

1981

## Sight, Symbol and Society: Toward a History of Visual Perception

Marx Wartofsky  
*Boston University*

Follow this and additional works at: [http://digitalcommons.brockport.edu/phil\\_ex](http://digitalcommons.brockport.edu/phil_ex)

 Part of the [Philosophy Commons](#)

---

### Repository Citation

Wartofsky, Marx (1981) "Sight, Symbol and Society: Toward a History of Visual Perception," *Philosophic Exchange*: Vol. 12 : No. 1 , Article 4.

Available at: [http://digitalcommons.brockport.edu/phil\\_ex/vol12/iss1/4](http://digitalcommons.brockport.edu/phil_ex/vol12/iss1/4)

This Article is brought to you for free and open access by Digital Commons @Brockport. It has been accepted for inclusion in Philosophic Exchange by an authorized editor of Digital Commons @Brockport. For more information, please contact [kmyers@brockport.edu](mailto:kmyers@brockport.edu).



The College at  
**BROCKPORT**  
STATE UNIVERSITY OF NEW YORK



MARX WARTOFSKY  
Professor of Philosophy  
Boston University

## **Sight, Symbol and Society: Toward a History of Visual Perception**

by

**Marx W. Wartofsky**

### **1. PREFACE**

The thesis which I want to propose in this paper is that human vision has a history, which begins where the biological evolution of the human visual system lets off. The history of human vision is like the history of nations, or of art, or of technology, or of science: It is a social history which develops in the contexts of social practice, and in particular, in conjunction with changes in what I will call modes of representational praxis (e.g. painting, dramatic arts, etc.). This is a history which has not been written, because it has not been identified. Nevertheless, it exists, and the material for its reconstruction are either already at hand (in histories of art, of archaeology, of technology, of social practice) or they remain to be discovered by empirical research guided by theories which recognize the distinction between biology and culture and which can imaginatively formulate the social and historical parameters of ways of seeing.

In this paper, I will lay out only some preliminary considerations for such an approach. (That is the force of the weasel-word "toward" in the title.) First, I will address some central features of vision, in animal and human life; and I will bow in the direction of those theories which take these features seriously into account in attempting to understand human visual perception — namely, the evolutionary epistemologies associated with the names (Donald) Campbell, Popper, Paiget, Quine, Toulmin, Shimony, Yilmaz, among others. But then I will demarcate all ahistorical theories of vision — including the classical empiricist and rationalist theories — from an historical epistemology like my own. I will go on to discuss some of the parameters of human vision which account for its historicity — namely, what I will call visual intentionalities, visual semantics and visual scenarios; and conclude with a view of the symbolic nature of visual cognitive activity, and of the formation and transformation of visual structures as units of cultural evolution.

### **2. VISION & LIGHT**

Vision preoccupies us, night and day, waking and dreaming. To be awake is, among other things, to have one's eyes open, to be visually aware of one's surroundings, of visual events, scenes, objects — in short, to see what's going on. Even in sleep, when we dream, whatever else is going on, dream-onset is recognized by so-called Rapid Eye Movements, — REMS — suggesting the visual activity which is characteristically reported in dream-accounts, of things "seen" in the theatre of the mind. So too, in what we call visual imagination, we seem to hold before some inner eye the images, internal representations, pictures summoned up by ourselves, or evoked in us by suggestion, or remembered, or created. Even for those who have lost sight, and those who have never had it, language abounds in the metaphor of vision, the vocabulary of visibles, and reference to the seen world; and adaptation to blindness comes with surrogate modes of access to the information which is otherwise visual.

## Sight, Symbol and Society: Toward a History of Visual Perception

Sighted creatures constitute almost all of the millions of animal species, from the insects among the invertebrates, to the vertebrates. Among the vertebrates, there are few exceptions — blind fish in sunless depths of ocean, some cave-dwelling mammals, creatures of the dark for whom light brings no news, and who therefore have evolved to become informed by other means. All the rest live in, and by the light of the sun, and have evolved the extraordinarily complex receptivities which function as sight: from the surface receptors which are finely specialized to one or another aspect of the ambient light — wavelength, dark-light boundaries or edges, slant, polarization — to the complex structures of visual processing and visual activity which operate beyond the surface receptors, whether in coordinating the thousand-faceted image which the fly's eye constructs; or in the functionally spare responses to shapes and motions of predator and prey which characterize the frog's eye; or in the extraordinarily complex visual pathways from retinal neurons to visual cortex which mark the higher vertebrates, and among them, the human species.

From the first elaborations of photo-sensitivity at the chemical and biochemical level to the many-branched adaptations to light among living species, the retrieval of information from the environment seems to be a major function of photo-receptive structures. In plant life, photo-reception is essential to metabolism: photosynthesis is a means — and thus far, the most efficient means — of using light-energy to transform environment into nutriment. In its neural structure, in capacities for selective recognition and response, in the activities of scanning and focusing, the animal eye objectifies the evolved and adapted needs and modes of action of the species. Among the sense-modalities, sight, like hearing, is a distance-receptor, an early warning system of things and events far off, and of their motion and direction. The visual system, then, is the product of evolutionary adaptation to a world bathed in light, and therefore accessible in many of its features through signals within the visible spectrum.

