

Lost in Space: Consciousness and Experiment in the Work of Irwin and Turrell

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*[A]part from the experiences of subjects there is nothing,
nothing, nothing, bare nothingness.
Alfred North Whitehead, 1929*

On several occasions during the years 1968–1971 artists Robert Irwin and James Turrell, an experimental psychologist named Ed Wortz, and a number of UCLA student volunteers spent hours depriving themselves of light, sound and human contact. They were engaged in a series of experiments involving an anechoic chamber used for psycho-physical experimentation by the Garrett Corporation, a contractor to the National Aeronautics and Space Agency (NASA). The interior of the chamber was soundproofed, suspended to minimize the effects of the earth’s rotation and utterly darkened. Self-projected sounds like speech were deadened. Sitting in these reduced surroundings was exhausting; rather than depriving the subject of the senses of sight and hearing, the lack of focal markers proved to heighten them, causing the subject to strain his eyes and ears, searching for something upon which to focus his attention. Most startling were the effects upon leaving the chamber when the body re-adjusted to the overwhelming array of stimuli in daily life and the world became intensely bright, loud and noticeable.

Thus, in the experimental psychology laboratories of Southern California Irwin and Turrell would explore the possibilities of ambiguity, with profound implications for their subsequent artistic practices. What came to be known as “light and space” art arose from a focus on the contingencies of the art experience in contrast to a media-centric approach advocated by modernist critics such as Clement Greenberg and Michael Fried. This essay addresses the ways in which the parameters of critical analysis—in the fields of both art and psychology—were tested and/or altered by the introduction of Irwin and Turrell’s experiments and their development of a situational art. I use the terms “situational art” and “situational form” deliberately so as foreground the contingent nature of the work, where site, temporality, viewer

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experience, and the created “object” cohere as art. These artists approached a work of art as an event of engagement, rather than as any particular object. Their work—in the laboratory and in the studio—provides us with the means to recognize that conscious awareness binds together site, viewer and art into what John Dewey (1934, 48) calls *an* experience: “In short, art, in its form, unites the very same relation of doing and undergoing, outgoing and incoming energy, that makes an experience to be an experience. . . . The artist embodies in himself the attitude of the perceiver while he works”. Following a brief prologue in which I contextualize the terminology through which I am reading the relationship of these artists to contemporary trends in neuropsychology, my argument is presented in two parts. The first part is an historical account of the circumstances which led to the conflation of artistic and scientific experiment in the anechoic chamber. The second part examines how the situational art of Irwin and Turrell exposes the explanatory gap created by the parallel discourses of modernist criticism and behaviorist psychology both of which exclude the material role of conscious thought in aesthetic experience.

In discussing his work, Robert Irwin (1977) uses the phrase “posture of inquiry” as a means of describing an individual’s open-ended and open-minded questioning stance, a situated mindset that begets creative thinking regardless of and prior to disciplinary distinctions such as “artistic” or “scientific”. This is basically a phenomenological approach of “bracketing” experience so as to consider it on its own terms.¹ It is important to note, however, that Irwin began reading phenomenologists like Husserl, Merleau-Ponty, and Schütz only *after* he had been experimenting with situational art—or “art in response”—for many years. In this regard, the language of phenomenology can be seen as a useful means of articulating an already well-developed and *practiced* posture of inquiry. Such a posture is kind of pragmatic naïveté wherein the inquiring artist or scientist remains open to investigating unforeseen, idiosyncratic, and/or deeply subjective data. I make this point here so as to distinguish the more recent and pragmatic hybrid of phenomenology practiced by Irwin from the philosophy that came beforehand. Likewise neurophenomenology, described in more detail shortly, resembles Irwin’s practical application as much if not more than it does the phenomenological philosophy to which it owes its roots: it is phenomenology naturalized. In creative questioning—or curiosity—Irwin saw a convergence between the work of artists and that of scientists. His scientific counterpart, and longtime collaborator in questioning, Ed Wortz agreed. For the younger Turrell, whose artistic and psychological interests developed in tandem, the conflation of scientific and artistic inquiry was self-evident (Adcock, xix). For all three there were immediately apparent correspondences between the psychologist’s concerns with the disorientations of space travel and the artists’ interests in perception as medium. In both cases, investigators enacted a phenomenological

¹“Bracketing” (Einklammerung) is a term first posited in Edmund Husserl (1991, original 1913). The term is succinctly defined by Husserl scholar David Woodruff Smith (2007, 429) as “the method or technique of turning our attention from the objects of our consciousness to our consciousness of those objects”, an awareness of being aware, so to speak.

shift in methodology: from an emphasis on observed reality to felt reality, or subjective feeling. Each set of questions necessitated renewed consideration of first-person experience—whether that of the astronaut or of the art viewer—in one’s experimental methodology. And for each, experiments in sensory deprivation were means of essentializing the perceptual processes in question.

Sensory deprivation, it should be understood, is not exactly what the phrase suggests. The kind of tests Irwin, Turrell, and Wortz wished to conduct involved the extreme reduction of sensory stimuli. The senses remained intact; there was simply very little to which one could physically attend. This is the difference between being able to see nothing and *looking at* nothing, or hearing nothing and *listening to* nothing. Subjects were not deprived of their senses; they were instead asked to attend to a lack. Indeed, it can just as easily be claimed that Irwin was interested in sensory *enhancement*, for this was effectively the end result of limited exposure to the “deprivation” chambers. This is a significant point as it underscores the relativity of perceptual experience, a key aspect in both Irwin’s and Turrell’s subsequent art practices and in emerging theories of consciousness that rely on similarly subjective (though more tightly controlled) experimentation.

Irwin and Turrell’s experiments with Wortz took place within developments in psychological experiment that were displacing the previously pre-eminent methods of radical behaviorism as led by J.B. Watson and B.F. Skinner. The behaviorists prioritized the scientific description of observed behavior, and rejected introspection as unreliable data. But in the 1960s the field of psychology was undergoing a shift similar to that in the art world, where methods once considered objective—or disinterested—were emerging as contextually conditioned. This parallels a development in physics in the first decades of the twentieth century. Einstein’s theory of relativity and the process of measurement as understood in mature quantum mechanics allocate a central role to the observer in that they see the results of observations as essentially determined not only by how the world is, but also by the observer’s situation and actions. This paradigm shift in physics had a de-stabilizing effect throughout the sciences (Kuhn 1962). In light of these findings, to what degree was objectivity or certainty attainable? The experiments at Garrett were small indicators of a broader overall subjectivization of experiment—or phenomenological turn—taking place in neuroscience and psychology (or cognitive sciences). This turn was marked by willingness on the part of scientists to revisit the philosophy of mind, especially as put forth by William James in the previous century. Writes Patricia Churchland (1986, 250): “With William James . . . the revered presumption that science, and knowledge generally, required foundational certainties began to seem questionable. If, agreeing with Kant, our sensory experience is interpreted experience, then the ‘certainties’ of sensory evidence are only as good as the infused interpretation”.

