Technology Envisioned: Lichtenstein’s Monocularity

Michael Lobel

Sometime in the summer of 1961, soon after initiating a mode of painting that would come to be more widely known as Pop, the artist Roy Lichtenstein executed a large canvas entitled I Can See the Whole Room! . . . And There’s Nobody In It! (Fig. 1). In that work an outstretched finger pushes aside the cover of a circular peephole, revealing the face of a male figure; a word balloon above displays the lines of text that make up the painting’s title. Lichtenstein derived the format of the painting from a pre-existing image: a panel from a Sunday instalment of the Steve Roper newspaper comic strip that had shown a figure inspecting a locked room through a peephole. Although he rendered the composition primarily in black and white he added some notes of colour, such as the field of monochrome yellow behind the figure. He applied additional colour – the flesh tone in the figure’s face and hand, and the blue of the pupil – in passages of regularized red and blue dots, respectively. Those dots, of course, make reference to the mechanically printed medium from which Lichtenstein had borrowed his imagery. Finally, it is not difficult to understand the appeal this particular image may have held for the artist. Removed from its narrative context and presented as an easel painting it can be read as a visual pun on abstraction, for if one imagines that peephole closed the painting is read projectively as a monochrome canvas. In this way Lichtenstein offers a scene in which abstraction has been quite literally punctured by both figuration and language: a fitting image for an artist who had recently discarded an abstract mode for a figurative one.

Already I have begun to identify the general set of issues that has defined the critical debate about Lichtenstein’s work: a formal vocabulary that mimics the look of mechanical printing; the use of imagery appropriated from printed sources such as advertisements and comic strips; the tension between figurative reference and the impulse to abstraction. Those involved in that critical dialogue have most often been concerned with determining if these strategies, taken together, constitute a critique of consumer culture; or whether such gestures, relegated to the realm of fine art, are too circumscribed to fully confront the powerful effects of the mass media.1 It is undeniable that these questions lie at the heart of Lichtenstein’s practice, and Pop Art in general. Yet such a concentrated focus on the ostensibly strategic nature of Lichtenstein’s Pop Art vis-à-vis mass culture has left unexamined other aspects of the artist’s work that might provide further insight into the critical nature of his project. For example, it has been widely overlooked that Lichtenstein’s work from the early 1960s consistently confronts issues of vision and visuality. This is evident from even the most cursory inspection of a work like I Can See the Whole Room; the act of looking is foregrounded not only in the image itself, with that figure staring out at us from the very centre of the painting, but also in the title (displayed in the word balloon above) with its reference to seeing. In this essay I will analyse the thematic of vision in Lichtenstein’s work by calling attention to the artist’s confrontation, not merely with the act of looking, but more specifically with the interrelation between machines and visual perception. When analysed closely and in a

sustained way, Lichtenstein’s practice from the early 1960s reveals a veritably theoretical investigation of the conflicted relation between vision and technology. In order to better understand the basis for such concerns in the artist’s work, we must first turn to accounts of his immersion in a unique programme of art instruction through training in vision.

Monocularity: Body as Machine

According to Lichtenstein his first prolonged, intensive training in art came when he began his undergraduate studies at Ohio State University and came under the tutelage of Professor Hoyt Sherman.2 By all accounts Sherman seems to have cut a striking figure of authority, one who was engaged in developing a sweeping programme for testing and training visual acuity. What his project lacked in theoretical rigour it made up for in sheer spectacle; in addition to various published texts Sherman instituted his programme in two veritable laboratories for testing and training visual perception. His ‘Visual Demonstration Center’ was a room-size collection of fifteen models and displays that demonstrated various principles of visual perception, particularly optical illusions.3 Its format had been appropriated from a similar set of demonstrations built by Adelbert Ames Jr at Princeton University and at the Hanover Eye Institute in New Hampshire. One representative display was the so-called ‘Distorted Room’, which was built in forced perspective so that the room appeared square even though its back wall stood at a marked angle. An illustration from Sherman’s handbook for the Visual Demonstration Center

Fig. 1. Roy Lichtenstein: I Can See the Whole Room! . . . And There’s Nobody in It!, 1961, oil and graphite on canvas, 48 × 48 in. (Photo: © Estate of Roy Lichtenstein.)


showed the effect of that illusion when two people were posed behind the windows on that angled wall; the room and back wall looked square, yet one of the figures appeared inexplicably smaller than the other (Fig. 2).

In other words, the display was meant to show how past experience (in this case, that rooms are square) infringed on the viewer’s ability to perceive the true nature of this particular room. While its name would seem to indicate that the Visual Demonstration Center was a series of mechanisms for demonstrating essential properties of visual perception, it would be more accurate to describe it as a series of tests that demonstrated the failures or deficiencies of vision. Sherman intended to show the viewer how various components of the perceptual process (such as binocular vision or the individual’s prior knowledge of objects in the world) infringed on the possibility of a ‘pure’ – that is to say, unmediated – perception of the visual field.

In contrast, the dream of access to an idealized mode of aesthetic vision was embodied in another segment of Sherman’s grand project, in which he utilized a device called the tachistoscope to create a unique programme of instruction in drawing. That programme took place in a specially constructed seventy-foot-long studio (converted from a former artillery shed on OSU’s campus) from which all exterior light sources had been sealed off. Inside, students sat in front of drawing tables on four terraces facing a series of projection screens:

Above and slightly behind the terraced section of the space was a ‘bridge’ containing a massive slide projector. Sherman had fitted this device with a ‘tachistoscope,’ a mechanical shutter, first devised by late-nineteenth-century psychologists, that made it possible for him to control the duration of a slide projection within a fraction of a second. . . . After ten minutes of relaxation and preparation [at the beginning of class] had passed, Sherman would show the first of the twenty slides he would use in each class; or rather he would ‘flash’ it, since it appeared on

Fig. 2. Illustration from Hoyt Sherman, The Visual Demonstration Center, Part 1: A Manual of Operation with an Emphasis on the Arts, 1951 (Photo: courtesy University Archives, The Ohio State University Archives.)
screen for a tenth of a second or less. Cast again in darkness for the remainder of a minute, the students would draw the configuration they had barely glimpsed, depending mainly on the afterimage.4

