

that appears to be an asteroid is gradually blurred into a nearly black smudge. Also included are Riwan Tromeur's *Des Grands nord*s, a dark empty landscape in cloudy gray and black, streaked with moonlike shapes; Aleydis Rispa's round print called *Planeta Scor*, apparently a planet like Jupiter, but with more ferocious storms; Richard Misrach's *Clouds (Orographic Stratiform)*, a bleary, dark, unfocused cloudscape. Sometimes there are strong formal parallels with pictures in this book: Rispa's foreboding, stormy roundel is a ringer for the cloud chamber photograph reproduced here as Figure 55. The special issue of *Photovision* only samples a larger practice. Pamela Bannos, for example, makes manipulated astronomical images—a practice that has been compared to Vija Celmins's painting.³⁷ The photographic response to darkened, out-of-focus heavenly scenes is generational and centers in the 1990s; most of the photographers in the *Photovision* special issue were born around the mid-twentieth century and have been making unfocused images for the last fifteen or twenty years.³⁸

This thematic extends well beyond photographs of illegible figures, cottony out-of-focus faces, blurred stars, deserts, and skies. Even Joel-Peter Witkin's overworked faux-tintypes, Robert Gober's photo project for the 49th Venice Biennale, and Catherine Opie's photographs of Ron Athey (made using a room-size Polaroid camera) are part of the interest in blur and shallow depth of field.³⁹ Both blur and darkness are hallmarks of Hiroshi Sugimoto's work, whether his subject is theaters, architecture, or the ocean—also a subject of Opie's.⁴⁰ In the realm of commercial art there are the many shallow-focus photos of food, tableware, and cosmetics. (I have been told that they first appeared in the early 1990s, in Martha Stewart's magazine *Martha Stewart Living*.⁴¹) Digital art and design have followed suit, particularly in Daniel Brown's work.⁴² Especially in the wake of Morris Louis and Cy Twombly, painters have also found easy kinds of blur; I think, for example, of Jean Degottex's dashed-off calligraphic clouds, and Martin Barré's soft, nearly empty canvases with smears at the sides.

The problem is that as it stands, much of the work is mediocre. The critical literature follows this lead, providing impressionistic commentaries on belatedness, the loss of memory, the affection for clumsiness, faint melancholy, the embrace of meaninglessness, obsolescence, the departure of the aura, sophisticated evasions, missing objects, ineffective repressions, loss of space, loss of language, hopelessness. These notions

(which I have taken from some exhibition catalogues I happen to have on my desk) can all be important ideas, and they can be crucial for understanding some work: but they are disorganized and finally lost in the day-to-day criticism that gets written in the art world. It is easy to find work that plays with unfocused shapes, and it is easier still to write about it. The challenge is to find the work that is trying hardest to understand such things as formlessness, darkness, blur, or the anti-optical.

One useful criterion of value is that the work should not descend the ladder too quickly. Borgeaud's work may not quite make that grade, because he means to avoid whatever is clearly visible, not in order to say something specific about representation or vision, but just to open the door to mystery and poetry (see Figure 9). For him the cosmos is an unimaginable "wall," immuring us on the earth: "the more we know how much the universe is unknowable," he writes, "the more we can take the measure of the narrow space left to us."⁴³ The "narrow space" is interesting, and in terms of the bracket (as I defined it in Chapter 1), *La Nuit, la pluie* gives the viewer a glass- or paper-thin space. I wonder, however, if the darkness beyond the window is too freely offered. It is as if Borgeaud gripped the sides of the ladder with both hands and slid all the way down. If the darkness were any more perfect, it would be a photographic monochrome, like the pictures sent back from a webcam at the South Pole in the middle of Antarctic winter. (Such pictures are perfectly black except for the date and time stamp. The caption assures viewers that they are pictures of the South Pole.⁴⁴)