Within the interdisciplinary field of “neurophilosophy” (Varela 1996) arose a plethora of new cognitive sciences, including contemporary “neurophenomenology”, as practiced by Francisco Varela, Bernard Baars and like-minded colleagues. For neurophenomenologists, “the experience of being a body, and not just having a body . . . , forms part of the primary existential conditions of our becoming in the

world” (Flores-González 2008, 188). This emphasis on the feeling of what happens was characteristic of the cognitive revolution as it took place in California; and it was particularly applicable to artistic practice, in that it could accommodate the artists’ intuitive approach. As Stephen Pinker points out, “East Pole/West Pole” divisions arose in the world of cognitive science, with the MIT-centered “eastern” axis of Jerry Fodor and neo-Chomskyites arguing for the essential nature of concepts, while “those at the West Pole suspect they begin as small innate biases in attention and then coagulate out of statistical patterns in the sensory input” (2002, 35). Both “poles” make up what is collectively referred to as the “cognitive revolution”, a wholesale backlash against behaviorist methods encompassing concerns in neurology, anthropology, philosophy, and linguistics (Miller 2003). The phenomenological “branch” of cognitive studies constitutes only one element in the “West Pole” faction. It also has self-evidently strong links to continental philosophy (especially phenomenologists Husserl and Merleau-Ponty), although American pragmatism (notably in the work of William James) has its place in neurophenomenological theory as well (Thompson et al., 2005).

The parallels between light and space art and neurophenomenology are compelling, as each practice emphasizes the primacy of lived experience. A modified—or pragmatic—phenomenology provides a means for understanding the cognitive materiality of aesthetic experience, while light and space art demonstrates what neurophenomenology asserts: i.e. you have to be there.² Cognitive scientists obviously must apply more rigorous constraints to their testing methods than did Irwin and Turrell; however, the scientists and artists share an open-minded posture of inquiry at the outset of each experimental endeavor. This state of “pure research” is what both Irwin and Wortz assert that they were sharing when they embarked upon their Collaboration (Weschler 1982, 131–133).

At issue for Irwin and Turrell were the idealizing standards of modernist formalism in the New York-centered art world and the objectivizing principles of behaviorist psychology. While the modernist critic appeals to a cognitively held *a priori* meaning, the behaviorist restricts his studies to observable reality. Both approaches necessitate a Cartesian distinction between meaning and experience, mind and body. In so doing they also facilitate key distinctions between life and art, psychology and philosophy. The essential continuities between these categories—while often understood as given—were sacrificed for the sake of disciplinary autonomy.

By facilitating situations of perpetual disorientation and re-orientation, Irwin and Turrell pre-empted the postures of disinterestedness required both by behaviorism and by the idealizing modernist exhibition space, now known as the “white

²This is my primary reason for not including images with this text. While I acknowledge that my own descriptions are limited, they are less likely to be mistaken for “the thing itself” than are photographs, which at best offer only severely limited versions of the work in question, and prioritize visual perception at the expense of other sensory percepts present in the immediate experience. For years, Robert Irwin held the same position and refused to allow his work to be photographed, though he has since relented.

cube” (O’Doherty 1976). The black box and white cube are effective metaphors for exclusion—of a materially productive consciousness—and for disciplinary exclusivity. When participants attempted to negotiate the eerily dense nothingness of the anechoic chamber, however, behavior and thought coalesced into an experiential continuum. What follows is a consideration of the ways in which a literal black box—the anechoic chamber—exposed the integral role of the figurative black box—the conscious mind—in composing a coherent reality and a conditional art.

Entering the Black Box: Irwin, Turrell and the Anechoic Chamber

In late 1967, Maurice Tuchman, then senior curator for the Los Angeles County Museum of Art, set out to marry contemporary art and the technology in the Los Angeles area by inviting corporations to become both financial and technical resources for a number of artists whose work already tended toward or somehow engaged industrial materials and/or production (Tuchman 1971, 9). One of the first artists Tuchman approached was Robert Irwin. Irwin was on the verge of doing away with the art object entirely in favor of investigating its circumstances: the subjective body states of the viewer and the supposedly neutral gallery space. After several years as a successful painter, Irwin was nevertheless bothered by what he saw as the arbitrary limitations of the frame: “I no longer felt comfortable with that sense of confinement. It no longer made sense to me”.³ Rather, by the early 1960s he was developing an interest in making the experiential transition between the work of art and its context as fluid as possible. At the time of Tuchman’s initial contact, Irwin was working on a series of disc-paintings out of machined aluminum—and later acrylic—approximately 60 inches (152.4 cm) in diameter and knife-edged, which he painted in extremely subtle shadings of white and gray. The discs were Irwin’s first foray into industrial materials and therefore also his first collaborative efforts (Weschler 1982, 98–109, Gilbert-Rolfe 1993). The work was then mounted several inches away from the gallery wall and cross-lit so that the discs seemingly dematerialized in aureoles of light and shadow. The resulting effect was one where the shadows had as much material presence as the painting, if not more. In his biography of Irwin, Lawrence Weschler (1982, 111) writes: “He began to wonder how it might be possible to make an art of the incidental, the peripheral, the transitory—an art of things not looked at (indeed, invisible when looked at directly) yet still somehow perceived”. In blurring the boundaries between object and subject, Irwin challenged the rationalizing separations of perception (physical) and conception (non-physical).

That Irwin believed a perceptible, yet non-salient art object was even a possibility tells us that he thought of perception as more than a simple one-way conduit for information. By rejecting the object as the singular locus for aesthetic inquiry, Irwin

³Robert Irwin, quoted in Weschler (1982, 99).

began to see a role for his own work alongside a scientific community investigating the relationship of perception to cognition. Tuchman's *Art and Technology* project was the beginning of Irwin's enduring relationship with Ed Wortz, an experimental psychologist whose work at the time was predominantly concerned with the constraints and experiential idiosyncrasies of astronautics (e.g. see Robertson and Wortz 1969). Along with fellow artist James Turrell, who was subsequently invited to join in on the collaboration, they began to design a series of experiments demonstrating that even when the senses are given nothing to work with, the mind insists upon creating a relationship between the body and its environment. That is, to the mind's eye nothing is just as substantive as something. Under such conditions—where we perceive meaning in the event of our encounter—it becomes preposterous to situate meaning in objects alone. Wrote Irwin (1985, 28): "*Circumstance* . . . encompasses all of the conditions, qualities and consequences making up the real context of your being *in* the world. There is embedded in any set of circumstances and your being in them the dynamic of a past and future, what was, how it came to be, what it is, and what it may come to be".