### 3. THEORIES OF VISION

It is these ubiquitous features of the anatomy and physiology of the visual systems of animals, and of their evolution, that has led evolutionary epistemologists to treat human vision as a special, species-specific case of this biological adaptation, and to account for the light-world of human existence in terms of the biological life-world of our species. What we see, on this view, is a function of the specific adaptation of the mammalian eye to the ecological niche we have carved out for ourselves in the course of our evolution. The epistemological content of such an approach lies in an account of the conditions for visual knowledge of the external world which such an adapted system provides.

Earlier, non-evolutionary theories of human vision focused on the formation of the visual image — whether Democritus' *eidolei* or the retinal image formed by the lens of the eye, according to the geometrical optics of Kepler, or Descartes, or Newton; or the mental images adduced by Locke, or Berkeley, or Hume, as sensible "ideas" or "impressions". By contrast to these earlier theories, evolutionary epistemology attempts to relate this image-formation itself to the evolved strategies and needs of human action in the visual world. The epistemological question, however concerns not so much the structure of vision, or of image-formation, but rather the question of visual knowledge: how are we to know that the visual ideas, or perceptions are veridical, that the visual judgments arrived at by means of the eye are



true, that the objects and events seen do in fact exist, and are as they are perceived?

Visual skepticism arises out of perceptual error and illusion. The classic philosophical theories of vision, insofar as they addressed themselves to epistemological questions, beyond the accounts given of the psychology and physiology of vision, or of the science of optics, fell on either side of the traditional division between empiricist and rationalist approaches. What Plato, Aristotle, Descartes or Locke sought was an argument for how, or whether, the visual appearances of things could yield veridical knowledge. And, in fact, even the apparently descriptive accounts of visual process, of image-formation, of the optics and dioptrics of vision were framed as explicit or tacit attempts to answer this question. The causal realism which ascribes the visual information to the stimulus, and presupposes the transparent reading of this information by the eye, answers the question of the veridicality of visual perception in a simple way: the eye sees what's there, by the direct causal relation between the object of sight and the visual impression of that object correctly formed by the eye. The "correctness" of this visual impression or idea is no more than a description of how the mechanism works. Perceptual error is therefore a function of a breakdown or variation in the causal mechanism: the light is refracted, i.e. the medium introduces distortion, or the receptive mechanism is flawed, by injury or disease. Causal theories of perception, like Locke's, foundered on the criticism that we had no alternative or independent access to the nature of the causes of vision than vision itself; thus the question of visual veridicality was caught in a circle, or what one may call the videocentric predicament. To break out of the circle by appeal to the confirming or disconfirming evidence of the other senses — principally, touch — created only two circles where there was previously only one, but failed to solve the problem posed by phenomenalism, namely, how do we get beyond sensible appearances to what they are the appearances of? Empiricism, in Berkeley's version, had to call in God to guarantee perceptual veridicality, and only by virtue of calling upon intellection — the notions of the mind — as the representations caused in us by the Divine (and hence veridical) notions. Thus, theological causation had to be called to the rescue of phenomenalistic empiricism. The alternative — a skepticism which wrote off truth to what was customary, or a natural habit of the mind, reinforced by past successes — threw the whole question into turmoil, with Hume.

The rationalists trod a similar path. Cartesian doubts as to the veridicality of sense-perception, and of sight as the paradigmatic case, was resolved by Descartes only by appeal to an a priori argument, once again of a theological sort: God would not systematically deceive us, or He wouldn't be God, but a demon instead.

The radical resolution of this problem was proposed by Kant: the truth about the world, and of our perceptual judgments, is relativized to what could be known, or perceived by us, given the structures of knowledge and perception that we have. Since this is the only possibility there is for human knowledge, we have only to seek the universal and necessary conditions for the possibility of such knowledge in the a priori structures of perception and judgment. Having established these, we can seek no farther, to ask what things are really like, in themselves; only how they must necessarily appear to us, given such structures. Thus the categoricity of our knowledge of the external world devolved, upon the inescapable anthropocentricity of our modes of access to such knowledge. The Protagorean view that man is the measure of all things was interpreted not as an epistemic relativism, but as the very condition of the necessity and universality of knowledge.

**Sight, Symbol and Society: Toward a History of Visual Perception**

To this sketch of the history of leading philosophical theories of knowledge, it should be added that the dominant model of perceptual knowledge is always (and often exclusively) vision. More important, however, is the thrust of this theoretical development: it seeks the universal, species-wide, necessary and unchanging conditions of human knowledge in general, and of visual perception in particular. What evolutionary epistemology adds to this account is the argument that this universal species-structure has evolved biologically, that it wasn't always what it has become, that its functions and features are necessary only in the biologically relativized sense that they have been selected out by the mechanisms of natural-selection. The epistemological warrant for the veridicality of perception rests, therefore, entirely on evolutionary success over the long run, and in general. In short, the structure of vision maps the adaptive successes of a form of life: veridicality means no more than this, and there is no further appeal. The criterion of truth in perception has thus, so to speak, been embedded in the genetic structures of perception, by the process of natural selection. On this view, then, biology resolves the normative argument about the basis of veridicality in perception.