Borgeaud's pessimism in *La Nuit, la pluie* makes me think again of Bleckner's *Flora and the Future* (see Color plate 1). In terms of the sublime, both pictures aim to move the threshold closer, compressing the part that is understood, making more room for what is not. Again the limen is very near. Almost from the instant I encounter Bleckner's picture, I have stepped forward to the limit of my understanding. There is almost no space left for painting to work, or for painted shapes to show. Catching sight of either *La Nuit, la pluie* or *Flora and the Future* is like opening a door onto a dark room: I stop short and peer inside, seeing what there is to see. But Bleckner also shows me that I am trapped. The painting apparently represents a lunar reflection off some oily, dark surface, but the paint itself is flat and waxy, like a shop window smeared with soap so no one can see inside. These are Krauss's brackets at work. There is no sliding into reverie in Bleckner's picture: the viewer is clamped in place. In

photography, a good strategy for avoiding the easy slide into nothingness is to blur the image to a certain point, and let that point matter. An excellent example is a series called *unanswered: witness* by the photographer P. Elaine Sharpe. She visited places where murders and other calamities had taken place and intentionally focused her camera on the empty foreground, where the people involved in the tragedies would once have stood. Her photographs are blurred, but that is because the plane of focus is sharply positioned on an absent subject.⁴⁵

Another test of quality is that an artist's oeuvre should give evidence that the limits of representation cannot be reached all at once, by a single straightforward strategy or insight. (It should be difficult, perhaps even tiring, to climb down the ladder into the darkness below.) Richter's paintings based on photographs propose an analogy between inaccessible memory and unforthcoming surface. Each picture or series of pictures manages the parallel between failed memory and half-effaced image differently (see Figure 5). "One can only make bits of images," Luc Tuymans has said, in a conversation on the subject of Richter.⁴⁶ Tuymans's paintings are exploratory: he paints Morandi-style still lifes, faces blanched like Manet's *Olympia*, interiors pared down to just a corner or a ceiling, piles of pillows, shadows, black-and-white silhouettes, empty mirrors. He tends to return to several dozen subjects, and he has as many strategies for leaving each of them half painted. At the end of the 1990s it was clear that he was working, in as many ways as possible, to find ways to keep "reducing" paintings (to use his words), to something at once "clear" and enigmatic.⁴⁷ (I am close here to Lacoue-Labarthe's idea of the pallid sublime—the one that begins to flower wherever beauty is exhausted. "Contrary to appearances," Lacoue-Labarthe says, this enervated sublime "wants to provide a weak thought, that is, a thought precisely *without grandeur*."⁴⁸ That fits Tuymans's work well enough, and perhaps also Borgeaud's.)

It is also a good sign—this would be a third criterion—when the photograph itself does not reveal where focus and unfocus should be—or, to say it differently, the artist seems not to be sure where clarity meets blur. If the plane of focus misses its object, creating blur where there shouldn't be blur and focus where it isn't needed, a picture can become perplexing. Jennifer Ramsey's photographs have that effect (see Color plate 7). Here the camera's eye looks under a bathtub, into a dark space between smooth surfaces. The camera is set to miss the picture's subject, and it captures a

few hexagonal tiles instead. Ramsey has also jarred the camera, creating a double image, and she has printed it in nocturnal blues and grays. It is as if the plane of clear focus is too fragile, or as if clarity itself has gone wrong: the picture doesn't say.

These three criteria are not sufficient to distinguish good work from bad, but they are a start. Each of these criteria can make it evident that the artist has looked hard and considered how to present a lack of clarity. That is what I look for: the effort of trying to see well, the failure of that effort, and the acknowledgment of the failure in the image. The criteria and possibilities are precisely the same in blurred scientific images.