In Southern California, economic and geographical factors created the perfect laboratory for linking psychology to technology to the development of a conditional aesthetic such as Irwin's or Turrell's. For a Southern Californian, there is a disorienting incongruence between the immediacy of nature and ever-proximate technology in the defense industries, aerospace, and film (a curious hybrid of art, technology, and commerce). The art world was not exempt from these influences. The Los Angeles art scene—small, fluid, and burgeoning—allowed for constant experimentation, definition, and redefinition; there the New York-centric modernist critical culture had only tangential (and sometimes ironically perverse) effect. In this regard, I echo Cécile Whiting's (2006) claim regarding the Los Angeles art community in the 1960s: that it sought to invent an identity for itself drawing on aspects of life distinctive to Los Angeles, developing an art cross-pollinated with technological or commercial elements proliferating in the area.

In these circumstances where artists found themselves rather ambivalently positioned vis-à-vis the established art world, artists such as Irwin and Turrell were nonetheless adhering to an alternative art tradition of sorts, best represented in the work of composer John Cage. Cage himself had experienced the anechoic chamber environment at Harvard University in 1951, with important implications for subsequent incorporation of silences in his compositions (Cage 1961). Turrell in particular was well-versed in the philosophy of Cage, who was a fellow Pomona College alumni (1928–1930, Turrell attended from 1961–1965), and went to hear him speak when the composer gave a distinguished alumnus talk, likely in 1962 (Emmerik 2003–2007).

The formidable presence of the California Institute of Technology (Caltech) in Pasadena (with names on its faculty that at different times included Einstein, Oppenheimer and Feynman) ensured that the physical sciences played an important role in educational and community developments. In its wake were drawn businesses and organizations that included the Jet Propulsion Laboratory (JPL),

Lockheed Air Corporation, the Rand Institute and Garrett Corporation, all of which contributed to the Los Angeles County Museum of Art's ambitious and controversial *Art and Technology* program and provided key materials for light and space artists.⁴ As Michael Compton pointed out in a 1970 catalogue discussing the work of light and space artists Larry Bell, Robert Irwin and Doug Wheeler: "The aerospace industry . . . is not only orientated to rapid obsolescence but therefore also to technological extemporisation and to free access to outside experts, techniques and information. The preoccupations with precision, environmental and sensory control are naturally shared [by these artists] with this industry" (1970, 13). Against this background, it should also be noted that Turrell's father at one time trained as an aeronautic engineer (he subsequently worked almost exclusively as an educator), and that this has influenced the artist's ongoing interest in scientific instruments, methods, and measures, not least of all in his role as a pilot. As Craig Adcock (1990, 1) describes it: "He regards time spent in the air as time spent in the studio".

In Southern California, where "physics and meta-physics continued to rub shoulders in a variety of weird circumstances" (Davis 1992, 58) the new developments and challenges that arose with the space race and atomic physics stretched the parameters of what had been considered reality to its breaking point. Uneasily situating itself between physics and metaphysics was the developing field of cognitive science. The cognitive scientists were perhaps even more rigorously experimentalist than the behaviorists but at the same time, drawing from the quantum model, they transformed psychological methodology from one of stimulus/response to one of integrated processes or networks. If reality were a matter of integrated processes, it was difficult to maintain a position, as behaviorism would have it, that thought is extrinsic from behavior—or epiphenomenal. The position that conscious states are epiphenomenal is in no small part due to a behaviorist reaction to what it considered the misleading and unscientific methods of psychoanalysis: "The good Freudian attributes observable behavior to a drama played in nonphysical space by an immanent triumvirate scarcely to be distinguished from the spirits and demons of early animism" (Skinner 1964, 482). In this regard, the "cognitive revolution" is more properly understood as a counter-revolution, and—as has been pointed out—the cognitive scientists' empirical stance is much closer to behaviorism than it is to psychoanalysis (Miller 2003). For one contingent of psychologists, predominantly on the East Coast, this re-configuration supported the burgeoning development of computer science and attendant artificial intelligence (A.I.) models of cognition, thereby effectively removing the sticky wicket of lived consciousness from psychological study.

In Southern California a number of cognitive psychologists chose to return to the psycho-physical roots of their discipline, which emphasizes the *relationship* of the world "out there" to its correlates—or percepts—in the brain (i.e. how does mental

⁴Davis (1992, 54–62); and Tuchman (1971). For more extensive histories on the development and presence of the scientific community and specifically the aerospace industry in Southern California see: Newell (1980) and Koppes (1982), whose work relies upon an in-depth knowledge of the inner workings of the Jet Propulsion Laboratory as gleaned from its (de-classified) records.

imagery arise from engagement with the physical world?). In the work of cognitivist radicals William James' theory of volition gained notable new currency, wherein the direction of attention begets willed action (Neisser 1967, Mandler 1975). James was modest in his claims for willed action, stipulating that experience begets conscious thought and action, rather than the other way around. Nevertheless, he laid the groundwork for an understanding of consciousness as effective rather than mere affect. "We learn all our possibilities by the way of experience. When a particular movement, having once occurred in a random, reflex, or involuntary way, has left an image of itself in the memory, then the movement can be desired again, proposed as an end, and deliberately willed" (James 1890, 1099). In this context, the study of consciousness, rather than being beyond the psychologist's purview, was seen as "respectable, useful and probably necessary" (Mandler 1975). This new group of cognitive psychologists included Ulric Neisser and D.W. Hamlyn, both of whom are listed in a bibliography Turrell compiled for the *Art and Technology* project. Turrell first learned of their work when he earned his B.A. at Pomona College in perceptual psychology in 1965 (Adcock 1990). His work as an artist therefore developed alongside an interest in the language and practice of psychological experiment, a situation that differs from Irwin's, whose scientific and philosophical investigations emerged in the wake of developments in his artistic practice.