The course continued on over the semester, with the duration of the flash eventually lengthening, and the subjects of study moving from Sherman’s own two-dimensional abstract configurations (projected on to a screen) to complex three-dimensional still-life groupings. According to Sherman’s theoretical programme, the speed of the flash prevented the student from exercising any power of composition or intellection; this was intended to help the student see the image with ‘perceptual unity’, i.e. as pure form (a concept Sherman derived largely from Gestalt theory). Moreover, he called this process ‘drawing by seeing’, in order to emphasize the automatic nature of the act: the drawing would be a kinaesthetic trace of the after-image that had been left – in a flash – on the student’s retina.5

It is clear that Sherman’s systematic approach to artistic instruction had a significant impact on Roy Lichtenstein. Although the artist never took a full course of training in the flash lab, he did teach in the lab as an instructor at Ohio State between 1946 and 1949. Significantly, after leaving OSU Lichtenstein attempted to reconstruct the flash lab on two separate occasions: during a teaching stint at the State University of New York at Oswego, and as an assistant professor of art at Douglass College, the women’s college of Rutgers. Bruce Breland, a colleague of Lichtenstein’s at Oswego, has recounted: ‘Roy and I taught the freshman design course. Roy did the two-dimensional part which he called painting and drawing. I did the three-dimensional part which I called sculpture. Roy immediately installed the Hoyt Sherman flashroom technique.’6 Likewise, Allan Kaprow recalls that ‘Roy continued Sherman’s work in his courses at Rutgers. He built a small strobe projector for that purpose.’7 In an interview with the author, Lichtenstein confirmed Kaprow’s recollections. When asked ‘Had you constructed [a flash lab set-up] yourself?’, Lichtenstein responded:

Yes, but I mean it was really primitive, because in the flash room they really got rid of light altogether. It’s almost impossible to get rid of light in a room by pulling the shades down or something. So, a lot of it was . . . I would flash the thing, but of course you can also see what you’re doing, which you couldn’t do in the flash room. And I would flash set-ups of people and tables and things like that, of that nature. But even though it didn’t have the same effect, it was something anyway, and I tried to explain that if you . . . actually, if you show a series of flashes you go kind of blind to the stuff in between because the flash changes the aperture of your retina . . . I mean your eye. So it’s a little effective, you know, but I wish that I could build one – they’re quite hard to do, because it’s rare that you can really cut all the light out.8

It is telling that Lichtenstein’s aside in that last sentence – ‘I wish that I could build one’ – was formulated in the present tense, despite the span of almost fifty years that had elapsed between his undergraduate training and the time of the interview.

Sherman’s influence on Lichtenstein has been cited repeatedly in treatments of the artist’s work, in part because of Lichtenstein’s own assertion (when interviewed in 1963 by Gene Swenson) that ‘the ideas of Professor Hoyt Sherman [at Ohio State University] on perception were my earliest important influence and still affect my ideas of visual unity’.9 Yet the literature on the artist has generally taken this statement at face value, as if Sherman’s effect on his pupil was somehow direct and unmediated. If Lichtenstein’s work was ‘influenced’ by his training, that influence was by no means uncomplicated, for

it was embedded in a profoundly ambivalent project. David Deitcher has pointed to the tension in Sherman’s programme:

> At the same time, then, that Sherman followed the transcendentalist impulse familiar from the discourse of Abstract Expressionist and other modernist art, he was also determined to supply his students with the means to function more efficiently, and with a greater sense of ‘integration.’ In short, his course acknowledged the productive imperative that dominated American life more than ever at the dawn of the late-capitalist consumer culture.\(^{10}\)

Although I might differ with Deitcher’s historical conclusions, his account does make clear the aporia at the heart of Sherman’s project. While Sherman’s goal was to impart the means to an aesthetic way of seeing, the idealist premise of his project was undercut by — or at least in profound tension with — its mechanistic means.

It is Roy Lichtenstein himself who provides us with further insight into this particular problematic, one located in the flash lab’s inbrication of body and machine. Reminiscing in 1987 about his training at Ohio State, Lichtenstein recalled that in the flash lab:

> you’d get a very strong afterimage, a total impression, and then you’d draw it in the dark — the point being that you’d have to sense where the parts were in relation to the whole. The images became progressively more complex, and eventually you would go out and try to work the same way elsewhere — would try to bring the same kind of sensing to your drawing without the mechanical aid of the flash room.\(^{11}\)

Yet to do so — that is, to ‘go out and try to work the same way elsewhere’ in the absence of the flash lab’s mechanical aids — would imply that the work of the machine had already been incorporated into one’s own body.

There was a tension in Sherman’s project between its humanistic rhetoric about the individual’s capacities for aesthetic vision, and its attempt to ground those capacities in mechanical processes. Sherman had developed his drawing-by-seeing programme in order to provide students with access to the perceptual powers ostensibly possessed by ‘great masters’ like Cézanne. Yet the means to that end was for the student to become — through the shock of a flash of light — a machine that recorded the visual field without the intrusion of intlection. As Lichtenstein points out in the above quote, the flash lab was intended to increase the individual’s visual acuity. It was designed to help the student repress the prior knowledge that prods us to differentiate elements in the perceptual field and read them as things, objects, or bodies in space; in other words, it was intended to transform the subject into a machine that might record nothing but pure visual form. There is, of course, a name for a device like this, one that records the play of forms in the visual field perfectly, without the intrusion of a human subjectivity that might muddy the visual record: the camera.

For all its rhetoric of imparting ‘aesthetic vision’, Sherman’s instructional programme in the flash lab more or less placed the student in the position of the photographic apparatus. Students were placed in a completely darkened chamber (camera obscura); exposed to a flash of light; led to believe that an after-image had been left on their retinas by that flash (as if on a photographic plate); and expected to draw that image automatically (in Sherman’s own words, ‘kinaesthetically’) on the sheets of paper in front of them. The flash lab even incorporated elements from the photographic developing process, as described in a passage in Sherman’s book *Drawing by Seeing* devoted to describing the lab’s equipment:


Michael Lobel

For illumination during the dark-adaptation period, a red light is set in the ceiling over the
drawing stands. This light is the regular darkroom lamp used in photography. It proves to be a
convenience when students drop their chalk, run out of paper, or otherwise need to locate an
object during the blackout period.  