16 *Presence*

Art photography, I have argued, has developed a characteristic set of strategies for avoiding clear representation, including blur, darkness, the ruined grid, and the anti-optical. There are other photographic strategies that could be enlisted, including the growing range of digital filters in Photoshop and other programs, motion-induced blur (which can be made to resemble painterly smearing), and experimental optics, including pinhole cameras. But this is enough to indicate the principal options. It's a large, complex field, poorly theorized, and this is only a start.⁴⁹ The concepts are diverse, and so are the examples, and each concept would require a book to itself. But I hope I've said enough to suggest that blurred and dark photographs are being made by the thousands, and they require attention commensurate with the criticism lavished on the more prominent figural photographs from Thomas Struth to Beat Strueli. I have tried not to shirk the question of the quality of this work, but that, too, is a difficult problem—dark, blurry, formless art photographs are exceptionally easy to make and do not often repay concerted attention.⁵⁰ I will return to the issue of quality at the very end of this book; I will conclude this chapter with a brief meditation on the concept of presence, which will serve as a bridge to the following chapters.

When there is talk about representation, then the question of presence cannot be far behind (or rather, it will have been ahead of us all along). Presence is a nearly talismanic word in contemporary philosophy, and for readers who come at this material from the vantage of philosophy and literary theory, presence will be a fundamental term. It is taken as one of the principal constructions that allowed Western talk about existence and

truth to get under way. In the vast and disorganized project to deconstruct unified presence, truth, and certainty, there is relatively little work on the reconstruction of truth. Presence and intention are not wholly erased in post-structuralist thinking, but few writers attend to the rebuilding of the remnants of presence out of the ruins of old structures. In painting as in post-structuralism, what tends to be most compelling is the ruin of whole meaning and the concomitant fall from presence.

In this regard, scientific imaging is a tonic, because even when the objects it tries to find keep disappearing under its very eyes, it continues to search, never entirely reversing the aporia, but often discovering new sources of clarity. A recent example in astronomy is the search for distant galaxy clusters.

(And again, as in the pages on the Wolf-Rayet star, I will describe this in some detail: I would ask readers in the humanities to note that the scientific detail in the next few pages is not measurably more or less than the detail accorded to the descriptions of art photography in the preceding pages. Note that the appearance of inappropriate detail is purely a perspectival effect. If photography or art history is your field, you may well feel that this chapter was scattered, sketchy, or insufficiently historical, because you will know the full discourses that I have been sampling. If astrophysics is your field, you may feel something of the sort about the next chapter. But in a project like this, the question isn't full fidelity to a given discipline—every discipline is sampled, none is given in an unabbreviated form—but the possibility of finding ways of talking that are commensurate or even comparable across “geometric” and “literary” borders.)

In the 1990s some competing theories of the origins of elliptical galaxies turned on whether or not there were galaxy clusters, and not just galaxies, early in the universe's formation. To search for galaxy clusters beyond redshift $z=1$ (that is, at large distances from the earth) astronomers use X-ray telescopes, because the gravitational force that attracts the galaxies heats the gas between them, causing them to emit X-rays. The problem is that X-ray telescopes don't resolve tiny details like distant galaxies—they see with a blurry eye. In March 1999, a team headed by Piero Rosati at the European Southern Observatory in Munich reported the first discovery of a cluster at $z=1.26$, significantly farther than any previously found.⁵¹ What the X-ray telescope actually saw is shown in the center of Figure 15, labeled “Real.” It is nothing more than an asymmetric blob, ever so slightly more intense than the back-