Tuchman's *Art and Technology* project afforded the perfect opportunity for Irwin and Turrell to study the nature of attention in the form of a series of "sensory deprivation" experiments. At first Irwin was matched with Lockheed Aircraft and later with Turrell introduced at the Garrett Corporation where the artists were interested in psychological experiments being performed at these facilities. Lockheed's Rye Canyon research facility proved promising for investigating sense and orientation. There, staff used anechoic and other "sensory deprivation" chambers to test human reactions to sensory stimuli in controlled environments. Because an anechoic chamber is so heavily insulated—for both sound and light—any sensory input would (at least theoretically) have to be introduced and perhaps more importantly, could be controlled. For Irwin in particular, who had been expending a great deal of time and effort attempting to reduce contextual distraction in his recent experiments with the disc-paintings, these chambers represented a clean slate in which to investigate experience (Tuchman 1971, 127).

Irwin's "wish list" to Lockheed included "investigations necessary to determine what perceptual awarenesses [sic] are necessary for basic orientation and stability . . . human prowess . . . [and] basic necessities for maintaining sanity" (Tuchman 1971, 127). The question of orientation clearly was foremost in Irwin's mind. Orientation is the phenomenon that allows us to establish our position relative to the circumstances in which we find—or become—ourselves. It is central to any idea of the self in space. When we find ourselves in familiar circumstances orientation is maintained beneath our conscious notice. A subtle interrelation of sensory data and neural adjustment allows us the luxurious illusion of constancy as we go about our days. What is most notable about orientation is its fluidity; it must remain unstable in order to seem consistent. Without this paradoxical structure we could ostensibly lose our balance every time we turn our heads. Neurologist Alain Berthoz

(2000, 91) delineates how the brain constructs this remarkable stabilizing framework through a complex system of checks and balances between sensory input and neural adjustments:

Perception, is an interpretation; its coherence is a construction whose rules depend on endogenous factors and on the actions that we plan. The difficulty in building a theory of coherence is that there is most likely not one single coherent theory for all of perception. . . . This range of possibilities is probably a key to the way illusions are manufactured.

Furthermore, as Berthoz (2000, 29) asserts, the maintenance of sensory coherence relies on input from the brain (still unconscious) that “[modulates] sensory information at its source, to adapt it to the requirements of movement . . .”.

This adaptive mechanism of the neural networks is key to understanding the outcome of some of Irwin and Turrell’s tests. Distraction—that which catches us unaware while attending to something else—became the focus of Irwin and Turrell’s experiments. Unlike the normal “silence” in our lives, which might nevertheless include the hum of machinery or chirping of birds, the silence of the anechoic chamber even blocks out the sounds you make yourself in an odd way. “[I]t was suspended so that even the rotation of the earth was not reflected in it, or any sounds being bounced through the earth”, said Irwin (Weschler 1982, 128), “. . . Nothing went into that space. And no light at all”. Without reverberation, “outside noises” that we may make such as snapping our fingers become overly internalized. There is no *there* in which the snapping can occur. You are well aware that you are snapping your fingers but the sound of that snapping has no resonance. “When I clicked my tongue”, stated one subject, “it had a dull, faraway sound” (Tuchman, 136).

These descriptions indicate that the experience within the chamber was somehow at once incoherent and yet distinctive for that very reason. The question of what constitutes meaningful engagement therefore becomes paramount: how does the experience become *an* experience? This is also a key issue in contemporary consciousness theory; without discernable stimuli, how does coherence in experience come about? Bernard Baars (1997) has proposed that our brains engage in *contrastive phenomenology*, wherein fields of possibilities on a conscious/unconscious continuum (such as “normal versus subliminal perception” and “novel versus routine and automatic processes”) enable us to differentiate perceptual entities and establish orientation. So Baars (1997, 166) argues:

Consciousness appears to be the major adaptive faculty of the brain. Our personal experience of the world is the subjective aspect of that adaptive activity. Philosophical arguments *against* the adaptive function of awareness rely on a little verbal magic, in which we pretend to suck out all the real features of consciousness—usually the ones that happen to be externally observable today—and ask, is anything left after we take away everything, except the last residuum of subjectivity?

In other words, consciousness is not about fixing qualities to perceived objects or categorizing objects according to a rationalized schema; but rather, it is a continuous cycle of adaptation of the percept to an illusionary constancy that keeps us oriented to our surroundings. Situational art forestalls that illusion by intervening with uncertainties. The resultant deferral of perceptual certainty—what *are* we

looking at, through, in?—allows us the luxury of observing the physiological shift that otherwise seamlessly enables adaptation in more quotidian circumstances.

In Irwin and Turrell's experiments it was therefore essential that the subject begin with at least a momentary disorientation, as becomes evident when we consider their plans for building an anechoic environment for the museum exhibition. To establish a base-line disorientation they proposed several interventions both in and out of the anechoic chamber: the chamber was "obscured by either a blind wall or curve"; the chair in which the subject sat would "slowly flatten" and rise on hydraulics so that he was ultimately lying flat on his back in the middle of the room; "sub-threshold light flashes" would be introduced to induce a sensation of hallucination. This project was never realized, but stemmed from the artists' findings with Wortz at Garrett.⁵

Doing nothing was extremely disconcerting to subjects new to the project and they would report feeling uncomfortable after very brief periods (fewer than 10 minutes) while the artists would happily spend hours in the chamber. In the early 1960s Irwin had already been experimenting with a form of self-imposed sensory deprivation by locking himself in his studio for days at a time. There he spent long hours contemplating the perceptual properties of his "line" paintings (large canvases of saturated color interrupted by one, two, or three horizontal lines of another tone). The relentless boredom helped him reduce his art to its essential matter, which ultimately turned out to be his own conscious response. In his biography of Irwin, Lawrence Weschler (1982, 77) describes this eventuality: "Back at home, you may remember what it felt like to stand before the painting, the texture of the meditative state it put you in, but the canvas itself, its image in your mind, will be evanescent". Throughout this development the work became ever more ethereal and conditional. By these meticulously reductive means, Irwin was slowly but persistently breaking down the divide between subject and object.