Did Lichtenstein recognize the extent to which Sherman’s programme pushed
the student’s body toward the condition of the photographic apparatus? An
answer to that question may be found, in part, by looking back to I Can See the
Whole Room. Note that the work presents a scenario in which the viewing
subject is located in a darkened room with a hole in one wall, in other words a
camera obscura. Yet on reflection this description is not entirely accurate.
For one, the camera obscura generally uses a smaller hole – even at times a
pinhole – to produce its image, quite unlike the large opening depicted in the
painting. More significantly, that opening has been outfitted with a circular
cover that swivels back and forth; another name for that device would be a
shutter. Lichtenstein’s painting thus constructs for us a schematic view of a
primitive photographic mechanism. I Can See the Whole Room, then, provided
the artist with a vehicle through which to confront certain problems raised by
Sherman’s programme of training in Modernist aesthetic vision. Sherman
certainly recognized that the drawings of each student would have a personal
or individual style (in Drawing by Seeing he expressed his belief that these
differences should in fact be encouraged). Nevertheless, Lichtenstein seems
to have responded most strongly to the extreme technologization of vision
presented in his teacher’s project. This instrumentalization of the body
suggested not that individuality was being prized, but rather that in the shock
of the flash the student’s subjectivity was effectively erased as s/he became a
machine for recording visual stimuli. Perhaps this explains why, in addition to
placing the viewer in the position of the photographic apparatus, Lichtenstein’s
painting also constructs a textual narrative in which the viewer’s corporeality
has been effaced (as implied by the figure’s observation that ‘THERE’S
NOBODY IN IT!’).

In I Can See the Whole Room the relation between machine and embodied
vision is condensed into one particularly charged element: the motif of
monocularity. For one, monocular vision stands for the photographic apparatus itself: this much is clear in the artist’s depiction of the central
peephole, which pierces the darkened chamber of that primitive photographic
mechanism. The single exposed eye of the figure peering through that hole
rhymes with the monocular format of the camera lens. This was not the first
time a monocular presentation of the human body had been used to imply a
rhyming (or competition) with the lens of the camera; take, for example, Paul
Strand’s 1916 photograph Blind Woman, New York. Strand’s blind woman stands
as an ironic commentary on photography, in that she embodies the same
monocular mode as the camera that snaps her picture (one of her eyes is open,
the other closed shut). Her very sightlessness (and the sign around her neck
that reads ‘BLIND’) comments on the essential blindness of the photographic
apparatus itself. An earlier example provides an even more useful model; in
an essay on Jean-Martin Charcot’s late nineteenth-century photographs of
hysterics, Ulrich Baer has called our attention to an image of Hortense J., one
of Charcot’s patients (Fig. 3). As Baer points out, ‘Hortense’s symptom
imitates the photographic apparatus: her light sensitivity, the squinted eye,
catalepsy – the hysteric’s face mimics the camera and the cameraman.’ Baer’s
essay on Charcot is of use to us in detailing a precedent for Sherman’s
scientistic attempt at pushing the human body toward the condition of
photography. Baer outlines what he calls a ‘poetics of the flash’ through an

13. For a sustained analysis of the history of the camera obscura as both a device and a
philosophical model, see Jonathan Crary, Techniques of the Observer: On Vision and Modernity
14. Of course, camera is Latin for ‘room’ (as in I Can See the Whole Room).
15. Discussing the work of two students trained in the flash lab, Sherman wrote: ‘Both students
were able freely to express their personalities through their drawing at the level at which their
personalities would allow, and this is one of the prized achievements the teacher is after.’ Sherman,
Drawing by Seeing, p. 29.
16. This address to the viewer is made even more emphatic when we compare Lichtenstein’s
painting with its comic-strip source. The panel had been part of a story detailing the exploits of
two characters, Mike Nomad and Trooper. It showed the former looking through a peephole
and describing what he saw to his partner: ‘TROOPER! – I CAN SEE THE WHOLE
ROOM! – AND THERE’S NOBODY IN IT!’ By editing out the name of the text’s original
addressee, Lichtenstein provides the image with a more direct address to the viewer.
17. Even before his move into Pop Lichtenstein had treated mechanical themes in his work,
including a series of canvases that used mechanical diagrams as their subject matter.
Ernst Busche links these to Lichtenstein’s studies in Basic Engineering in Columbus, and to a
short period during which the artist was

Fig. 3. ‘Blépharospasme Hystérique’, from Nouvelle Iconographie de la Salpêtrière, 1889
(Photograph courtesy Harvey Cushing/John Hay Whitney Medical Library, Yale University.)

138 OXFORD ART JOURNAL 24.1 2001
employed as a mechanical draftsman in Cleveland. Significantly, in these works the machine is isolated; in other words there is no depicted interaction between human body and machine. There are, however, certain pre-Pop works that image the interaction between human figures and machines, including Lichtenstein’s 1951 version of Charles Wilson Peale’s Exhuming the Mastodon (which places more emphasis on the central mechanism than had Peale’s canvas). See Busche, Ray Lichtenstein: Das Frühwerk, pp. 172–82.