The evolutionary epistemologists—and here we may count D. Campbell, Quine, Popper, Piaget, Shimony, Yilmaz among contemporaries, and Hume, Mach and James as forebears—have been open to the charge of committing the genetic fallacy, namely that of basing the validity or veridicality of perceptual judgments on their origins, in an adaptively successful biological structure. Yet their argument is subtler than this, and has, in fact, a Kantian form: If knowledge, and correct perceptual judgments are possible at all, what it means for such knowledge to be true, or for such judgments to be veridical is just that truth and veridicality are measures of the successful operation of these structures; and “successful” here means “normally functioning.” Thus, as in the Kantian argument, the norm itself is given by the “innate” structure, and there is no appeal beyond it; except that in the case of evolutionary epistemology, the innate structures of perception or of judgment are themselves evolved, and not transcendently given: they are, in Piaget's phrase, “biologically a priori,” i.e. they are species a priori, as the product of evolution, and their “necessity” is therefore a contingent necessity; they might have been otherwise, had evolution proceeded differently, or had the environment been different.

Both the traditional and evolutionary epistemologies share a common feature, however differently it is arrived at: they propose an essential structure for human cognition and perception, that is, one which is universal for the species, unchanging, and (in differing senses) necessary. What for the seventeenth and eighteenth century empiricism and rationalism was the “structure of the human mind,” or the “nature of the human understanding” or the “a priori forms of perception or of judgment” has become the evolved species-structure, the biological a priori of evolutionary epistemology. In both cases, the human modes of perceptual and cognitive activity are given, once and for all: they are ahistorical. What is historical, of course, is the changing content of our knowledge, and also, presumably, the variable content of our perception. What we see changes; how we see doesn't, on this account. The



Marx W. Wartofsky

structures of perception, though they vary from one species to the next, are fixed for each species, for humans as for other animals.

#### 4. TOWARD AN HISTORICAL EPISTEMOLOGY

This is the point at which my introductory remarks end, and my paper, properly speaking, begins. For I believe this view to be false. I want to speak about the history of visual perception, namely, about the cultural history of vision, beyond its biological evolution. My thesis, though it is compatible with that of the evolutionary epistemologists, up to the point of human speciation, differs radically from theirs, beyond that point and from the traditional essentialist views of both empiricism and rationalism. What I propose is an historical epistemology, which understands the human modes of cognition and perception as qualitatively different from all animal modes, precisely in that only the human modes are historical. What I mean by this historicity will emerge as I develop the argument. But initially, one may say that a mode of cognition or of perception is historical if it changes with changes in the human forms of praxis, i.e. of production, or technology, or social organization, or most specifically, with changes in the forms of representation which mark human technical, linguistic, theoretical and artistic activity. The wider thesis of such an historical epistemology, [which I develop elsewhere]<sup>1</sup>, can only be alluded to briefly here as background. What I wish to focus on in this paper is the historicity of visual perception, namely, the claim that modes of visual perception and visual cognition change; that it is not only what we see, or learn to see which varies with cultural-historical change, but the very structures of vision themselves.

To put this in the sharpest way, I propose that human vision, unlike that of any other animal species, is transformed by the very practice of visual representation, i.e. the making and use of pictures, or of other forms of visual representation. I take representation—the production of representational artifacts—to be the distinctive human practice which breaks our visual activity loose from that of the animal world, and which, in effect, transforms the world-picture, or the world seen into a world-scene. What I am claiming is that we see by way of our picturing or our pictorial representation, and that changes in the styles or modes of pictorial representation are instances of, and also socially effect changes in modes of visual cognition. The genetically transmitted structures of species perception are therefore transcended in this historical evolution of vision, whose modalities are no longer biological or neurophysiological, but rather cultural: art-historical, theoretical, praxical-technical.

The peculiarity of this historical development of vision is that it is reflexive: we produce the changes or transformations in our visual faculties by means of our own activity, in the forms of our representational practice. What all this derives from, in my view, is the fundamental feature of our species-life: that we produce artifacts, that we are tool makers, and that the mode of our artifact-production is social, interac-

## Sight, Symbol and Society: Toward a History of Visual Perception

tive, requiring the development of complex forms of social communication, that is to say, of language, through which the coordination of this species activity takes place, and by means of which the acquired or newly created ways of making and doing can be preserved and transmitted from one person to another, and from one generation to the next. Thus, it is a result of this activity of transforming nature into artifact, turning the merely existent into the useful or the valuable, that we transform our own cognitive and perceptual modes. The upshot of all this activity is a history, which we make; and also the historicity of the means by which we make it, and come to know it.

