chapters.

A cultural history of the woodcuts for the *Essais* forms the subject of chapter 1. Specifically, I demonstrate how, in particular, the habit in essays like *Dioptrique* and *Météores* of grafting geometry onto figures was indebted to the domain of practical mathematics. (Not only did Descartes learn to draw while a mercenary in Prince Maurice’s army—which was chock full of engineers practiced in this art—but Descartes’s illustrator was an instructor at the Leiden Duytsche Mathématique, where many of Maurice’s men were taught.) These were new kinds of figures for natural philosophy, and, in conjunction with Descartes’s writing on visual perception in terms of the physical constitution of the printed image, they reveal how pictures themselves were not necessarily philosophy’s culprit. Rather, the woodcut or the engraving pointed to the vagaries of perception and the human tendency to mistake an image for that which it depicts. The *Essais*’ figured geometries showed that the combination of two different forms of representation underscored a picture’s status as a picture—and, thus, as an active tool for processing the world rather than merely reflecting it. These pictures also instantiated a very contemporary seventeenth-century look and feel to inquiry about natural knowledge. This had much to do with the rejection of scholasticism, but it was also an assertion about the resources that were most important for enunciating the new philosophy: pictures steeped in contemporary seventeenth-century practices.

Chapter 2 turns to Descartes’s famous vortices picture (see fig. 16). The woodcut is one of the strangest Descartes ever produced—perhaps one of the strangest produced in his century. It purports to describe a universe with multiple galaxies (including the earth’s very own off-kilter solar system) whose whirling matter is interrupted by the path of a comet. Such worlds were invisible for Descartes’s contemporaries; not even the telescope could spy such celestial wonders. No full-page print like this had ever surfaced before in natural philosophy, and the philosopher deemed it necessary to reprint the woodcut ten times throughout *Principia*. Surprisingly, none of Descartes’s interlocutors objected to the picture’s overall form. They voiced more concern over Descartes’s written explanations,³⁶ which led me to wonder about the general legibility of the picture: How were the philosopher’s correspondents and readers equipped to identify this woodcut as a picture of a world beyond earth? How could they see the intergalactic behavior that Descartes wished them to see? To make this picture,

the philosopher and his illustrator knit together basic graphic vocabulary from across early modern visual culture: the point, the dotted line, the field of dots, stippling, and the frame. All this mark making—borrowed from maps, mathematical textbooks, star charts, natural-philosophical treatises, and printed landscape and portraits, all within easy reach—had semiotic power to represent, all at once, the shape of matter, the look of motion, and the nature of the stars and planets—concepts and physical phenomena that were otherwise intangible. Brought together to work together, these visual conventions rendered Descartes's universe into an apprehensible—and soon iconic—picture of a new world.

The rest of the book concerns the graphic reinterpretation of Descartes's pictures. The figures of experiments Jacques Rohault took to his *conférences* and then his *Traité de physique* (1671) preoccupy chapter 3. The French *physicien* deviated significantly from the visual output in the *Essais* and *Principia*, replacing Descartes's woodcuts with a combination of delightful experiments and terse, almost notational figures. Rohault's substitutions, I argue, attempted to protect the new philosophy from the escalating French Catholic discomfort with perceived implications of Descartes's philosophy for the Eucharist—implications that, for many theologians, were redolent of the Calvinist undoing of the sacrament. The *physicien*'s public conferences mimicked Catholic ritual; his figures evoked the Thomistic explanation of transubstantiation. They also borrowed from the radical abstraction that Clerselier, Descartes's literary executor, had ascribed to the new philosophy. Rohault's equivocating reformulations offered opportunities to meditate on the changes required to sustain knowledge—and to wonder at how much change an epistemology could endure before it became something else entirely.

Rohault's bare outlines stand in complete contrast to the highly descriptive still lifes and landscapes in Wolfert Senguerd's *Philosophia naturalis* (1685). In chapter 4, I examine those etchings in light of the epistemic values of late seventeenth-century Dutch realism and their undertaking of what Alpers calls "the art of describing." When Senguerd placed Descartes's celestial particles on ordinary tabletops, or when he inserted the vortices into a characteristically Dutch sluice, he was attempting to neutralize a contested and seemingly obscurantist natural philosophy with a very familiar, time-tested visual language. But far from simply demonstrating unquestionable facts about attention, observation, and experiment, such etchings revealed the volatility of the Dutch realist picture. Or, better put, they summoned descriptive realism's susceptibility to alteration and deviation from the visible world precisely because this type of picturing had become so trusted for giving form to the exotic and the unseen—and, above all, for demonstrating the skill of picture makers. Even receptacles that, at the beginning of the century, had been constructed to elevate humble description had, by the last decades of the century, been distorted.

Daniel's *Voyage* is the subject of chapter 5. As briefly sketched above, Daniel had copied Descartes's vortices woodcut into his fantastic narrative in order to drain it of its power (see fig. 55). The chapter explains how and why, in late seventeenth-century France, this made for an effective strategy. Throughout his clever text, Daniel wove together natural-philosophical fictions, cartographies real and imagined, fabulous polemic, Descartes's own pictures in *Principia*, and the variations to which his acolytes had subjected the vortices. *Voyage's* pastiche mocked the picture as a vacant fantasy, a speculation that, in the end, was nothing but a picture. The chapter characterizes the pressures that word can exact on image by focusing on a picture whose form ostensibly had not changed at all. Cases like Daniel's *Voyage* remind us that the seventeenth century's crisis of representation did not merely reside in the prints that stood in for nature or eyewitness experiences. They underscore a thrilling, troubling early modern theme: that text and image could no longer be reliably conjoined.

The epilogue moves toward historicizing the disappearance of Descartes's pictures from Western European philosophical consciousness—and French visual culture, in particular. That process contributed to the dimming of natural philosophy's light and was integral to the nineteenth century's narrowing definitions of philosophy; its new sets of expectations for truthful, scientific pictures; and its nostalgic, politicized visual interpretations of history through pictures. Those shifts are central to why, today, we do not really think about Descartes and pictures in the same breath. The point is not to mourn this as a loss in the transmission of his philosophy; nor do I think it necessary to revive Descartes's woodcuts for twenty-first-century physics or astronomy. Rather, I will try to make sense of the historical procedures through which pictures are put to work, examine what renders pictures useful and what erodes their power, and clarify the meanings we ascribe to them.

These woodcuts were, at once, unprecedented (for the field of natural philosophy) and conventional (if one takes a comprehensive look at the period's broader visual culture). Taken alongside their reinterpretations, they provide a compelling case about historical change as local revision and philosophy as graphic enterprise. The reconstruction of historical circumstance and attention to the adjustments necessary for arguing truths old and new may render us more sensitive to our moment of sheer visual saturation. It may remind us that each picture is the sum of numerous choices. The interrogation of both a pictorial composition and its semiotic effects will, I hope, spark inquiry into the complex panorama of visual influence with which we live. This book is an attempt to understand the pictures we rely on to make the world and how the world's pictures, in turn, make us.