18. I would like to thank Jonathan Weinberg for calling my attention to this aspect of Strand’s photograph.


analysis of Charcot’s 1880s photographs of hysterics at the Salpêtrière hospital in Paris. Charcot had attempted to use photography, in conjunction with the mechanism of the flash, as an aid to the diagnosis of hysteria. Placed in a darkened room, his patients were exposed to a flash of light that froze them in a pose (to be later categorized as ‘hysterical’) that could be photographed by one of his assistants. Although there are marked differences (historical, cultural, theoretical) between Charcot’s and Sherman’s projects, the two are linked in as much as both employed the flash to forge a conjunction between the camera and the body. On Charcot’s catalectic patients, Baer writes:

Catalepsy retains by way of the body what photography retains by way of the camera: it freeze-frames and retains the body in an isolated position that can be viewed and theorized outside of a sequence of motion . . . the “dark chamber” into which [Charcot’s patients] were led, and where their bodies froze into immobile statues, may thus be said to allegorize the photographic process itself. The technical process suddenly becomes visible as a human body that has been frozen by a flash in a cabinet noir that translates, as if by accident, into the ‘chambre obscure’ of photography – the camera obscura.20

If, as Baer argues, the frozen positions of Charcot’s patients mimicked the photographic process, Sherman’s students were, in a sense, prodded to approach the condition of photography even more closely. The flash was meant to invoke not paralysis but rather motion: an automatic movement through which their hands were to trace the after-images ostensibly imprinted on their perceptual systems.

This automatism – in which the movement of the hand is taken as a direct response to the reception of a visual stimulus in the eye – is expressed in Sherman’s project on a number of levels. While the use of the flash was intended to heighten the intensity of the image’s reception, it also prevented the students from seeing their drawings while working on them. Sherman explained:

As a matter of emphasis, one does not try to draw with unity; rather one tries to see with unity and to let the image thus seen become the dominating force in organizing the drawing. If the student consciously works at getting unity in his drawing, the effect will be stilted . . . The discipline of creative work in the visual arts, in other words, consists more in ruling out extraneous stimulations to muscular action than in aggressively forcing the charcoal or paintbrush here and there on the paper. The body knows how to draw, so to speak, if it is but permitted to draw in accordance with the full dictates of the creating image. This means taking the emphasis off the manual manipulations so that the act of drawing can be instrumental rather than primary.21

This passage points out the extent to which Sherman’s rhetoric tends to repress the presence of any cognition in the act of drawing, and concurrently emphasizes a strange kind of automatism (as embodied in his reference to the act of drawing as ‘instrumental’). In the initial stages of instruction the student is prohibited from seeing the drawing in process and thus prevented from making any visual corrections; rather, s/he is expected to depend on a ‘kinaesthetic’ (in this context perhaps a more accurate term would be ‘mechanical’) response in rendering the image. This is precisely why Sherman referred to it as the ‘seeing-and-drawing’ act, in that the work of the eye and that of the hand are linked by one unified action: an automatic one like that of a machine. Sherman’s project, then, embeds the Modernist practice of automatism (such as that pioneered by the Surrealists) in a thoroughly mechanical paradigm.22 Hence we might suggest that for Lichtenstein it was no longer tenable to link such automatism to the unconscious or the primitive (as had been done so readily by the preceding generation of Abstract Expressionist

OXFORD ART JOURNAL 24.1 2001 139
painters), since for him it had become so fully aligned with the machine. Sherman also makes mention, in the above passage, of the body reacting automatically if "permitted to draw in accordance with the full dictates of the creating image". This idea of the image or motif determining its reception by the body was another major component of his theoretical project. He asserted that the capacity to draw aesthetically would be achieved by effectively repressing past experience and returning the individual to the state of what John Ruskin called the 'innocent eye'.  

In his text on Cézanne, Sherman repeatedly argues that the artist's work was 'non-volitional', that Cézanne had to forget his experience with the perceptual world and return to a state of pure perception in which he could recognize the order already imposed on vision: 'Paradoxically, Cézanne’s struggle was essentially, therefore, to “unlearn” the customary appearance of objects in order to achieve that which was fundamental to vision."24 This concept was not new to Modernist discourse, yet by directly inserting the machine into the equation Sherman's programme pushed the technological instrumentalization of vision to an extreme.

If monocularity seems to have been linked in Lichtenstein's work to the structure of the photographic camera with its single lens, it would have had even further meaning for him in the context of his teacher's project. For Sherman had utilized the adjective 'monocular' to refer to that very mode of vision he had located in the work of Cézanne, and which he attempted to impart to his students in the flash lab. Cézanne's importance lay in his consistent use of compositions centred concentrically around a single focal point, which Sherman argued was the key component of aesthetic vision. Cézanne's work thus provided the foundation for his project; he used the term 'monocular' in part because he believed that seeing with 'perceptual unity' required that the individual relate all points or elements in a field to a single focal point:

Teaching students to draw with satisfactory pictorial organization is to a major degree a process of teaching them to see with perceptual unity — that is, to see all points in a motif with relation to a focal point. The artist needs to be able to see the whole field at which he is looking and to see it in such a way as to place the parts in the whole through referral of the parts to a focal point.25

In addition, he maintained the assertion — as demonstrated by certain models in his Visual Demonstration Center — that binocular stereopsis was irrelevant to aesthetic perception. He believed that binocular vision impinged on the subject's perception of pure form — in this case, that of tonal or colour contrast — because 'in binocular viewing, contrast is instrumental to distance, whereas in monocular viewing, contrast tends to be an end in itself'.26

It is in this dialectic between monocular and binocular modes that we may begin to locate the tension (even pathos) in Sherman's theoretical project, which is then confronted in Lichtenstein's work. The human body is seen as fundamentally deficient or flawed; the very corporeality of vision must be overcome — or perhaps more accurately, repressed — in order to reach the transcendent ideal of aesthetic vision.27 As Lichtenstein said years later, Sherman's project 'was a mixture of science and aesthetics, and it became the center of what I was interested in'.28 Yet the mixture of science and aesthetics resulted in this case in an instrumentalization of the body, in which hand and eye were understood to be connected automatically as in a machine. I do not mean to suggest that Lichtenstein's working process was photographic, or that he thought — to any extent — that his project involved a kind of mute transcription of pre-existing imagery. Nevertheless, he made consistent

27. My reading is heavily indebted to the work of Rosalind Krauss, who has described Modernist visuality in precisely these terms, as structured by the repression of the corporeality of vision; see Rosalind Krauss, The Optical Unconscious (MIT Press: Cambridge, Mass., 1993), especially Chapter 1.
reference in interviews to his ability to ‘unify’ an image, a skill he had learned through Sherman’s programme. In short, if he maintained the conviction that the artist’s aesthetic faculty interposed itself somewhere between eye and hand, his training would only have lent the gnawing suspicion that such a mysterious ability might be attributed as much to a mechanical source as to any creative, human capacity.