Considering Irwin's long experience attending to very little, it is possible to presume that he came to the experiments already adapted somewhat to the situation. Irwin and Turrell's extraordinary involvement with the anechoic chamber (according to Irwin, six- to eight-hour stints compared to several minutes for most subjects) was possible because as artists they had already developed attentional faculties that saw more in less, from paying disproportionate attention to what would otherwise be filtered out by a constantly self-regulating perceptual system. In his apology for consciousness as a viable field of study, George Mandler (1975, 30) addresses the exceptional sensory capacities of someone with heightened attentional capacities, usually in meditation:

⁵Some have interpreted this proposal as especially disturbing and manipulative, seeing the viewers as playing the part of unsuspecting test subjects (Perchuk 2006). Though the experience would likely have been discomfiting, I can't agree entirely. Considering that the option to participate would have been solely the viewer's, and that no evidence indicates that the results would be "classified" or that one viewer would be prevented from discussing the procedure with the next, participants could hardly accuse the artists—who if anything were looking for ways to *communicate* the experience—of coercive tactics.

... the relationship between the object or event and ourselves is changed continuously by our mutual relations with the rest of the world. The new information, in a way, is always acquired in new contexts. ... This restriction of possible relations presumably provides not only the illusion but possibly also the reality of depth of perception which the special experience provides. *In contrast, artists and scientists, for example, apparently achieve the same depth of perception of special objects or events without the meditative experience*". [my emphasis]

In other words, as physicists had been asserting for half a century, there may be a whole lot more to nothing than first meets the eye, if one can find a way to reduce the distractions of things sufficiently to attend to it. Asserts astronomer Sten Odenwald (2002, 6):

Space enters our perceptible world only in an oblique way. Because of this, we have to look carefully into our daily experiences to remind ourselves that there is something to wonder about. You need look only as far as the page of this book you are now reading to experience one of the most ancient and puzzling mysteries of the Void. You see the page and its letters; you do not, however, see the space that separates the page from your eyes.

In normal situations we fail to recognize the hidden mechanisms of perception that facilitate illusion. But, writes Robert Irwin (1985, 12): "[a]s one educated and practiced as a painter, my first hint (intuition) that the world of my perceptual and aesthetic concerns might not begin and end at the edge of my canvas was something that had no tangible reality. But my question would not go away and it was soon joined by others".

Without the unattended interstices of our perceptual world, things cannot be *things*. Both Odenwald and Irwin, in their own ways, are demonstrating means of attending to the gaps in our perception. Although not tangible, they play a significant role in perceptual experiences and are "things" to the extent that they have effects. Our relationship with the page depends upon that unseen void which Odenwald describes. The centrality of the canvas depends upon the fact that its context is unattended by the viewer. As proof of this phenomenon, we need only compare this "normalized" experience with that of one of Irwin and Turrell's *Art and Technology* subjects who is placed in a blacked-out anechoic chamber for a period of isolation no longer than 10 minutes. Upon being asked how the room felt, the subject (a 25-year old female student) answered: "Hard to put a shape to it. Flat in front of me. Hallucinations had shallow depth. On looking straight ahead, I felt light converging on the sides as if from behind, but when I turned it was even darker". The subjects repeatedly claimed to have feelings of "convergence" and "claustrophobia". The unseen void that maintains a healthy distance between the world of objects and us breaks down when there are no sensory referents to maintain it. One subject said she felt claustrophobic when she tried to look around. Without reverberation, sounds occur "in the head" or a sneeze "sticks" to the body. Without the transparency of light to see through, air cloaks us and weighs us down, pressing in (Tuchman 1971, 136).

The artists were especially interested in the relationship between sensory response *inside* the sphere and the experience upon stepping *outside* again. As Irwin told Weschler (1982, 129):

There were all kinds of interesting things about being in there which we observed, but the most dramatic had to do with how the world appeared once you stepped out. After I'd sat in there for six hours, for instance, and then got up and walked back home down the same street I'd come in on, the trees were still trees and the street was still a street, and the houses were still houses, but the world did not look the same; it was very, very noticeably altered.

Irwin's "sharp-focus" walk down the street came after several hours in the anechoic chamber but even subjects who spent only minutes there reported that normal sound was sharply louder for some time afterward. Coherence, in a state of perpetually attended blackness, becomes something very different from what "makes sense" on the street. That our sensory organs adjust to circumstance should be obvious to anyone who has stood blinking in the glare when a light is suddenly turned on but that fact is too often conveniently forgotten in our need to stabilize what we see in order to orient ourselves.

Coherence does not therefore inhere in the anechoic chamber, but is a product of perceptual fine-tuning. It is constituted by the relationships between the viewer and her circumstances *and* between one experience and the next. This assertion is supported in encounters with a second important type of device made available to the artists and commonly used in sensory deprivation experiments: the ganzfeld sphere. The ganzfeld is the visual equivalent of an anechoic chamber insofar as it reduces sensory input as nearly to an absolute neutral as possible. The "whole field" of a sphere several feet in diameter sufficient to encompass the viewer's field of vision is finished in a uniform color and must be utterly smooth, as the ganzfeld relies upon a perfectly even distribution of light for effect. By looking at a stimulus of no color variation whatsoever, the experimental subject experiences the sensation of looking at nothing at all. The field of vision becomes utterly formless. There is no horizon or clearly defined object of any sort by which to orient oneself. The effect is one of a strange vast intimacy. In such circumstances color becomes a uniform presence. In the case of the Garrett experiments, the ganzfeld was white but it can be any one color in the spectrum: looking at a yellow ganzfeld for even a brief time will therefore have the "corrective" perceptual effect of making the subject see the world in magenta tones (its spectral opposite) for a time.

Turrell was particularly taken with the possibilities of ganzfeld, and has subsequently used it often in his work, in various colors. Ganzfeld technology and related light diffusion experiments transform the bare white cube of the exhibiting space, perhaps even rendering it wondrous: Turrell's light experiments reveal that its neutrality is an illusion. Turrell's *Virga* (1974) is one of a series of situational works, including work by Robert Irwin and others, commissioned by Count Giuseppe Panza for his private collection (now publicly held in trust by the Guggenheim Foundation). In the installation at Villa Panza in Varese, Italy the artist used ganzfeld effects to transform a plain white room into a situation for looking at light rather than with it. Two rhomboid veils of natural light appear to descend from thin, diagonal fissures hidden in the ceiling of a long, narrow, white room (12.25' wide × 14.67' high × 30.75' long; 3.73 × 4.47 × 9.37 m); the effect is one of separating the rectangle of the room into shrouded thirds. It does not serve to enhance the salience of

an art object, but holds in the visitor's attention an awareness of her own sensibilities to light and space. As the light in Northern Italy changes in intensity throughout the day, and throughout the year, and as the viewer moves through the space, the effect is altered, so that the work is continually revised and renewed, a continual and nuanced reminder of the contingent nature of perception.