Where biological evolution ends, cultural evolution begins. At this juncture there is a revolution in the means of adaptation, and the process of change. Whereas in biological evolution, natural selection operates on the gene pool, and adaptation depends on the preservation or elimination of genetic mutations, and combinations, and on the transmission of traits by genetic means, in cultural evolution a very different mechanism is at work. Here, changes in the cultural features and structures of human life—in forms of social organization, in language, in technology or modes of productive praxis, in knowledge—are preserved and transmitted not by the genes, but by artifacts, i.e. by means of these very cultural structures themselves, which are created and changed by human practice. Thus, acquired characteristics—changes in modes of action, in technique, in social structure, in knowledge—are transmitted from one generation to the next. In short, cultural evolution is Lamarckian, while biological evolution is Darwinian. This means an extraordinary lability, and a more rapid rate of change and of adaptation than is provided by genetic selection. Moreover, since this cultural evolution is the product of the workings of conscious practice and of human purposiveness, it is open to direction by such purpose: it is, in a qualified sense, teleological. It is this sort of cultural evolution which constitutes the domain of history, and separates it from biological evolution.

In this context, I would like to propose my strongest claim: that human vision is itself an artifact; that with the advent of human culture; the visual system breaks loose from its previous biological domain, and acquires a history; and that in this history, it is we who shape and transform the modes of visual praxis, of visual cognition and perception. I want to propose that the means whereby we do this is the making and use of tools, and of language. Again, I cannot present the full argument here, which I develop elsewhere.<sup>2</sup> The gist of it, for the purpose at hand, is that with the development of this representational praxis, we come to see by means of the forms and styles of visual representation that we create; and that our modes of visual perception change with changes in these modes of representation. To put this in terms of one major form of such visual representation: we pictorialize the seen world, in the practice of vision itself, by the making and use of pictorial representations of that world. We come to see in the ways our pictures represent. And just as ways of pictorial representation have a history, so too do our ways of seeing have a history.

This may seem like a variant of the old view in aesthetics that “Na-



Marx W. Wartofsky

ture imitates Art." In Oscar Wilde's classical statement of this view, he has Vivian say (in the Preface to The Picture of Dorian Gray): "... Nature is no great mother who has borne us. She is our creation. It is in our brain that she quickens into life. Things are because we see them, and how we see and what we see depends on the Arts that have influenced us. To look at a thing is very different from seeing a thing.... At present people see fogs, not because there are fogs, but because poets and painters have taught them the mysterious loveliness of such effects. There may have been fogs for centuries in London. I dare say there were. But no one saw them, and so we do not know anything about them. They did not exist until Art invented them...." And further, he says: "Where [Nature] used to give us Corots and Daubignys, she gives us now exquisite Monets and entrancing Pissaros."

The confusion between what there is to be seen, and what we see it as, persists in Wilde's account. ("There may have been fogs in London for centuries. I dare say there were.") We resolve it glibly, epistemologically, by distinguishing "what meets the eye" from our "interpretation" of it. But modern discussion, especially on the question of observation in science, has rediscovered and developed further the older view... that visual observation is "theory-laden," that our seeing is so involved with categories of interpretation, or frameworks of expectation, that the "innocent eye" is a myth. The transparency of the so-called interpretive frameworks of vision is such that we see through them (in both senses of "through", i.e. we fail to notice them, and we also see by means of them). We are given, therefore, to what Feyerabend calls "natural interpretations," i.e. to what seems to us directly given in perception, as self-evident and uninterpreted. With changes in theoretical framework, the "given" is reformed. Thus, in the long discussion, starting with Wittgenstein's notion of "seeing-as" and proceeding through the elaborations and debates in the philosophy of science, (in Popper, Toulmin, Hanson, Kuhn, Feyerabend and others), visual perception becomes freighted with high theory. This is not my concern here, though it is of a piece with my more general thesis. The focus here is on the more literally pictorial frameworks of vision, and with what usually pass for the lower-level more directly descriptive aspects of seeing.

## 5. WAYS OF SEEING

Let me begin to focus, then, on this question: What is a "way of seeing" or a "mode of visual praxis?" And what is involved in effecting a change in such a mode, historically? Here, I want to deal with three issues: first, what I will call visual intentionalities; second, and closely

---

\*That view is at least as old as Plato's Meno. But it is elaborately and persuasively set forth in the first section of Hegel's Phenomenology of Mind ("On the Certainty of the Senses"). I am not accusing Wittgenstein, and certainly not Hanson, of reading Hegel. Popper, however, did, though it is not clear to what effect.

## Sight, Symbol and Society: Toward a History of Visual Perception

related, what I will call visual semantics, or the issue of meaning and reference in vision; and finally, with what I will call visual scenarios, i.e. with the functional aspect of those representational artifacts which give the rule to our seeing. Here, I will consider only two of the major types of scenarios, paintings and dramatic performances, though there are others equally important, like architecture, landscape, and books, or reading. The three categories of my analysis here are (somewhat artificially) distinguishable as: the subjective aspect of visual activity (the intentionalities), the objective aspect (the scenarios) and the interactive aspect (the semantics). But this schema may be misleading. I include it only to satisfy a compulsion for philosophical constructions of a traditional sort.