Considering the polysemic charge monocularity held for Lichtenstein (it represented an aesthetic ideal that could be achieved only through the repression of vision’s corporeality), it comes as no surprise that he would return to the monocular again and again in his work. For one, there is the case of the 1963 canvas *Magnifying Glass*, which provides the viewer the direct experience of monocular viewing (Fig. 4). Note that the perceptual illusion proffered by the image – namely, that the large dots within the circular boundary of the magnifying glass are actual enlargements of the smaller dots in the background – is of the same type utilized by Sherman in his Visual Demonstration Center. *I Can See the Whole Room* is, further, just one of several works of the early 1960s in which monocularity is represented by a depicted figure. That list would also include *Popeye*, one of the artist’s first Pop canvases (Fig. 5). Popeye is a character so well known in American popular culture that it is easy for us to overlook one of his essential features: he is a *one-eyed* sailor. Yet his significance is not limited to his inherent monocularity; Michael Wassenaar has pointed out the extent to which the figure of Popeye (beginning

![Magnifying Glass](image)

*Fig. 4. Roy Lichtenstein: Magnifying Glass, 1963, oil on canvas, 16 × 16 in. (Photo: © Estate of Roy Lichtenstein.)*
particularly with the Fleischer Studio animated cartoons of the 1930s) has been linked to metaphors of engineering and the machine.\textsuperscript{29} In this way Lichtenstein’s Popeye can be read as an imaging of the relation between body and machine; according to Wassenaar’s analysis, that open, empty can at lower left is a sign that Popeye has ingested his trademark strength-giving spinach, thus marking ‘a moment of increased efficiency of the organism. It is a dynamic change in that the level of energy within the human mechanism is maintained, if not increased, as it is put to work, often times by punching his nemesis, Bluto, repeatedly around the room.’\textsuperscript{30}

In one of his next canvases Lichtenstein turned to Popeye’s hapless sidekick Wimpy, depicting him with a dark, hatch-marked circle – comic-book shorthand for a blackened eye – around his left eye (Fig. 6). Both Wimpy (Tweet) and Popeye signal the extent to which Lichtenstein’s representation of the monocular is riven by ambivalence, for in each of these canvases monocular vision is only referenced, rather than imaged directly. In the comics, Popeye is conventionally represented with one eye open and the other closed – usually denoted by a single dot (open) contrasted with a short horizontal line or dash (closed) – yet Lichtenstein depicts him with both eyes shut. Likewise, the blacked-out left eye of the title character in Wimpy (Tweet) suggests the monocular without a direct representation of that state. It’s as if, in these paintings as in I Can See the Whole Room, monocularity represented something so significant – yet so troubling – to the artist that it could only be alluded to, rather than represented directly. The same is true of one of Lichtenstein’s most striking war-comic images, Torpedo . . . Los! (1963), in which a submarine captain peers through a periscope, his exposed eye serving as the veritable focal point of the painting (Fig. 7). Lichtenstein altered the image in a subtle way, depicting that exposed eye as open, rather than closed as in the comic book source panel (Fig. 8). That panel had shown a German submarine commander peering with only one eye (his left) through a periscope viewer; the figure’s direct embodiment of monocularity would

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{popeye.png}
\caption{Roy Lichtenstein: Popeye, 1961, oil on canvas, 42 x 56 in. (Photo: © Estate of Roy Lichtenstein.)}
\end{figure}

\begin{itemize}
\item[29.] Michael Wassenaar, ‘Strong to the Finish: Machines, Metaphor, and Popeye the Sailor’, Velvet Light Trap, vol. 24, Fall 1989, pp. 20–32.
\item[30.] Wassenaar, ‘Strong to the Finish’, p. 23.
\end{itemize}
Lichtenstein’s Monocularity

Fig. 6. Roy Lichtenstein: Wimpy (Tweet), 1961, oil on canvas, 16 × 20 in. (Photo: © Estate of Roy Lichtenstein.)

Fig. 7. Roy Lichtenstein: Torpedo . . . Los!, 1963, oil on canvas, 68 × 80 in. (Photo: © Estate of Roy Lichtenstein.)
ultimately be repressed in Lichtenstein’s painting. That is to say that here, as in *I Can See the Whole Room*, one side of the figure’s face has been screened off from view. It is as if the artist introduced an undecidability into his depiction of vision, leaving the status of that hidden eye utterly in question. However, in the process he added a curious detail. Beneath the foreground figure’s exposed eye he added an arcing line crossed by several short strokes, illustrational shorthand for a scar. Lichtenstein seems to have derived that scar from one that appears on the figure’s face in other panels of the story, although he shifted the scar from the bridge of the nose to a spot directly below the figure’s now-opened right eye. That scar functions as a veritable red flag, one that calls attention to the site of a significant transformation he had effected on the image. I use the term ‘red flag’ intentionally, as it conjures an image invoked by Laura Mulvey in an essay on fetishism. Mulvey notes that while the fetish is ostensibly a token of disavowal, it operates simultaneously (and somewhat paradoxically) as a red flag that calls attention to the site of pain and loss.31 I am not offering here a strictly psychoanalytic reading of Lichtenstein’s work; rather, I am suggesting that, like the fetish, the motif of monocularity was a means to suture an ultimately irreconcilable structure of loss. And one that was inextricably connected to the issue of sexual difference. For it is not just that in these paintings Lichtenstein was thinking through the significance of monocularity as an isolated motif; as noted earlier, his work proposes a dialectical tension between monocular and binocular modes of vision, a tension that operates on the level of gender as well. In opposition to all those images that had merely pointed toward monocularity, in this period Lichtenstein chose to depict one figure that fully embodied the monocular. In 1963, to announce his second one-person show

31. "Through disavowal, the fetish allows access to its own cause. It acknowledges its own traumatic real and may be compared to a red flag, symptomatically signaling a site of psychic pain." Laura Mulvey, ‘Some Thoughts on Theories of Fetishism in the Context of Contemporary Culture’, *October*, vol. 65, Summer 1993, p. 6.
32. In describing this motif of monocular vision in Lichtenstein’s work I do not mean any figure depicted with a single eye visible, as in the case of a figure shown in profile. I refer specifically to a figure that is depicted frontally in such a way as to expose both eyes to the viewer, yet which has one eye closed or otherwise obscured. In the other cases I’ve described – namely I Can See the Whole Room and Torpedo... Los! – the figure is frontal yet one eye is blocked by an intervening object, which I am suggesting was a way for the artist to represent monocularity indirectly or with some degree of ambiguity. It is only with CRAK! that we see a direct representation of monocular vision, with one eye depicted as open and the other closed.