The strange sense of displacement brought about by looking into the ganzfeld makes it a popular tool in para-psychological research in addition to the kind of psycho-physical research performed at Garrett Corporation. There, like the anechoic chamber, the ganzfeld was used for experiments in sensory deprivation. Certainly the extent and nature of the group's experiments suggest that the work could at times be considered more para-psychological than psycho-physical, as it expanded to include experiments in alpha conditioning and Buddhist meditation practices (Tuchman 136, 137). Indeed, the extent to which these artists conflate sensory deprivation, meditation, and aesthetic experience proffers an important insight into their approach and practice. Ed Wortz asserted that Robert Irwin for one engaged in sensory deprivation as part of his artistic practice (Tuchman 1971, 139). When we consider Irwin's previously noted tolerance for tedium when making his line paintings, Wortz has a valid point. We come to understand that for these artists sensory deprivation constitutes a framework for creativity. The anechoic chamber and the ganzfeld are therefore not artistic media—that is perception—but the means of returning to a posture of inquiry. In this regard, they are of equal value to the artist as to the neurophenomenologist seeking a practical yet controlled means for studying first-person consciousness. The rise of cognitive psychology in Southern California meant that Irwin and Turrell could avail themselves of an experimental infrastructure wherein the subject perceived himself perceiving. This conflation of the phenomenology of the artist and the experimental discipline of the scientist closed a gap long held open by significant forces in both fields.

White Cube and Black Box: Exposing the Explanatory Gap in Modernism and Behaviorism

Having placed the artistic enterprise of Irwin and Turrell in historical and intellectual context, this section will demonstrate how their art challenges central tenets of both disciplines from which it draws. For in mid-twentieth-century American art, the material and immaterial realms of conscious reality were compartmentalized by Clement Greenberg and his formalist followers—by way of the white cube. Simultaneously, in the then-regnant school of B.F. Skinner's radical behaviorist psychology, these realms were commensurately bracketed by way of the black box. In casting embodied experience aside as either inscrutable or irrelevant, each methodology maintains its disciplinary autonomy: the behaviorist is only concerned with recorded actions; the formalist with visualizing ideals. To maintain this autonomy, however, is also to maintain an explanatory gap that has become a focus for cognitive studies in the past half century. Susan Blackmore offers a forthright description

of the problem (2006, 261): “The gap in explanation between mind and brain, inner and outer, objective and subjective, or the physical world and consciousness, or the claim that facts about the physical world can never satisfactorily explain facts about consciousness”. While behaviorism describes experience from the outside and formal analysis does the same from the inside (the eye as mind) the relationship between the two remains unconsidered. What this section will show is how Irwin and Turrell collapsed both disciplinary and inter-disciplinary boundaries by using the black box and white cube as artistic materials, rather than as theoretical frames.

In psychological circles, the “black box” was an effective metaphor for consciousness, inscrutable and isolated from observable behavior. A commonplace in psychological parlance, “black box” in this context refers specifically to the complex biological mechanism that includes the brain and its attendant inner workings (central nervous system, or “CNS”) including conscious thought; it is invisible to the outside observer, operating for the most part beneath our conscious notice. It is “black because we cannot see inside it” (Hamlyn 1990, 3). The term “black box” is generally attributed to B.F. Skinner, but is more widely proliferated by those who oppose his views; nevertheless, it is he who insisted that objectively verifiable data is the sole concern of psychological research. In his words, radical behaviorism “does not deny the possibility of self-observation or self-knowledge or its possible usefulness, but it questions the nature of what is felt or observed and hence known” (Skinner 1974, 16). Introspection is environmental “collateral”; thus, what is empirically observed is effectively severed from what is intellectually thought within the observed subject.

Commensurately, the white cube fosters an environment in which the sensing individual plays only a supporting role to a disembodied and discerning “eye”. So critic Brian O’Doherty has trenchantly observed:

Art exists in a kind of eternity of display, and though there is lots of “period” (late modern), there is no time. This eternity gives the gallery a limbo-like status; one has to have died already to be there. Indeed, the presence of that odd piece of furniture, your own body, seems superfluous, an intrusion. The space offers the thought that while eyes and minds are welcome, space-occupying bodies are not—or are tolerated only as kinaesthetic mannequins for further study (1976, 15).

The “white cube”, or high modern gallery, provided a pristine, even antiseptic, means of separating life from art. While interpreting very different material or data, with the black box and white cube both behaviorist psychologists and formalist critics nevertheless omitted the same element—embodied experience. Doing so enabled the professional observer, whether critic or scientist, to maintain a position that (his) description suffices as explanation.

In this environment, where science and art occupied mutually non-transgressable realms, Robert Irwin and James Turrell adopted a middle position. Coincident with cognitive psychology, they asserted that felt experience is the essential *matter* of art rather than the stuff of traditional artistic media. Works like Turrell’s *Virga* undermine the idealizing potential of the exhibiting space by calling attention to its spatial, temporal, and human contingencies. *This* particular white cube cannot be *the* white cube. In this regard, the work of such “phenomenal” artists differs sharply from that

of conceptualists, which is fundamentally propositional rather than experiential. As described by the conceptualist Joseph Kosuth: “For the artist, as an analyst, is not directly concerned with the physical properties of things . . . [The] propositions of art are not factual, but linguistic in character . . . ; they express definitions of art, or the formal consequences of definitions of art”.⁶ Instead of doing away with art or “dematerializing” it, Irwin and Turrell shifted the notion of what constitutes “material”. In order to take such a stance, however, they needed to accept a position that human consciousness is accessible rather than epiphenomenal (acting only upon itself in metaphysical isolation). The conditional art of Irwin and Turrell necessarily pries open the black box and in so doing, undermines, or even obliterates, the presumed neutrality of the white cube, revealing its profound contingency.

In piercing and vitalizing the pristine space of the white cube, Irwin and Turrell were simultaneously provoking engagement with formalist aesthetics and the black-boxing of experience it privileged. In an artists’ statement given in conjunction with the *Art and Technology* experiments (Tuchman, 128) Irwin and Turrell wrote: “A problem may arise with this project in the minds of the art community who may regard it as ‘non-art’ – as theatrical or more scientific than artistic or as being just outside the arena of art. Although it is a strong alteration as far as methods, means, and intent, we believe in it as art, and yet recognize the possibility of a redefinition needed to incorporate it into the ‘arena.’”

