1 Modernity and the Problem of the Observer

The field of vision has always seemed to me comparable to the ground of an archaeological excavation.

—Paul Virilio

This is a book about vision and its historical construction. Although it primarily addresses events and developments before 1850, it was written in the midst of a transformation in the nature of visuality probably more profound than the break that separates medieval imagery from Renaissance perspective. The rapid development in little more than a decade of a vast array of computer graphics techniques is part of a sweeping reconfiguration of relations between an observing subject and modes of representation that effectively nullifies most of the culturally established meanings of the terms *observer* and *representation.* The formalization and diffusion of computer-generated imagery heralds the ubiquitous implantation of fabricated visual "spaces" radically different from the mimetic capacities of film, photography, and television. These latter three, at least until the mid-1970s, were generally forms of analog media that still corresponded to the optical wavelengths of the spectrum and to a point of view, static or mobile, located in real space. Computer-aided design, synthetic holography, flight simulators, computer animation, robotic image recognition, ray tracing, texture mapping, motion control, virtual environment helmets, magnetic resonance imaging, and multispectral sensors are only a few of the techniques that are relocating vision to a plane severed from a human observer. Obviously other older and more

familiar modes of "seeing" will persist and coexist uneasily alongside these new forms. But increasingly these emergent technologies of image production are becoming the dominant models of visualization according to which primary social processes and institutions function. And, of course, they are intertwined with the needs of global information industries and with the expanding requirements of medical, military, and police hierarchies. Most of the historically important functions of the human eye are being supplanted by practices in which visual images no longer have any reference to the position of an observer in a "real," optically perceived world. If these images can be said to refer to anything, it is to millions of bits of electronic mathematical data. Increasingly, visuality will be situated on a cybernetic and electromagnetic terrain where abstract visual and linguistic elements coincide and are consumed, circulated, and exchanged globally.

To comprehend this relentless abstraction of the visual and to avoid mystifying it by recourse to technological explanations, many questions would have to be posed and answered. Some of the most crucial of these questions are historical. If there is in fact an ongoing mutation in the nature of visuality, what forms or modes are being left behind? What kind of break is it? At the same time, what are the elements of continuity that link contemporary imagery with older organizations of the visual? To what extent, if at all, are computer graphics and the contents of the video display terminal a further elaboration and refinement of what Guy Debord designated as the "society of the spectacle?"[1] What is the relation between the dematerialized digital imagery of the present and the so-called age of mechanical reproduction? The most urgent questions, though, are larger ones. How is the body, including the observing body, becoming a component of new machines, economies, apparatuses, whether social, libidinal, or technological? In what ways is subjectivity becoming a precarious condition of interface between rationalized systems of exchange and networks of information?

Although this book does not directly engage these questions, it attempts to reconsider and reconstruct part of their historical background. It does this by studying an earlier reorganization of vision in the first half of the nine-

1. See my "Eclipse of the Spectacle," in *Art After Modernism: Rethinking Representation,* ed. Brian Wallis (Boston, 1984), pp. 283–294.

teenth century, sketching out some of the events and forces, especially in the 1820s and 1830s, that produced a new kind of observer and that were crucial preconditions for the ongoing abstraction of vision outlined above. Although the immediate cultural repercussions of this reorganization were less dramatic, they were nonetheless profound. Problems of vision then, as now, were fundamentally questions about the body and the operation of social power. Much of this book will examine how, beginning early in the nineteenth century, a new set of relations between the body on one hand and forms of institutional and discursive power on the other redefined the status of an observing subject.

By outlining some of the "points of emergence" of a modern and heterogeneous regime of vision, I simultaneously address the related problem of when, and because of what events, there was a rupture with Renaissance, or *classical,* models of vision and of the observer. How and where one situates such a break has an enormous bearing on the intelligibility of visuality within nineteenth- and twentieth-century modernity. Most existing answers to this question suffer from an exclusive preoccupation with problems of visual *representation;* the break with classical models of vision in the early nineteenth century was far more than simply a shift in the appearance of images and art works, or in systems of representational conventions. Instead, it was inseparable from a massive reorganization of knowledge and social practices that modified in myriad ways the productive, cognitive, and desiring capacities of the human subject.