34. This linking of monocularity with the feminine – and even more pointedly with castration – is suggested in the title of CRAK!, which is a homonym for ‘crack’, a colloquial term for the female genitalia.

at the Leo Castelli Gallery in New York, he executed a screen-printed poster image (entitled CRAK!) that depicts a beret-clad young woman, her eyes revealed above the barrel of a rifle that fires at an unseen target (Fig. 9). The previously unidentified source panel for the work came from the April–May 1962 issue of the comic book Star Spangled War Stories. Lichtenstein changed the image as was his wont by that time: he replaced the earthen mound to the left of the figure with what looks like a pile of sandbags; enlarged and recomposed the letters in that onomatopoeic ‘CRAK!’; and cropped out the foreground and reargument, thus isolating the figure. For our current analysis, though, the most significant details in the image are those two eyes above the rifle barrel: one is open, one closed. If it was only with a female figure that Lichtenstein would directly represent an embodiment of monocular vision, then CRAK! points to the extent to which, in the signifying economy of his work at this time, the monocular had become a token of castration, of a kind of corporeal loss.32 And not merely a corporeal loss but a loss to the imagined plenitude of the creative subject, a giving of oneself (and one’s subjectivity) over to the automatism of the machine.

This linking of the monocular and the feminine in CRAK! may begin to explain a related set of images that appeared years later in Lichtenstein’s uvre. Around 1977 the artist began to experiment with Surrealist imagery, borrowing mainly, as Diane Waldman has pointed out, from the work of Henri Magritte, Salvador Dali, and Max Ernst.33 Although Lichtenstein clearly appropriated certain stylistic conceits from those artists – the abrupt juxtaposition of incongruous objects and elements, the depiction of a veritable dream-landscape – many of his paintings contain a recurrent motif: the monocular female figure. Whether in Girl with Tear I (1977), in Stepping Out (1978), and even as late as 1992 in Interior with Swimming Pool Painting, Lichtenstein consistently imaged the monocular as feminine.34

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**Fig. 9.** Roy Lichtenstein: CRAK!, 1963–4, offset lithograph, 19 1/2 x 27 3/4 in. (Photo: © Estate of Roy Lichtenstein.)
Monocularity: Body and Machine

We have already seen how I Can See the Whole Room (along with various other works from this period) stands for the possibility – impelled by Lichtenstein’s immersion in Hoyt Sherman’s theoretical programme – of subjectivity being threatened through the experience of the human body approaching the automatism of the machine. Yet it also suggests another, parallel reading: if the painting imagines the viewer as erased by (or merged with) the photographic apparatus, it also depicts a figure interacting with a machine, in as much as the male figure peers out at the viewer through a primitive shutter mechanism. This is true as well of Torpedo . . . Los! and CRAK! : in these paintings vision is directed through some sort of device that forces it into a monocular format.

Lichtenstein became known to the wider public in the early 1960s for three general categories of subject matter: consumer objects drawn from advertising sources, images from romance comics, and images culled from the war comics of the period.35 The last group contains some of the artist’s best-known paintings, including Blam! (1962), Okay, Hot-Shot! (1963), and Whaam! (1963). All three depict intense moments of aerial warfare, and show how Lichtenstein manipulated his source materials (especially details like explosions) to render highly abstracted shapes in his canvases, another instance of his alteration of his sources to achieve the greatest formal effect in his work. While these images have been discussed at length in treatments of the artist’s work, their significance to our current discussion relates to their depiction of interactions between body and machine. For instance, Diane Waldman has suggested that in Okay Hot-Shot! (Fig. 10) Lichtenstein ‘updated the headgear of the pilot by substituting an astronaut’s helmet for a World War II fighter pilot’s helmet at a time when space-flight programmes were under way in the US and the USSR.’36 Waldman is, I believe, incorrect – the element she reads as an astronaut’s helmet was meant to depict the canopy of a fighter plane – yet her misreading is understandable due to the way Lichtenstein compacted the pilot’s physical form into the machine around it, so that the white surface just visible in the lower right seems more like an astronaut’s fitted spacesuit than the metal skin of an aeroplane. We only have to look to several other war-comic works to demonstrate how Lichtenstein’s work in this period consistently returned to the interaction between machine and embodied vision. If Okay Hot-Shot! contains the figure of a pilot encased within the structure of his fighter plane, both the 1962 drawing Jet Pilot (Fig. 11) and the 1962 painting Bratatat! (Fig. 12) depict a seemingly half-human, half-mechanical figure: a fighter pilot inside the close confines of a cockpit, his eyes the only visible features of a body otherwise hidden by the helmet over his head and the oxygen mask covering his nose and mouth. A 1962 canvas entitled Bratatata (not to be confused with the aforementioned Bratatat!) depicts a similar scene, a close-up view of the profile of a fighter pilot engaged in aerial combat, although in this work the unbuckled mask does reveal the lower portion of the pilot’s face. And while this imaging of an almost ‘cyborgian’ linkage between body and machine has significance in itself, the triangulation between body, vision, and machine is especially evidenced by the presence of a particular device in each of these images. Like Torpedo . . . Los! and CRAK!, each of these works contains the image of a mechanical aid to vision. A re-examination of CRAK! highlights a relevant detail: a comparison of Lichtenstein’s image with its source indicates that the artist took care to add a small sighting element at the end of the gun barrel. If he added a rather rudimentary aiming mechanism to that image, the aforementioned fighter-pilot

35. Of course his output was a great deal more varied than this, and included works that ranged from imagery appropriated from earlier artists (such as Mondrian and Picasso) to a portrait of George Washington; nevertheless, for the wider public his work was most identified with these three general categories of imagery. For a more detailed categorization of his work of the time, see John Coplans, Roy Lichtenstein (Praeger: New York, 1972), pp. 37–47.
Lichtenstein's Monocularity

works depict a more sophisticated device used for much the same purpose: a type of gun sight developed during World War II to help fighter pilots achieve better firing accuracy. A variation on this type of gun sight appears in each of these images: in the lower right of Bratatat!, and in the cockpit’s lower right corner in Jet Pilot.