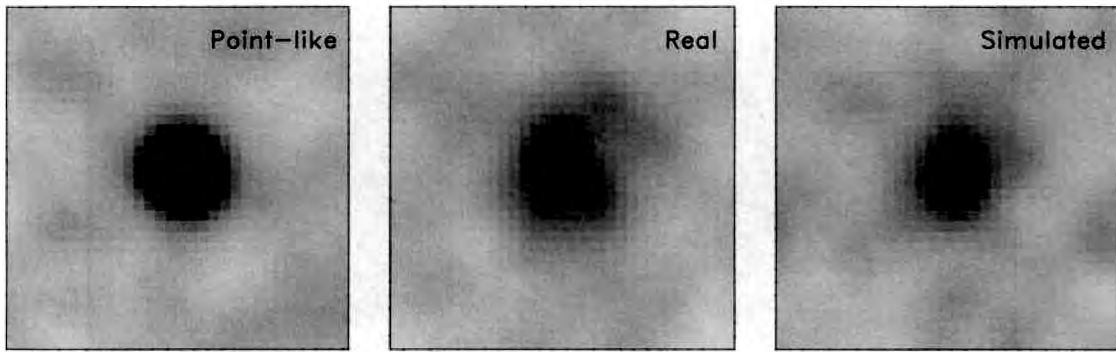


FIGURE 15

An X-ray image of a distant galaxy cluster (center), compared to a point source (left) and a computer model (right). From Piero Rosati, S. A. Stanford, Peter Eisenhardt, Richard Elston, Hyron Spinrad, Daniel Sten, and Arjun Day, "An X-ray Selected Galaxy Cluster at $z = 1.26$," preprint, arxiv.org/abs/astro-ph/9903381 (March 24, 1999). Courtesy Piero Rosati.

ground. The first step was to make sure it wasn't a "point source" like a star in our galaxy or a quasar in some distant galaxy, so the team imaged a nearby quasar for comparison (Figure 15, left). The "Point-like" quasar is obviously more of a perfect circle than the suspected group of galaxies. The team then computed what a galaxy cluster in that part of the sky *might* look like. They programmed a simulation, positing that the cluster would have a certain typical shape, called a King profile, and that it would be an average size (200 kiloparsecs) and have a certain plausible X-ray flux. They then redshifted the hypothetical X-ray spectrum in the computer and overlaid the result on a typical background for that part of space. The result, labeled "Simulated," shows that the signal they actually received is about the right shape and intensity.

At that point nothing more could be done with the X-ray image: it could not be sharpened or analyzed any further. They compared the image with a picture of the same part of the sky, taken with an optical telescope (Figure 16). Using the adjacent quasar as a known reference point, they overlaid the image of the X-ray contours onto the optical plate (solid and dashed contours). That made it clear that galaxies were in fact clustered in the area, and a further study (Figure 17) obtained spectra for several galaxies (those in square boxes) verifying that they are at roughly the same distance of $1.257 < z < 1.268$. Other galaxies, not yet tested at the time, are circled, and the center of the cluster is enlarged at the upper right.

Figure 15 has interesting resonance with fine-art practice: it resembles any number of enigmatic conceptual pieces that purport to give information, but don't. The image could be used as an artwork without even changing the labels. The difference would be that in the image's original context as astrophysics, each frame has a particular purpose that works *against* the inevitable aporia caused by the limits of the instrumentation