In this study I present a relatively unfamiliar configuration of nineteenth-century objects and events, that is, proper names, bodies of knowledge, and technological inventions that rarely appear in histories of art or of modernism. One reason for doing this is to escape from the limitations of many of the dominant histories of visuality in this period, to bypass the many accounts of modernism and modernity that depend on a more or less similar evaluation of the origins of modernist visual art and culture in the 1870s and 1880s. Even today, with numerous revisions and rewritings (including some of the most compelling neo-Marxist, feminist, and poststructuralist work), a core narrative remains essentially unchanged. It goes something like the following: with Manet, impressionism, and/or postimpressionism, a new model of visual representation and perception emerges that constitutes a break with several cen-

turies of another model of vision, loosely definable as Renaissance, perspectival, or normative. Most theories of modern visual culture are still bound to one or other version of this "rupture."

Yet this narrative of the end of perspectival space, of mimetic codes, and of the referential has usually coexisted uncritically with another very different periodization of the history of European visual culture that equally needs to be abandoned. This second model concerns the invention and dissemination of photography and other related forms of "realism" in the nineteenth century. Overwhelmingly, these developments have been presented as part of the continuous unfolding of a Renaissance-based mode of vision in which photography, and eventually cinema, are simply later instances of an ongoing deployment of perspectival space and perception. Thus we are often left with a confusing bifurcated model of vision in the nineteenth century: on one level there is a relatively small number of advanced artists who generated a radically new kind of seeing and signification, while on a more quotidian level vision remains embedded within the same general "realist" strictures that had organized it since the fifteenth century. Classical space is overturned, so it seems, on one hand, but persists on the other. This conceptual division leads to the erroneous notion that something called realism dominated popular representational practices, while experiments and innovations occurred in a distinct (if often permeable) arena of modernist art making.

When examined closely, however, the celebrated "rupture" of modernism is considerably more restricted in its cultural and social impact than the fanfare surrounding it usually suggests. The alleged perceptual revolution of advanced art in the late nineteenth century, according to its proponents, is an event whose effects occur *outside* the most dominant and pervasive modes of seeing. Thus, following the logic of this general argument, it is actually a rupture that occurs on the margins of a vast hegemonic organization of the visual that becomes increasingly powerful in the twentieth century, with the diffusion and proliferation of photography, film, and television. In a sense, however, the myth of modernist rupture depends fundamentally on the binary model of realism vs. experimentation. That is, the essential continuity of mimetic codes is a necessary condition for the affirmation of an avant-garde breakthrough. The notion of a modernist visual revolution depends on the presence of a subject with a detached viewpoint, from which modernism—

whether as a style, as cultural resistance, or as ideological practice—can be isolated against the background of a normative vision. Modernism is thus presented as the appearance of the new for an observer who remains perpetually the same, or whose historical status is never interrogated.

It is not enough to attempt to describe a dialectical relation between the innovations of avant-garde artists and writers in the late nineteenth century and the concurrent "realism" and positivism of scientific and popular culture. Rather, it is crucial to see both of these phenomena as overlapping components of a single social surface on which the modernization of vision had begun decades earlier. I am suggesting here that a broader and far more important transformation in the makeup of vision occurred in the early nineteenth century. Modernist painting in the 1870s and 1880s and the development of photography after 1839 can be seen as later symptoms or consequences of this crucial systemic shift, which was well under way by 1820.

But, one may ask at this point, doesn't the history of art effectively coincide with a history of perception? Aren't the changing forms of artworks over time the most compelling record of how vision itself has mutated historically? This study insists that, on the contrary, a history of vision (if such is even possible) depends on far more than an account of shifts in representational practices. What this book takes as its object is not the empirical data of artworks or the ultimately idealist notion of an isolable "perception," but instead the no less problematic phenomenon of the observer. For the problem of the observer is the field on which vision in history can be said to materialize, to become itself visible. Vision and its effects are always inseparable from the possibilities of an observing subject who is both the historical product *and* the site of certain practices, techniques, institutions, and procedures of subjectification.

Most dictionaries make little semantic distinction between the words "observer" and "spectator," and common usage usually renders them effectively synonomous. I have chosen the term *observer* mainly for its etymological resonance. Unlike *spectare,* the Latin root for "spectator," the root for "observe" does not literally mean "to look at." Spectator also carries specific connotations, especially in the context of nineteenth-century culture, that I prefer to avoid—namely, of one who is a passive onlooker at a spectacle, as at an art gallery or theater. In a sense more pertinent to my study, *observare*

means "to conform one's action, to comply with," as in observing rules, codes, regulations, and practices. Though obviously one who sees, an observer is more importantly one who sees within a prescribed set of possibilities, one who is embedded in a system of conventions and limitations. And by "conventions" I mean to suggest far more than representational practices. If it can be said there is an observer specific to the nineteenth century, or to any period, it is only as an *effect* of an irreducibly heterogeneous system of discursive, social, technological, and institutional relations. There is no observing subject prior to this continually shifting field.[2]

If I have mentioned the idea of a history of vision, it is only as a hypothetical possibility. Whether perception or vision actually change is irrelevant, for they have no autonomous history. What changes are the plural forces and rules composing the field in which perception occurs. And what determines vision at any given historical moment is not some deep structure, economic base, or world view, but rather the functioning of a collective assemblage of disparate parts on a single social surface. It may even be necessary to consider the observer as a distribution of events located in many different places.[3] There never was or will be a self-present beholder to whom a world is transparently evident. Instead there are more or less powerful arrangements of forces out of which the capacities of an observer are possible.