A major problem in aerial gunnery involves the difficulty in accounting for how the combination of various factors – including range, aircraft speed, and angle of deflection – will affect the trajectory of the plane’s gunfire. Additionally, the gun sight must be placed in the cockpit so as to minimize its interference with the pilot’s line of vision. A certain type of sight developed during World War II – and depicted in the works by Lichtenstein cited above – provided solutions to those problems. Both Britain and the United States (among other nations) developed technology whereby the pilot or gunner could adjust an aiming mechanism according to a series of variables (speed, size of enemy aircraft, etc.) which would then be corrected in the gun sight lens itself. It seems that one of the most common forms of these computing sights, especially for fighter pilots, was the reflector sight, in large part because it minimized intrusion into the pilot’s visual field. The reflector gun sight is
comprised of a small glass panel tilted down at about a forty-five-degree angle that is fixed above the other cockpit instrumentation directly in front of the pilot’s field of vision. (Fig. 13). An adjustable lamp and lens assembly inside the gun sight projects the image of a reticle or aiming schema – composed of some combination of circles, dots, or lines – on to the glass panel above. It is through this projected image of the reticle that the pilot targets the enemy aircraft (Fig. 14).^3^7

The works by Lichtenstein cited above image those very reticular schemata on the glass panels of their depicted gun sights. In Jet Pilot two thin horizontal lines cross a longer vertical one, while in Bratatat! a set of diamonds and semi-circular bars mark off the aiming ring. A comparison of the artist’s works and their source images seems to indicate that Lichtenstein made alterations that gave increased visual attention to these devices. For instance, in Whaam! (1963) he took care to delineate – in the cockpit close to the pilot’s profile – a raised rectangular silhouette that signifies the interruption of the control panel’s upper edge by a gun sight like the ones described here (in the painting’s source that interruption is indicated barely, if at all). His ‘adjustments’ to the image in Jet Pilot – in addition to his ninety-degree re-orientation of the composition – direct visual attention to the depicted gun sight in an even more forceful way. Although he tended to simplify his images in the process of transcription, the gun sight in Jet Pilot is more carefully delineated than that in the source (a panel on the cover of All American Men of War no. 89, January–February 1962) (Fig. 15). His re-drawing also allows more of it to show above the lower framing edge of the cockpit. In the comic book panel the line of bullet holes in the cockpit canopy was directed toward the pilot’s broken air hose, providing a narrative intensity. A bullet had clipped the hose: would the
pilot survive without his oxygen supply? Lichtenstein’s ‘editing out’ of this detail provides further insight into his approach to the comic book narratives he used as sources for his imagery. For his removal of this detail indicates that he may have wanted to suggest some, but not too much, narrative; while Jet Pilot – like so many of his other war paintings – depicts a figure engaged in a moment of intense effect, the broken air hose seems a detail that might have required too much narrative closure. Lichtenstein not only depicted that air hose as unbroken, but redirected the line of bullet holes around the arc of the plane’s canopy. That line of holes now points directly toward the reflector gun sight that seems almost to face off against the wide-eyed pilot.

That facing-off is key to my discussion because Lichtenstein’s repeated treatment of this motif, and the visual attention his images draw to these gun sights, bring us back to the issue of monocularity. In the context of the analysis
developed so far, a work like Bratatat! can be viewed as an image of the body’s binocular vision played off against a seemingly monocular machine. And not just any machine: that very type of computing reflector sight was a machine used to correct the shortcomings of human perception. As an early account reported, ‘the gun sight automatically computes factors which previously the pilot had to estimate, such as the time lag between the bullets leaving the attacking plane and reaching their fleeting quarry, the effects of gravity and air density on the bullet, relative motion of the target and other factors’.38 In short, it was a machine that served as a corrective to the pilot’s inability to effectively sight his target when faced with the speed and intensity of modern aerial warfare conditions. According to Allan Kaprow it was that very problem of adapting vision to aerial combat that provided the impetus for Sherman’s development of the flash lab:

Sherman had been instrumental in the military effort during World War II because of his experiments with perception. He found that most of us tend to see details of situations rather than overall configurations. This proved a rather serious problem when it came to aerial gunnery because gunners couldn’t perceive modern enemy aircraft in motion. They moved too fast. Then men had been trained to identify insignia, tail and wing shapes, etc., in still pictures. Sherman’s program proved effective.39

In this way Sherman’s programme was engineered toward solving the same problem as the computing gun sight: to augment the individual’s visual perception by mechanical means. The machine is understood here as testing or training the subject’s responses to the increased visual stimuli of modern life. And since Kaprow never had direct contact with Sherman or his teachings, he must have learned of the origins of Sherman’s project from Lichtenstein himself. In fact, Kaprow’s account provides insight into comments made by Lichtenstein when asked by the author about his first experience with the flash lab:


Lichtenstein’s Monocularity


Well, Sherman was developing it before I went to the army. In fact the Renshaw Recognition System, which had to do with the Navy, sort of happened through Hoyt [Sherman], who I guess was in the hospital and Renshaw took this to the Navy or something. I don’t know, there was some story, they didn’t get along very well after that. But anyway Hoyt didn’t care about recognition, that wasn’t the point, unifying was, and so forth. So he started working on it, and I knew what he was going to come up with, but then he had built the flash room – I believe, if I’ve got this straight, while I was away – and then when I came back I was teaching.