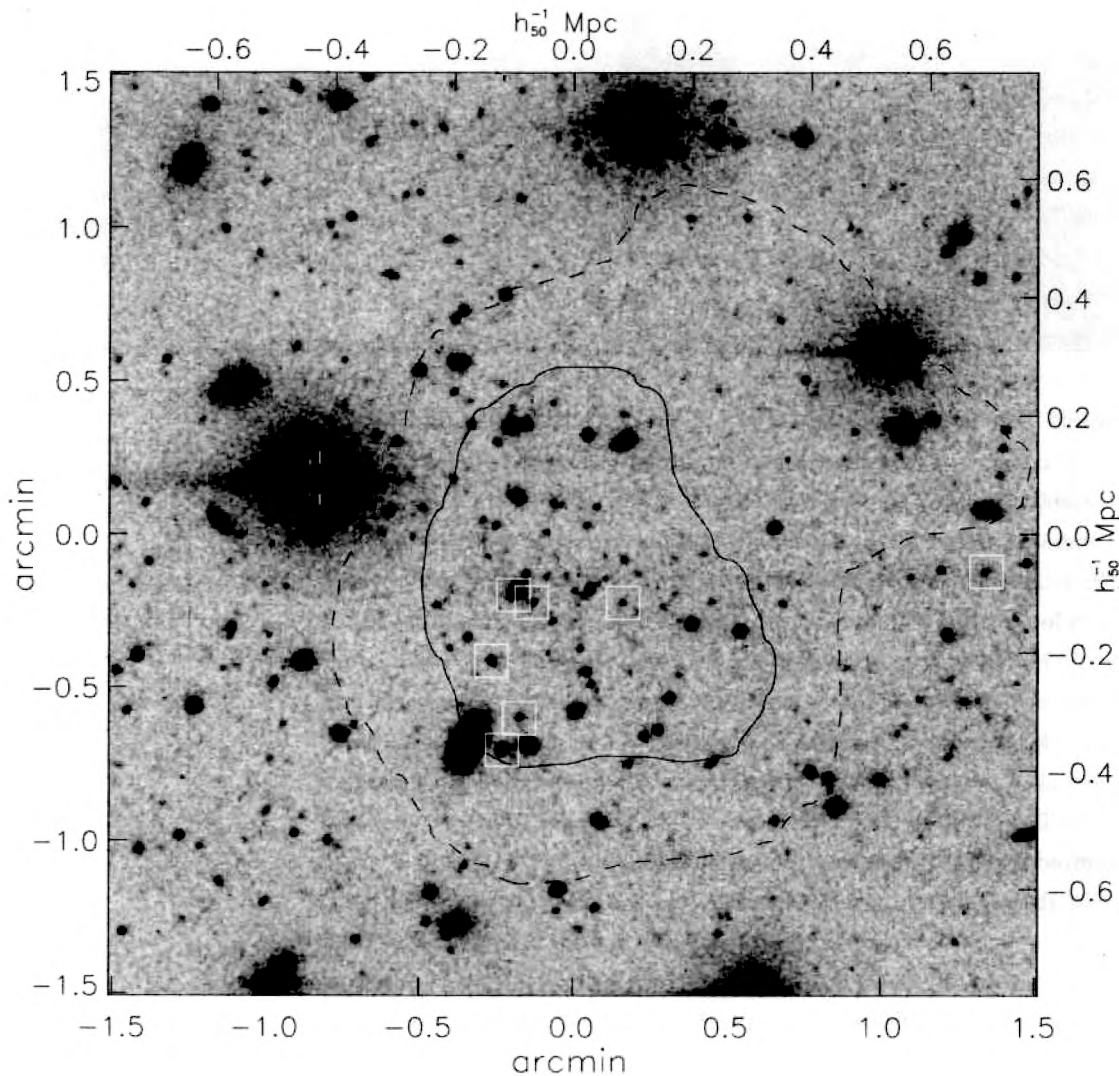