This can only be interpreted as a direct challenge to the formalist critic Michael Fried. In his epochal and still provocative essay “Art and Objecthood” of 1967, Fried had used the term “theatricality” to describe “non-art”, and in particular the “literalism” of minimal sculpture. While Michael Fried’s essay serves as my key example for pointing out some limitations of formalist criticism (specifically because of his well-known reading of minimal art as “literalism”) he belongs to a larger and influential tradition that owes a great deal to the work of his onetime mentor, Clement Greenberg. Greenberg (1962) advocated a strict adherence to medium specificity: i.e. a painting must be evidently so, rather than posing as image, which is illusionistic. The miscegenation of arts such as sculpture and painting would therefore obscure the role of media. According to these criteria, Fried can rightly claim that minimal art is transgressive, wherein mere objects inappropriately pose as sculpture.

Tony Smith’s *Die* (1962) is quintessentially minimal. It is unreadable, impermeable. *Die* is 72 inches (182.88 cm) cubed, made of steel, and painted black: factually, a black box. Yet oddly, in 1967 Fried asserted that it was the latent anthropomorphism of such a thing that made it so “literal”. *Die* is the height of a large man; furthermore, Smith had it placed directly on the ground/floor rather than raised on a plinth or dais; it shares a space and scale with its viewers. These apparently human qualities in fact undermine its role *as art* as far as Fried is concerned (1967, 155–156): “. . . the entities or beings encountered in everyday experience in terms that most closely approach the literalist ideals of the nonrelational, the unitary, and the holistic are *other persons*”. *Die*’s apparent muteness gets at the heart of the

⁶Joseph Kosuth, quoted in Alberro and Stimson (1999, xxxi n. 7).

problem of literalist art for Fried. The sculpture remains tethered to its circumstances, offering nothing to supersede them as far as the critic is concerned, a mere object rather than a work of art.

To Fried, the intransigence of the object deflected viewer attention onto its context, including the viewer's own immediate experience (which, as behaviorists would point out, is unreliable as evidence). In the same essay, Fried recounts an anecdote from Smith where the artist suggests that an epiphanic experience on the New Jersey turnpike may well be "the end of art" for him. For the critic, the described experience is no more than an "empty, or 'abandoned' *situation*"; lacking an art *object*, it cannot be art at all. The situation, he asserts, "reveal[s] the theatrical character of literalist art, only without the object, that is, without the art itself—as though the object is needed only within a *room*" (Fried 1967, 159). In this essay Fried clearly delineates what he considers to be the risks of "dematerializing" art and offers a means by which we might distinguish art from non-art (or art from "theater"). Thus, the essay becomes an important point of rupture between Greenbergian formalist criticism and artistic practices in the 1960s and 1970s that refused to acknowledge modernist parameters (Lee 2006).

Fried does not specifically mention the work of any of the California artists upon which this study is based; "Art and Objecthood" references minimal art being made in 1960s New York. But, though Fried (1964) at one time wrote positively about Irwin's early work, we can infer from his critique of minimalist work by artists such as Smith, Robert Morris, and Donald Judd that Irwin's later work as well as Turrell's, would be interpreted as "theatrical". However, the limitations of Fried's methodology show up in any world that accepts Robert Irwin's *I°2°3°4°* (1997) as art. *I°2°3°4°* can be aptly described in Fried's terms as a situation that is not only "empty" but continuously emptying. In this work, Irwin facilitates interplay between the museum gallery and external conditions of its coastal Southern California setting (the Museum of Contemporary Art in La Jolla). The gallery space is an odd off-shoot from the main museum structure; at the end of a corridor, the visitor finds herself in a room surrounded by picture windows, two of which intersect the corners on either side of the facing wall (room dimensions: 9.6 × 26.7 × 18.41 ft; 29.21 × 81.28 × 56.13 m). Through the windows one views a panorama of the Pacific Ocean, the rocky coast, and the museum gardens immediately below. Three precise, apparently square, cuts in the heavy glass windows release the stale museum air while admitting unfiltered light and the sound of the surf below, intermingled with the sights and sounds of human activity both beyond the walls and within them. Two of the apertures on either side (24" h × 30" w; 60.96 × 76.2 cm) intersect the windows at the corners of the room while the center cut mitered (24" h × 26" w; 60.96 × 66.04 cm) is flush with the glass. In the mid-1960s, while experimenting with the perceptual properties of canvas size, Irwin discovered that a perfect square will appear slightly elongated to a typical viewer. To achieve perceived *squareness*, he stretched canvases that were slightly rectangular. With *I°2°3°4°* he evidently used the same principle. Though the cuts are neither square nor equal in dimensions, they appear as such to the museum visitor. The room, transformed into an aesthetic situation by whomever views it as such, requires no object. *I°2°3°4°*,

derived from negation, owes its fluctuating presence to the conscious attention of its viewer/listeners, and ceases to exist *as art* in their absence. In this sense *I²3⁴* is a late manifestation of what Andrew Perchuk (2006) has deemed Irwin's "refusal of the gestalt", the artist's persistent concern with the dynamic immediacy of the work.

Irwin's insistence that the properties of a work of art are experientially contingent departs from the behaviorist psychological model that had dominated in American laboratories and universities for the first half of the twentieth century, and which had been implicit in Fried's critique. Positing *behavior* as the appropriate subject for scientific testing, behaviorist psychology dismissed the idiosyncrasies of subjective experience as the purview of psychoanalysis and philosophy. B.F. Skinner (1974, 207) explains: "A person is first of all an organism . . . The organism becomes a person as it acquires a repertoire of behavior under the contingencies of reinforcement to which it is exposed during its lifetime. The behavior it exhibits at any moment is under the control of a current setting. It is able to acquire such a repertoire under such control because of processes of conditioning which are also part of its genetic endowment". Non-behavioral factors in human development such as thought, feelings and ideas belong (to Skinner's way of thinking) to a mentalist viewpoint: because it is manifest, behavior is the only aspect of human learning not "locked in" the black box. It is not that Skinner does not acknowledge the phenomenology of the situation, but its idiosyncratic messiness and apparent immateriality force him to leave it aside. The behaviorist's means of dealing with this problem is to conduct his experiments in a laboratory where phenomenal nuances can at least be constrained if not controlled outright.