Vision, we may say, is always directed upon some object. That is not to say that vision is a discrete activity which literally picks out objects as themselves discrete or well-defined entities "in the world." Rather, what is connoted by the directedness of vision is the variety of intentionalities which vision reveals. I will speak here only of human visual intentionalities, leaving aside the question of the intentionalities of animal vision. By "intentionality" I do not mean only the conscious, or self-conscious action which involves the explicit awareness of looking for or looking at something. Such self-conscious intentionality, requiring reflective awareness of the end or aim of a visual action I will stipulate as teleological; and not all intentionality is teleological in this sense.

To distinguish intentionalities, we may introduce a difference between what Ryle called "task-verbs" and "achievement-verbs": Seeing is an achievement: it connotes the successful completion of a visual action. Looking is a task: it connotes the process which terminates in seeing. Thus, I may look at something, in the sense of directing my gaze upon it, and yet fail to see it. Thus, the common situation: "Where is my book?" "You're looking at it, dummy!" One may defer and say, "No, in fact, I wasn't looking at it. I wasn't looking at anything, because I wasn't directing my conscious attention upon it. If I were looking, I would have seen it." Of course, I might have been gazing distractedly in that direction. Or I may have been peering, or looking for the book in a badly lit room, and trying to make out the shape and identities of half-seen objects. Or again, I might have been scanning, but failing to notice. My companion may have been watching me do all this, or visually studying my behavior, while I overlooked what was directly before me. And so on.

I am not attempting anything so dreary as an ordinary language analysis of visual terms, nor anything so ambitious as a phenomenology of seeing. I only want to point out, in an ordinary way, that we have a rich vocabulary which distinguishes the visual intentionalities of looking, observing, looking at, looking for, seeing as, gazing, watching, peering, scanning, studying, scrutinizing, as well as terms for failed intentionalities, like overlooking, etc. In addition, there are a range of success-terms for sight, which involve the cognitive purposes of vision: recognizing, identifying, discriminating, noticing, all of which connote under-

**Marx W. Wartofsky**

standing something visually. In fact, "seeing" has the non-visual and more general sense of "understanding" in the usage, "I see" or "I see what you mean."

Beyond these two visual modalities of search and discovery, there is the range of expressive or communicative "looks" which involve the eyes themselves as bearers of intentions, and not simply as instruments of visual intentionalities. I leave such a Sartrean phenomenology of "looks" to others, mentioning only such examples as ogling, leering, warning looks, loving, hating, curious, cold, passionate or dispassionate looks, puzzled or blank looks, looks of comprehension, conspiratorial looks, frightened or aggressive looks, debonair and naive looks, and so on and on. Here, the eyes, as windows of the soul, betray or communicate intentions expressively, which marks off an area of the subjectivity of vision different in focus from what we are doing when we are seeing.

Visual intentionalities, then, are a class of human actions which are elaborated as a result of the contexts of vision which culture and history provide. Now it seems true that all or almost all of the directed modes are available also to animals, or at least to the higher vertebrates. Search and discovery are not specific to humans. Yet, the peculiar forms of such visual activity which mark human life are, I claim, not only distinctive, but historical as well. That is, the specific modes of looking at, watching, observing, scanning, etc., as well as those of identifying, recognizing, seeing as, etc. are transformations of the biologically evolved modes which we inherit from our evolution. For example, seeing a book, or looking for a white blood cell on a microscope slide, or recognizing the constellation Ursa Major, or watching a performance of King Lear, or gazing at a sunset, are all culture-laden modes of visual activity, not available to the animal eye. One may argue that this is no more than the education of vision, and that visual structure as such remains the same. Here, there may be either an argument or a conceptual stipulation to be made. I think that such a reduction of vision to, say, either its physiological structures, or to its universal, or transhistorical features, (i.e. to those which may be abstracted as species-specific, and thus invariant through cultural or historical transformation) is, though useful for some purposes, also misleading. For it abstracts from vision, — i.e. from human vision — just those criterial features which make it human: namely, the elaborated range of visual intentionalities of which it is capable, and which historicize it. For it is the creation of new contexts, or indeed, objects which occasion or call forth the concrete elaboration of specific intentionalities; and these contexts are distinctly cultural-historical innovations.

This leads me to the issue of visual semantics. The argument here is rather simple and has already been alluded to: I have proposed that the visual system is plastic, open to transformation by the workings of representational praxis, and more broadly, to the effects of changes in the visual environment. The history of visual perception is a social history. The categories of our perceptual activity are shaped by the requirements placed on this perception by new modes of social, technological, scientific and artistic activity. With such cultural change and development, these requirements become (increasingly) semantically rich and



## Sight, Symbol and Society: Toward a History of Visual Perception

complex. By this I mean that the contexts of reference, the types of events, entities, relations, the objects presented for visual recognition, understanding, identification, become ramified, and novel. What we see, or are expected to recognize, changes. Abilities to discriminate, earlier not a requirement, now become commonplaces of visual practice. In this sense, the acquisition of a changing vocabulary of visual forms, of visual referents, of visual meanings is the normal cultural adaptation of the human visual system to new needs. For example, there is the story told by Beebe, the famous explorer, who had just given a lecture to a New York audience, in which he noted the highly developed discriminative capacities which hunters in the jungle had acquired, for being able to recognize, from the crack of a twig, what sort of animal was nearby, what direction it was moving in, and so forth. After the lecture, walking through a crowded New York street, one of the audience was expressing his amazement at such aural discrimination, and lamenting the loss of it in civilized life. Beebe proposed an experiment. He dropped a dime on the sidewalk, in the midst of New York street noise, traffic, etc. Instantly, dozens of people stopped and looked around to see where the coin had fallen.