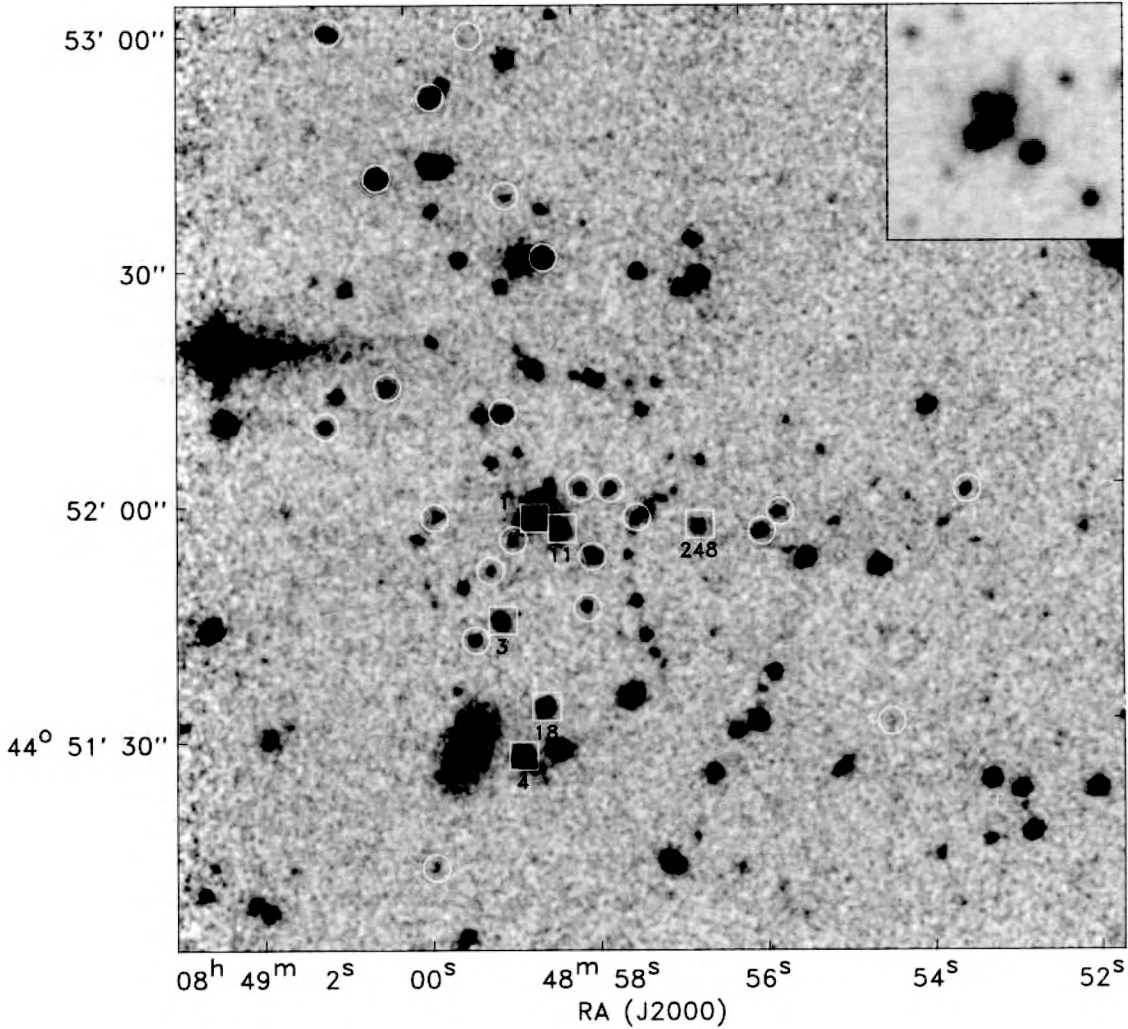