In proposing that during the first few decades of the nineteenth century a new kind of observer took shape in Europe radically different from the type of observer dominant in the seventeenth and eighteenth centuries, I doubtless provoke the question of how one can pose such large generalities, such

2. In one sense, my aims in this study are "genealogical," following Michel Foucault: "I don't believe the problem can be solved by historicizing the subject as posited by the phenomenologists, fabricating a subject that evolves through the course of history. One has to dispense with the constituent subject, to get rid of the subject itself, that's to say, to arrive at an analysis which can account for the constitution of the subject within a historical framework. And this is what I would call genealogy, that is, a form of history which can account for the constitution of knowledges, discourses, domains of objects, etc., without having to make reference to a subject which is either transcendental in relation to a field of events or runs in its empty sameness throughout the course of history." *Power/Knowledge* (New York, 1980), p. 117.

3. On scientific and intellectual traditions in which objects "are aggregrates of relatively independent parts," see Paul Feyerabend, *Problems of Empiricism,* vol. 2 (Cambridge, 1981), p. 5.

unqualified categories as "the observer in the nineteenth century." Doesn't this risk presenting something abstracted and divorced from the singularities and immense diversity that characterized visual experience in that century? Obviously there was no single nineteenth-century observer, no example that can be located empirically. What I want to do, however, is suggest some of the conditions and forces that defined or allowed the formation of a dominant model of what an observer was in the nineteenth century. This will involve sketching out a set of related events that produced crucial ways in which vision was discussed, controlled, and incarnated in cultural and scientific practices. At the same time I hope to show how the major terms and elements of a previous organization of the observer were no longer in operation. What is *not* addressed in this study are the marginal and local forms by which dominant practices of vision were resisted, deflected, or imperfectly constituted. The history of such oppositional moments needs to be written, but it only becomes legible against the more hegemonic set of discourses and practices in which vision took shape. The typologies, and provisional unities that I use are part of an explanatory strategy for demonstrating a general break or discontinuity at the beginning of the nineteenth century. It should not be necessary to point out there are no such things as continuities and discontinuities in history, only in historical explanation. So my broad temporalizing is not in the interest of a "true history," or of restoring to the record "what actually happened." The stakes are quite different: how one periodizes and where one locates ruptures or denies them are all political choices that determine the construction of the present. Whether one excludes or foregrounds certain events and processes at the expense of others affects the intelligibility of the contemporary functioning of power in which we ourselves are enmeshed. Such choices affect whether the shape of the present seems "natural" or whether its historically fabricated and densely sedimented makeup is made evident.

In the early nineteenth century there was a sweeping transformation in the way in which an observer was figured in a wide range of social practices and domains of knowledge. A main path along which I present these developments is by examining the significance of certain optical devices. I discuss them not for the models of representation they imply, but as sites of both knowledge and power that operate directly on the body of the individual. Spe-

cifically, I pose the camera obscura as paradigmatic of the dominant status of the observer in the seventeenth and eighteenth centuries, while for the nineteenth century I discuss a number of optical instruments, in particular the stereoscope, as a means of detailing the observer's transformed status. The optical devices in question, most significantly, are points of intersection where philosophical, scientific, and aesthetic discourses overlap with mechanical techniques, institutional requirements, and socioeconomic forces. Each of them is understandable not simply as the material object in question, or as part of a history of technology, but for the way in which it is embedded in a much larger assemblage of events and powers. Clearly, this is to counter many influential accounts of the history of photography and cinema that are characterized by a latent or explicit technological determinism, in which an independent dynamic of mechanical invention, modification, and perfection imposes itself onto a social field, transforming it from the outside. On the contrary, technology is always a concomitant or subordinate part of other forces. For Gilles Deleuze, "A society is defined by its amalgamations, not by its tools . . . tools exist only in relation to the interminglings they make possible or that make them possible."[4] The point is that a history of the observer is not reducible to changing technical and mechanical practices any more than to the changing forms of artworks and visual representation. At the same time I would stress that even though I designate the camera obscura as a key object in the seventeenth and eighteenth centuries, it is not isomorphic to the optical techniques I discuss in the context of the nineteenth century. The eighteenth and nineteenth centuries are not analagous grids on which different cultural objects can occupy the same relative positions. Rather, the position and function of a technique is historically variable; the camera obscura, as I suggest in the next chapter, is part of a field of knowledge and practice that does not correspond structurally to the sites of the optical devices I examine subsequently. In Deleuze's words, "On one hand, each stratum or historical formation implies a distribution of the visible and the articulable which acts upon itself; on the other, from one stratum to the next there is a variation in the distri-

4. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* trans. Brian Massumi (Minneapolis, 1987), p. 90.

bution because the visibility itself changes in style while the statements themselves change their system."[5]

I argue that some of the most pervasive means of producing "realistic" effects in mass visual culture, such as the stereoscope, were in fact based on a radical abstraction and reconstruction of optical experience, thus demanding a reconsideration of what "realism" means in the nineteenth century. I also hope to show how the most influential figurations of an observer in the early nineteenth century depended on the priority of models of subjective vision, in contrast to the pervasive suppression of subjectivity in vision in seventeenth- and eighteenth-century thought. A certain notion of "subjective vision" has long been a part of discussions of nineteenth-century culture, most often in the context of Romanticism, for example in mapping out a shift in "the role played by the mind in perception," from conceptions of imitation to ones of expression, from metaphor of the mirror to that of the lamp.[6] But central to such explanations is again the idea of a vision or perception that was somehow unique to artists and poets, that was distinct from a vision shaped by empiricist or positivist ideas and practices.

I am interested in the way in which concepts of subjective vision, of the productivity of the observer, pervaded not only areas of art and literature but were present in philosophical, scientific, and technological discourses. Rather than stressing the separation between art and science in the nineteenth century, it is important to see how they were both part of a single interlocking field of knowledge and practice. The same knowledge that allowed the increasing rationalization and control of the human subject in terms of new institutional and economic requirements was also a condition for new experiments in visual representation. Thus I want to delineate an observing subject who was both a product of and at the same time constitutive of modernity in the nineteenth century. Very generally, what happens to the observer in the nineteenth century is a process of modernization; he or she is made adequate to a constellation of new events, forces, and institutions that together are loosely and perhaps tautologically definable as "modernity."

5. Gilles Deleuze, *Foucault,* trans. Seán Hand (Minneapolis, 1988), p. 48.
6. M. H. Abrams, *The Mirror and the Lamp: Romantic Theory and the Critical Tradition* (London, 1953), pp. 57-65.

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Modernization becomes a useful notion when extracted from teleological and primarily economic determinations, and when it encompasses not only structural changes in political and economic formations but also the immense reorganization of knowledge, languages, networks of spaces and communications, and subjectivity itself. Moving out from the work of Weber, Lukács, Simmel, and others, and from all the theoretical reflection spawned by the terms "rationalization" and "reification," it is possible to pose a logic of modernization that is radically severed from the idea of progress or development, and that entails nonlinear transformations. For Gianni Vattimo, modernity has precisely these "post-historical" features, in which the continual production of the new is what allows things to stay the same.[7] It is a logic of the same, however, that exists in inverse relation to the stability of traditional forms. Modernization is a process by which capitalism uproots and makes mobile that which is grounded, clears away or obliterates that which impedes circulation, and makes exchangeable what is singular.[8] This applies as much to bodies, signs, images, languages, kinship relations, religious practices, and nationalities as it does to commodities, wealth, and labor power. Modernization becomes a ceaseless and self-perpetuating creation of new needs, new consumption, and new production.[9] Far from being exterior to this process, the observer as human subject is completely immanent to it. Over the course

7. Gianni Vattimo, *The End of Modernity,* trans. Jon R. Snyder (Baltimore, 1988), pp. 7–8.

8. Relevant here is the historical outline in Gilles Deleuze and Félix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia,* trans. Robert Hurley et. al., (New York, 1978), pp. 200–261. Here modernity is a continual process of "deterritorialization," a making abstract and interchangeable of bodies, objects, and relations. But, as Deleuze and Guattari insist, the new exchangeability of forms under capitalism is the condition for their "re-territorialization" into new hierarchies and institutions. Nineteenth-century industrialization is discussed in terms of deterritorialization, uprooting (*déracinement*), and the production of flows in Marc Guillaume, *Eloge du désordre* (Paris, 1978), pp. 34–42.