There are many such examples. But one may argue that the training in such perceptual-discriminative skills is no distinctive mark of human perception. One may condition a rat, a dog, or a pigeon to perform highly specific acts of perceptual discrimination; it is therefore, all a matter of training, not of "ways of seeing" (or of hearing). The difference is crucial, however. For in human life, such identification, recognition and discrimination become social and cultural capacities of a common sort, shared by large groups, and, moreover, preserved and transmitted through the medium of culture, i.e. of education, work, social life, from one generation to the next, or from one group to another. The analogy with language is apt here: the meaning and reference of terms, or of linguistic expressions is central to understanding and using a language. And historical semantics shows how such meaning and reference changes. The notion that a language has essential, fixed, ahistorical, or a priori semantic structure makes no sense. At most, one may claim that language as such, abstractly or universally considered, has essential features of reference and meaning, as components of what make it a language. But concrete reference and meaning, within such structures, changes historically. And it is at least an open question whether there may not also be historical changes in semantic structures or indeed alternative abstract semantic structures in different natural languages. Similarly, one may propose that not only the specific "terms" of visual reference and meaning change historically, but that the visual categories of such reference are also variable, either comparatively across different cultures, or historically. This does not mean that there are no semantic invariants in the "language" of vision, which are cross-cultural and trans-historical. Just as biological adaptation has designated, for some species, the specific identities, the "meaning" and "reference" of certain contours, colors, or types of motion, so too it may be that human cultural life shares, across different cultures, historical epochs, and varying modes

Marx W. Wartofsky

of social praxis, some basic and invariant visual referents and meanings. What is biologically or genetically encoded or "hard-wired" in animal perceptual systems is a range of innate or instinctive perceptual recognition capacities—e.g. for shape and size of "food-like" objects, for newly hatched chicks (Fantz's work), or "cliff-effect" in young animals and children, or pattern-recognition of predator and prey built into the retinal neurons of the frog, or the "meaning" of the color yellow as "poisonous" for a wide variety of birds. So, too, there may be such invariant species-wide visual responses in humans, some of which may be genetic, others of which may be common, acquired visual recognitions resulting from common (tranhistorical and transcultural) features of human social and productive life. But we cannot presume to know in advance, or a priori, which these are, if there are any. This is a question of empirical discovery, for which the most imaginative hypotheses and theories are required, (and on which significant contemporary research is being done).

The general point, here, is that the evidence for variation in visual semantics is very great; and a plausible hypothesis is that such variation is induced by the social ramification of requirements on visual reference which historical, technological and artistic change introduce. But this argues once again for the historicity of human visual perception, in a different way: the elaboration of the visual vocabulary, of the semantics of vision, is not simply pressed upon us by either natural or random changes in the environment, or in the domain of visual praxis. Instead, it is the human creation of artifacts, and of forms of social life, and the human invention of new modes of action which produce these requirements upon vision. Moreover, (and to my mind, most crucially), it is the environment of representations of how things look which direct vision to see them that way. Pictorial representation, and changes in styles or modes of representation, in effect teach us what to see, and how to see; and in this way, such representation creates the referents of vision and their acquired meanings. Art history, therefore, becomes a special and central context for the study of the history of visual perception itself.

Finally, to the issue of visual scenarios. By a visual scenario, I mean the rules for a way of looking and of seeing which are embodied in a representational artifact. Pictures carry rules for looking at them within themselves. Now this is not to claim, in a more complicated way, hermeneutically, that the text commands the mode of its interpretation, though that more elaborated argument may be interesting to pursue. Here, I have a simpler proposal: that pictures are the sorts of things we look at from the front, and within a frame, and with a certain visual attitude. The way in which a picture "asks" (so to speak) to be looked at requires what I would call a certain visual posture. The scenario is therefore a rule, or a suggestion, as to what visual posture to assume. The same thing is true of theatrical performance, in its most common convention, the proscenium arch stage. Here too, a framed "scene," to be watched from a fixed position in front of it, dictates the appropriate posture to the audience (or should I say, vidience?). True, there are alternative visual postures, e.g. for continuous murals



## Sight, Symbol and Society: Toward a History of Visual Perception

which one has to follow by walking past the surface, or around it: friezes, and sculpture-in-the-round; architecture; landscape; the reading of books. Movies and TV are parasitic on the conventional scenarios of framed pictures and theatrical performances and our visual postures there are ubiquitous. (We may in fact evolve as the first sitting species!)