FIGURE 16

Optical image of a distant galaxy cluster, with X-ray image superimposed. From Piero Rosati, S. A. Stanford, Peter Eisenhardt, Richard Elston, Hyron Spinrad, Daniel Sten, and Arjun Day, "An X-ray Selected Galaxy Cluster at $z=1.26$," preprint, arxiv.org/abs/astro-ph/9903381 (March 24, 1999). Courtesy Piero Rosati.

and analysis. In this case the first panel is something known, the second is something dubious, and the third is an experiment designed to simulate the second. If all telescopes were X-ray telescopes, this is where the team would have had to stop—comparing known things with half-seen things and things only visualized in mathematical simulations. It would be a kind of dead end, but one that used all its available resources to minimize uncertainty and to pull presence back into the images.⁵²

Notice that the optical images, Figures 16 and 17, do not meliorate the blur of the X-ray image. They clarify the positions of individual galaxies, leaving the X-ray illumination—indicating the presence of gas between



galaxies—unresolved. Certainty and presence are displaced, and they are found in another context. Stellar coordinates, marked around two of these plates, provide the link between the blurry X-ray image and the sharper optical image. Aporia and knowledge, presence and mediation, play back and forth.

Another example, more spectacular and less well understood, is the enigma of gamma ray bursts, or “busters”—intense, brief explosions from extremely distant parts of the universe. The radiation that reaches the earth from the gamma ray bursts indicates that they are more energetic than any other energy source—more energetic, for example, than quasars, which can exceed the energy of an entire galaxy of stars. For

FIGURE 17

Detail of Figure 16, showing resolved and suspected galaxies.

Inset: close-up of the center of the cluster. From Piero Rosati, S. A. Stanford, Peter Eisenhardt, Richard Elston, Hyron Spinrad, Daniel Sten, and Arjun Day, “An X-ray Selected Galaxy Cluster at $z=1.26$,” preprint, arxiv.org/abs/astro-ph/9903381 (March 24, 1999). Courtesy Piero Rosati.

several decades, gamma ray bursts were little known because they were detected at high energies, beyond the visible spectrum, and when observers trained optical telescopes to the locations of the bursts, they found nothing but empty space. The enigma was finally solved in January 23, 1999, when a burst was recorded by an orbiting detector.⁵³ The satellite transmitted the object's approximate coordinates to a ground-based telescope, which swiveled into position less than twenty-three seconds after the burst and recorded the first optical photograph.⁵⁴ A minute later, the image was already fading. At that point, the burst was a tiny point of light in a field of faint stars.⁵⁵ Knowing the location, astronomers trained the Hubble space telescope on the spot and recorded a detailed image that showed where the burst originated—in a very distant and strangely shaped galaxy (Color plate 8). Hubble couldn't be trained on the spot until February 8 and 9, and by that time the burst had faded to less than one-millionth its initial strength; but it was clear that the gamma ray burst was in a galaxy full of young stars, which helped narrow the theorists' explanations of what the bursts might be.

As of spring 2007, somewhat more was known about gamma ray bursts and about this particular one, known as GRB 990123, after the date it occurred. It originated a little to one side of the galaxy's center, probably in a field where many stars were being formed.⁵⁶ Gamma ray bursts are among the most powerful sources of energy in the universe—in the typically unimaginable numbers astronomy trades in, they were once thought to be 100 quadrillion times brighter than an average star. It now appears that their energy is “beamed” in one direction, making them look more powerful than they would be if their energy went equally in all directions. Still, they are only partly understood, largely because they occur at great distances from the earth and from the present.⁵⁷

Neither the distant cluster of galaxies nor GRB 990123 were wholly recovered for analysis. They are not present—or rather, their presence is mediated by disorienting reaches of time and space, as well as by dizzying imaging technologies. Even so, properties of each have been retrieved: there is some knowledge to put against the hopeless distance between these objects and us. This is the return motion, the one so seldom encountered in the humanities, where the deconstruction of presence too often discharges the brief of interpretation.

three Astronomy

Now I want to move on to astrophysics. In accord with the methodological agenda I set out in the Introduction, I will not try to extend themes that fit the arts. Some recent astrophysics images are remarkably similar to some recent art photography, but in the absence of a discourse that links the two fields—except, as usual, a set of simple formal parallels—I will not pursue the links explicitly. In almost all cases—except the “pretty pictures” I will discuss first—astronomical images and art photographs are spoken of in wholly different terms.

17 *Astronomy's Bad Reputation*

Recently, the astrophysics community has been giving itself some poor press with the art world by disseminating what scientists call “pretty pictures”: hopped-up versions of legitimate photographs, with the colors intensified or falsified. Pretty pictures sell as calendar art and they apparently help direct public interest to unmanned space missions, but they have also worked to further alienate serious art making from serious science. The aesthetic of astronomers’ pretty pictures was the subject of a study by the art historian Sam Edgerton and the sociologist of science Michael Lynch; they concluded that astrophysicists who produce such pictures are not working from any definite aesthetic.¹ Even so, the colors and compositions of astronomers’ pretty pictures are clearly dependent on such things as science fiction paperback covers, Maxfield Parrish works, fantasy art, Hollywood special effects, and the gaudy colors of