Taken alongside Kaprow’s account, Lichtenstein’s version of events tells us this: that he understood Sherman’s project to have originated in the problem of heightening visual perception through mechanical means in response to the demands of modern aerial warfare. Lichtenstein had his own brush with the possibilities of aerial combat; as he mentions in the above account, his undergraduate training was interrupted by his induction into the Army in 1943. After time spent in basic training and several semesters in an engineering training programme at De Paul University in Chicago, in 1944 Lichtenstein arrived at Keesler Air Force Base in Biloxi, Mississippi, for a pilot training programme. But he received no training; soon after his arrival, the Army cancelled the programme due to the need for more troops in Europe after the Battle of the...
Bulge. In February 1945 he was sent overseas as a member of the engineer battalion of the 69th Infantry Division of the Ninth Army.\textsuperscript{41}

Since Lichtenstein did not receive any formal training as a pilot, it is impossible to determine whether he knew much about the reflector gun sights that were used by fighter pilots in World War II and which he repeatedly depicted in works from the early 1960s.\textsuperscript{42} We do know, however, that during his basic training at Fort Hulen, Texas, Lichtenstein trained with anti-aircraft guns that could be adjusted in much the same way as those of fighter plane computing gun sights. He recounted that those guns ‘were 40 millimeter I think at the time. I think they were guns of a type that got replaced after that by a higher caliber, and more automatic or something. But they had a separate range-finder box in which you would track the plane and it would automatically set the gun.’\textsuperscript{43} Regardless of Lichtenstein’s specific knowledge of the details of gun sight technology, these instruments – and his imaging of them – provided another opportunity to consider the triangulation of body, vision, and machine, which would again be condensed into the motif of the monocular.

41. Much of this information on Lichtenstein’s military service is again culled from Clare Bell’s chronology in Waldman, Roy Lichtenstein, p. 365. Additional details are taken from Richard Brown Baker’s 1963 interview with Lichtenstein in the collection of the Archives of American Art, Smithsonian Institution.

42. In contrast, many of the artists who illustrated war comics seem to have been military buffs who took care to faithfully render airplanes, guns, and other military equipment. In a similar vein, the war comic books often included letters pages that functioned as a kind of clearinghouse for information on military history and weaponry. For example, ‘Sgt. Rock’s Combat Corner’ in All American Men of War (from which Lichtenstein appropriated many source images) printed exchanges like this one: ‘Dear Sgt. Rock: Did the German Junkers carry any other armament besides its machine gun? – Bobby Stone, Toledo, Ohio. Dear Bobby: The Junker also carried a 20-mm. Cannon – Sgt Rock.’ (All American Men of War no. 95, January–February 1963, unpaginated).

In closing, I return to the painting with which I began to suggest that, considering its confrontation with issues so central to Lichtenstein’s project, it be taken as a kind of self-portrait. I Can See the Whole Room is, after all, an image of a male figure pushing an extended digit through a circular opening—one much like the perforations in the dot-screen stencils the artist had just begun to use in his work. After experimenting in early cartoon paintings like Look Mickey! and Popeye with various methods of applying regular patterns of dots to the canvas, Lichtenstein had manufactured his own rudimentary dot-patterned stencil by drilling holes in a piece of aluminum. At the time he produced the painting, sometime in the summer of 1961, he had recently begun to apply paint in this distinctive way; the work can thus be read as an attempt at self-imaging, with that finger standing in for the brush the artist used to push pigment through the holes in his dot-stencil. The awkward, almost instrumental quality of the hand supports this interpretation.

If we consider I Can See the Whole Room as a kind of self-portrait, then the play between monocular and binocular modes in the artist’s work can best be brought out by comparing it with another image central to his project, namely Image Duplicator (1963) (Fig. 16). In fact, such a comparison suggests that the

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44. ‘Then I know that I made my own metal stencil out of a piece of aluminum and graph paper . . . I drilled through and it came out relatively uneven (laughing) . . . I can tell which were done that way.’ Lichtenstein, interview with the author, 6 March 1997.
latter canvas represents a veritable correction of the former. In both works a figure peers out at the viewer through an intervening surface plane, although the earlier representation of monocular vision gives way in the later work to the aggressive binocularity of those two glaring eyes. There is a formal element that lends further support to this reading: the arcing lines under the exposed eye of *I Can See the Whole Room*, used to denote the shading of a cheekbone, are almost exactly repeated in the thick black outline of the mask in the lower right corner of *Image Duplicator*. We might even consider the aggression depicted in the later painting as compensating for its rejection of monocularity, in that a refusal of the terms of technologized vision was less than secure in Lichtenstein’s practice. Monocularly was a fitting — albeit conflicted — vehicle for representing the relation between body, vision, and machine. Conflicted because it suggests both an intensification of vision (think of the common experience of closing one eye in order to fix an object in the gaze) and a cutting-off or loss of the ordinary experience of embodied vision. Nevertheless, the artist’s experiences with visual technologies had demonstrated that something had to be sacrificed if the machine was to augment human perception. His paintings from this period bear the marks of a struggle between two irreconcilable positions: on the one side sits the idealism of Sherman’s dream of pure, unmediated vision, couched in the technological language of the machine. On the other sits the belief in a perceiving subject whose imperfect corporeality denies access to such transcendence, yet provides an imaginary space of safety set away from the machine’s erasure of subjectivity. In the end, it was the irresolvable space between these two possibilities that drove Lichtenstein’s work at this time, as he began to experiment with the possibilities — and problems — inherent in his chosen approach to painting.

This essay is an excerpt from a chapter in my forthcoming book *Image Duplicator: Roy Lichtenstein and the Emergence of Pop Art* (Yale University Press). Ulrich Baer, Thomas Crow, Vincent Fecteau, Ronny Golan, Kimberly Smith, and Bryan Wolf provided invaluable insight and criticism in the writing of this essay, which began as part of my doctoral dissertation at Yale University. The influence of Jonathan Weinberg, my advisor on that project, is evident throughout. I would also like to thank all of those at the Symposium on Pop Art, Yale University, March 1999 — including Serge Guilbaut, Sarah Rich, and Cécile Whiting — who responded to my presentation of the material presented here.