One may argue that seeing things in front of one is hardly a cultural or historical phenomenon, since binocular vision throughout the vertebrate kingdom is in the main forward-looking. That is true. But the visual posture which is culturally and historically derived from this biological constraint is the unnatural one of watching from a fixed position. Though this is an occasional posture for hunting (and hunted) animals, (as is the visual intentionality of watching), animal life is marked by motion, and the eye is evolved as an organ for such dynamic activity. The determination of a scene as a framed visual plane, (whatever its occasional sources in animal life), becomes a dominant object of visual activity only with the historical introduction of pictorial and theatrical representation in a certain form. Moreover, I would suggest that the introduction of drawing and painting on a surface, i.e. a two dimensional representation, is a radical means of transforming human vision into the pictorialized mode. For what becomes the object of vision is then what appears as if on a picture plane: the world comes to be seen as picture-like; and the variation of pictorial styles then acquires a general purchase on the shaping of visual perception. Alternative canons of such perception then comes to define what the world "really" looks like, when seen "correctly" or "realistically." The most intriguing of such canons is the one which we have, for a variety of cultural and historical reasons, adopted: namely, that of linear perspective in painting and drawing. But that is a whole other kettle of fish which I will not boil here, having done so elsewhere.<sup>3</sup> It will suffice to mention one historical fact here: that the visual posture which defines the perspective representation of objects and scenes is that of looking out of a window, and tracing what one sees as it is projected on the flat, framed window pane. Windows are not natural objects, but products of a long architectural evolution. There are cultures which do not have them; and where they exist, they are historically variant. It seems, then, that for a proper history of visual perception, one would need not only a history of art, or of the theatre, but also a history of architecture, and for Western art in particular, a history of windows. But (to give in to a bad pun) that is not my look-out in this paper. In short, the canon which we have adopted for representing "the way things really look" is one which is itself an historical convention, requiring for its formulation a certain mode of theoretical, technical and artistic praxis. The conjunction of all of these elements, in the happy circumstances of Florence in the 15th century, led to a rapid introduction and dissemination of these rules of representation. The argument for the historicity of this canon, as not merely a way of representing pictorially, but as a way of seeing, is an extended one, which again, I will not give here.



## 6. CONCLUSIONS

The conclusion, from these considerations of the contexts of human vision, and of its modes, is one which is not far removed from what was said earlier about the animal eye: namely, that the eye is the image of the life-world of a species. The difference between the animal eye and the human eye lies in the difference between life worlds of animals and humans. But here, the difference is not merely one of degree, or of variations within a common biological world, but rather a difference in kind. And it is this difference which permits one to speak of a history of visual perception, which departs qualitatively from accounts of an evolutionary sort. The qualitative distinction is that between biology and culture; and it is on this distinction, or rather on confusions concerning it, that the nature-nurture controversies arise. More specifically, it is on the basis of the confusion of this distinction that evolutionary epistemology fails (or fails to go far enough); that Piaget's genetic epistemology veers, though uncertainly, towards a reductive biologism; and that the current theories of sociobiology most dangerously subordinate the whole domain of culture and history to a reductive genetic determinism. So there is much at stake in getting the distinction between biology and culture clear, in general, as well as in the approach to a theory of human vision.

To begin, as I do, with the admittedly metaphysical statement that vision is the image of life, or that the eye maps the life world of a species into its structure, is not yet to distinguish biological from cultural or social-historical life-worlds. The variety of life-worlds among tens of thousands of sighted animal species is certainly exhibited in the variety of adaptive structures which have evolved and differentiated among them. And thus, we may say that persons, like other animals, are simply another such species. What all have in common, (or what the sighted species have in common) is the symbolic nature of their visual systems. What I mean by this is that every mapping into structure of a species' visible life-world (or better, the life-world of its visual activity) is a selection of criterial features of the environment which represent needs, dangers, or otherwise significant contexts of survival. Now this purely functionalist story of evolutionary adaptation is not, strictly speaking, true. For along with the functional, there is the redundant and the dysfunctional. Natural selection does not "eliminate," at one blow, or even a million blows, all those genetically inheritable, even genetically stable traits which may hinder survival, or differentiate survival-probabilities of individuals of a species. Also, in the course of genetic differentiation, intra-specifically, and in speciation, there is a wide variety of traits that are preserved and transmitted, and which do not have a continuing function in later variants or species. We tend to label these "vestigial," but that may be only a subclass of the redundant traits. The redundant traits present possibilities of adaptation which may arise, or occasions for dysfunction which may develop with ecological changes. So nature may, in Schiller's or in Peirce's sense, be "sporting," generous with non-functional redundancies which offer, so to speak, room for

**Sight, Symbol and Society: Toward a History of Visual Perception**

biological free play, variety, proliferation.