9. See Karl Marx, *Grundrisse,* trans. Martin Nicolaus (New York, 1973), pp. 408–409: "Hence exploration of all nature in order to discover new, useful qualities in things; universal exchange of the products of all alien climates and lands; new (artificial) preparation of natural objects, by which they are given new use values. The exploration of the earth in all directions, to discover new things of use as well as new useful qualities of the old; . . . likewise the discovery, creation and satisfaction of new needs arising from society itself; the cultivation of all the qualities of the social human being, production of the same in a form as rich as possible in needs, because rich in qualities and relations—production of this being as the most total and universal possible social product."

of the nineteenth century, an observer increasingly had to function within disjunct and defamiliarized urban spaces, the perceptual and temporal dislocations of railroad travel, telegraphy, industrial production, and flows of typographic and visual information. Concurrently, the discursive identity of the observer as an object of philosophical reflection and empirical study underwent an equally drastic renovation.

The early work of Jean Baudrillard details some of the conditions of this new terrain in which a nineteenth-century observer was situated. For Baudrillard, one of the crucial consequences of the bourgeois political revolutions at the end of the 1700s was the ideological force that animated the myths of the rights of man, the right to equality and to happiness. In the nineteenth century, for the first time, observable proof became needed in order to demonstrate that happiness and equality had in fact been attained. Happiness had to be "*measurable* in terms of objects and signs," something that would be evident to the eye in terms of "*visible* criteria."[10] Several decades earlier, Walter Benjamin had also written about the role of the commodity in generating a "phantasmagoria of equality." Thus modernity is inseparable from on one hand a remaking of the observer, and on the other a proliferation of circulating signs and objects whose effects coincide with their visuality, or what Adorno calls *Anschaulichkeit*.[11]

Baudrillard's account of modernity outlines an increasing destabilization and mobility of signs and codes beginning in the Renaissance, signs previously rooted to relatively secure positions within fixed social hierarchies.

> There is no such thing as fashion in a society of caste and rank, since one is assigned a place irrevocably. Thus class mobility is non-existent. An interdiction protects the signs and assures them

10. Jean Baudrillard, *La société de consommation* (Paris, 1970), p. 60. Emphasis in original. Some of these changes have been described by Adorno as "the adaptation [of the observer] to the order of bourgeois rationality and, ultimately, the age of advanced industry, which was made by the eye when it accustomed itself to perceiving reality as a reality of objects and hence basically of commodities." *In Search of Wagner*, trans. Rodney Livingstone (London, 1981), p. 99.
11. Theodor Adorno, *Aesthetic Theory*, trans. C. Lenhardt (London, 1984), pp. 139–140: "By denying the implicitly conceptual nature of art, the norm of visuality reifies visuality into an opaque, impenetrable quality—a replica of the petrified world outside, wary of everything that might interfere with the pretence of the harmony the work puts forth."

> a total clarity; each sign refers unequivocally to a status. . . . In caste societies, feudal or archaic, cruel societies, the signs are limited in number, and are not widely diffused, each one functions with its full value as interdiction, each is a reciprocal obligation between castes, clans, or persons. The signs are therefore anything but arbitrary. The arbitrary sign begins when, instead of linking two rsons in an unbreakable reciprocity, the signifier starts referring back to the disenchanted world of the signified, a common denominator of the real world to which no one has any obligation.[12]

Thus for Baudrillard modernity is bound up in the capacity of newly empowered social classes and groups to overcome the "exclusiveness of signs" and to initiate "a proliferation of signs on demand." Imitations, copies, counterfeits, and the techniques to produce them (which would include the Italian theater, linear perspective, and the camera obscura) were all challenges to the aristocratic monopoly and control of signs. The problem of mimesis here is not one of aesthetics but of social power, a power founded on the capacity to produce equivalences.

For Baudrillard and many others, however, it is clearly in the nineteenth century, alongside the development of new industrial techniques and new forms of political power, that a new kind of sign emerges. These new signs, "potentially indentical objects produced in indefinite series," herald the moment when the problem of mimesis disappears.

> The relation between them [identical objects] is no longer that of an original to its counterfeit. The relation is neither analogy nor reflection, but equivalence and indifference. In a series, objects become undefined simulacra of each other. . . . We know now that is on the level of reproduction, of fashion, media, advertising, information, and communication (what Marx called the unessential sectors of capitalism) . . . that is to say in the sphere of the simulacra and the code, that the global process of capital is held together.[13]

12. Jean Baudrillard, *L'échange symbolique et la mort* (Paris, 1976), p. 78; *Simulations*, trans. Paul Foss (New York, 1983), pp. 84–85.
13. Baudrillard, *L'échange symbolique et la mort*, p. 86.