The importance of this redundancy, like that of surplus of any kind, is that it may come to be put to use, if the occasion arises. It serves, like variation in the gene-pool, as a reservoir of alternatives some of which may come to be selected out, eventually, as functional traits. Nevertheless, whether functional, dysfunctional or redundant. genetically speaking, we are still talking about heritable, i.e. biologically transmissible traits and characters. The functional ones, — the ones we would ordinarily count as species-defining or “essential” traits — certainly are shaped to the modes of life-activity and life-needs of a species. In this sense, every visual system is an interpreter of nature to the organism which evolved it, and no visual system is, so to speak, naive or innocent in the face of what there is. All “looks” are more or less “knowing looks” in nature, when the “knowledge” is not conscious or reflective knowledge, but the biological “know-how” which marks the special efficacy, efficiency, adaptedness of the visual system for its ecological niche. Before we speak of “theory-laden observation,” in science, or more generally, of “culture-laden perception” in human life, we need to acknowledge what we may call the ecologically-laden visual perception characteristic of all sighted species. If there is no “innocent eye” in nature, no more than there is in culture — i.e. if the animal eye comes already disposed to those visibles which portend weal and woe for the species, then for vision in general, there are no givens, only, “givens-as.” What this does to naive or direct realism, in epistemology, is, apparently to leave it without foundation all the way down the biological scale (though J.J. Gibson has developed an extremely clever and subtle defense of it, throughout his work on perception, and especially in his last book, Ecological Optics).

If, therefore, all visual perception is “framework-dependent” or “within a paradigm,” or constitutes a “natural interpretation” of the seen world — (choose the usage appropriate to your favorite philosophical fashion) — even unto the reaches of the animal kingdom; and further, if the historicity of vision depends upon changes in “frameworks,” “paradigms,” or what I call modes (or even styles) of social praxis and of representation in particular — then why does human vision differ in any way from that of all other sighted species in being historical? If changes or needs of life-world are mapped into visual structure, both in animals and persons, where is the vaunted demarcation? It lies, simply in this: what is imaged in the animal eye’s structure is its biological life-world, and it is interiorized or structured genetically. What is imaged in human visual structure is the cultural-historical life-world, and it is interiorized or structured culturally: not in the genes, but in the artifacts of human culture — in art, in visual scenarios, visual semantics and visual intentionalities as these are embodied in artworks, social structures, language, rules of action and interpretation, and in all those “structures” which were taken in an earlier time as constituting the subject matter of the Geisteswissenschaften the human sciences.

These are structures of meaning, of significance-relations, hence, symbolic structures, from the study of which we can (if we do it prop-

Marx W. Wartofsky

erly) read back the modes of life, the self-understanding of a culture, an age, an historical period. The artifacts: tools, social structures, language — become our texts. We attempt to reconstruct the modes of human action involved in the making and use of such artifacts. We read them as symbolic inscriptions, hieroglyphs, externalizations or objectifications of the modes of action, and forms of cognition and perception of their time. We try to see through the eyes of the past, and of alternative cultures and styles, in coming to understand such artifacts. In effect, we attempt to incorporate our own vision within these different structures of perception and cognition, these different ways of seeing.

Still, how is this history, and not biological symbolization? Precisely in that it is not genetically preserved and transmitted, but rather culturally preserved and transmitted, in the “language” (so to speak) of representation.

How odd it is that the metaphors of human cultural evolution have been adopted as anthropomorphic accounts of genetic-biological processes: DNA forms a “code,” a language which is “read off” by carrier RNA, preserved in the chemical structure and transmitted by “read-out,” replication, transference of the “image” from one site to another. Only what can be coded by DNA is preservable or transmissible, genetically. Here the reduction seems complete: its elements are the nucleic acids, its variability lies in combination. In cultural “genetics” however, there is constant transformation and innovation, as a result of human creativity. The visible is limited only by the imaginable, as we produce new “worlds” for vision, in art, architecture, science, technology, in all aspects of play, in forms of work, and in the wide reaches of literature and poetic fancy.

It is this cultural creativity which produces history — not the dead march of extra-human forces or powers. We make our own history, and we embody its meanings and constraints in external structures, i.e. in artifacts — as well as in the more evanescent internalized structures of knowledge, belief and feeling. For vision, this means a ramification of the original biological parameters, to include now whatever affects, changes, or results from our ways of seeing. The unit of visual evolution is no longer the gene, but the visual artifact, the thing seen in a certain way, or made to represent the visible, or indeed, to give the rule to looking and seeing. Visual structures may therefore be reconstructed as cultural-historical complexes, and studied in their change or development. When they are studied in this way, as social-symbolic structures, we will begin to have a history of visual perception.



**Sight, Symbol and Society: Toward a History of Visual Perception**

**NOTES**

1. The thesis of the historical epistemology is sketched in several essays in my book Models: Representation and the Scientific Understanding, Dordrecht and Boston: D. Reidel, 1979, especially in essays 1 and 11. They are more fully developed in four lectures on historical epistemology first given at MIT in 1974, and in several subsequent lectures, all of which are as yet unpublished, but available upon request in draft form.

2. Ibid. See also my "Picturing and Representing," in C.F. Nodine and D.F. Fisher, eds., Views of Pictorial Representation: Making, Perceiving and Interpreting, New York: Praeger, 1980; pp. 272-283; and "Visual Scenarios," in M. Hagen, ed., The Perception of Pictures, Vol. II, New York: Academic Press, 1980, pp. 131-152.

3. See my "Pictures, Representation and the Understanding," in Models..., Op. Cit., and in the same volume, my essay "Rules and Representation: The Virtues of Constancy and Fidelity Put in Perspective," (also in Erkenntniss, Vol. 12, 1978, pp. 17-36.).