The prevalence of behaviorist paradigms in mid-century America is evident in the ways in which its methods even seep into mid-twentieth-century American art critical discourse. In Fried's analysis, artistic properties inherent to the work of art elicit recognition in the beholder: *if* there is any alteration it is on the part of the viewer. This is apt if your model is a behaviorist one, which charges that input and output—more commonly referred to in psychological circles as "stimulus" and "response"—constitute the measurable (and therefore appropriately material and scientific) content of human experience. Fried's oddly passive approach opens up a gap between input—the observable qualities of an object—and output—response. How does this transaction occur? The possibility of conscious *input* on the part of the viewer is foreclosed; meaning is seen as residing within the work of art rather than emerging through the engaged attention of a living brain/body. In the formalist artworld, this interaction between art stimulus and responsive viewer takes place in a carefully prescribed environment meant to maximize stimulation: the white cube. Like its scientific counterpart, the behaviorist lab, the museum gallery was designed to be as ideally "neutral" as possible (its own salience minimized by white paint and muted lighting).⁷ The white cube was meticulously tended to in order to prevent

⁷The laboratory analogy is by no means isolated, nor was it particularly new by the middle of the twentieth century. In 1905, for example, the trustees of the Boston Museum of Art specially

viewers from being distracted; by declining to include an object/stimulus Irwin and Turrell instead direct viewer attention to the cube/space itself.

From the artists' perspective, there is little if any difference between a gallery, a laboratory, and an artist's studio: each is a site for ongoing experimentation. For Turrell in particular the use of scientific experimental devices was a natural extension of much of his previous work, since he had studied experimental psychology in college. He was also well versed in the terminology and methodology and (perhaps as importantly) in phenomenological philosophy. His *Mendota Stoppages* (1969–1974) was an on-site installation in his Santa Monica studio where the artist emptied out the space and then “stopped up” the windows except for carefully controlled apertures which allowed the ambient external light (sunshine in the daytime, streetlights and passing cars at night) to animate the space. The work of art was utterly temporal; the light played upon the walls as the sun set, as the streetlights came on, and then more urgently as passing headlights breached the stoppages and crisscrossed the interior walls. Turrell's interventions operated in an analogous way to the stops in an organ, by simultaneously suppressing and admitting light. Night-time was the lively movement that followed a sedate daytime pattern. In direct contrast to the expressive object, then, this work allowed salience to “leak in”.⁸

To think of conception as something physical and contingent is to undermine the formalist ideals of art with experiential immediacy and to muddy the science of behaviorism with philosophy. To a formalist, the work of art emanates or communicates its secrets to an attentive but otherwise passive viewer; likewise, in a behaviorist laboratory, the stimulus acts to evoke response. Meaning, understood as immeasurable and atemporal, is therefore set apart from the immediate situation in which it is encountered. Although far from taking any psychological stance in art criticism, Fried shares with behaviorists an understanding of experience as off-limits to analysis. I think this is what makes something like Tony Smith's *Die* so “human” to him (apart from its human scale). The sculpture “hides its thoughts”: “[T]he apparent hollowness of most literalist work—the quality of having an *inside*—is almost blatantly anthropomorphic. It is, as numerous commentators have remarked approvingly, as though the work in question has an inner, even secret life . . .” (1967, 156). Whereas for Fried (and for behaviorists) an *art* object—or stimulus—is expressive, while the beholder—or test subject—absorbs its qualities: what she brings to the situation (or more specifically, how she constructs it) is less important

commissioned an experimental gallery for the purpose of testing conditions especially lighting conditions in a scientific manner (Gilman 1905, 1906). Excessive glare and shadow especially were to be avoided. The Boston trustees' prejudice in favor of the eye (rather than brain) as the critical viewing organ continued in the preparation of gallery spaces elsewhere in twentieth-century America. Seventy years later Brian O'Doherty (1976, 29) asserted how this prejudice had come to dominate curatorial practice: “It is now impossible to paint up an exhibition without surveying the wall like a health inspector . . .” The irony of discussing these experiments in this context is that light and space art often consists of *nothing but* glare and/or shadow.

⁸James Turrell, in conversation with Jan Butterfield in Butterfield (1993, 69–71); Turrell (1980, 27–29).

than what she understands the work of art to be “saying”. By contrast, situational art such as Irwin’s and Turrell’s shows the character of any object to be dependent upon what goes on inside the observer’s own “black box.”

As a formalist, though, Fried is also a keen observer of the phenomenology of his own experience. He therefore provides well-articulated evidence for anyone seeking to explain how aesthetic engagement takes place. In establishing minimal art as “non-art” Fried effectively describes its contingent nature, pointing out the ways in which situational art reveals to us our own conscious roles in constructing aesthetic experience (Fried 1967, 155):

It is, I think, worth remarking that ‘the entire situation’ means exactly that: *all* of it—including it seems, the beholder’s *body*. There is nothing within his field of vision—nothing that he takes note of in any way—that declares its irrelevance to the situation, and therefore to the experience in question. On the contrary, for something to be perceived at all is for it to be perceived as part of the situation. Everything counts—not as part of the object but as part of the situation in which its objecthood is established and on which that object at least partly depends.

Regarding Fried’s mistrust of the temporality of minimal art in “Art and Objecthood”, Pamela Lee (2006, 38) writes: “. . . no text articulates the particular mechanics of minimalism’s reception as brilliantly as it does, in spite of its antagonism toward the work in question”. For Fried’s assessment to make sense to a “literalist” however, the definition of “situation” must include conscious thought. Fried stops short of doing so by drawing a line at perception, attributing it only to the body; understanding is not likewise situated. He thus effectively bisects thought into two spheres: literal and abstract.

Robert Irwin made a discovery similar to Fried’s—that everything counts—but in his case it turned him toward an integrated situational approach: site *conditioned* rather than site specific. By taking this stance he opened up for dialogue the spheres of experience closed off by modernist ideals and behaviorist restrictions (1985, 26): “*Being and circumstance*, then, constitute the operative frame of reference for an extended (phenomenal) art activity, which becomes a process of reasoning between our mediated culture (being) and our immediate presence (circumstance)”.

Light and space work continues to make use of the essential function of the white cube as a space apart; to foster an environment that suspends perceptual certainty this must be so. In everyday life we are far too reliant on our swiftly adjusting faculties to be aware of what they are accomplishing. In *Inside the White Cube* (1976, 78), Brian O’Doherty claims that in the 1970s the white cube was being challenged in an understated way by what I have been terming situational art (including a cross-section—and cross pollination—of minimalism, performance, video, and site-specific work): “[Seventies art] is not in search of certainties, for it tolerates ambiguity well”. The critique of the white cube implicit in Irwin and Turrell’s investigations is made on purely—and deeply—aesthetic grounds. Thus, they differ from interpretations of the “white cube” that see it as excluding social discourse from the space, instead choosing to embrace and reveal the experiential possibilities of the white cube, and in so doing undermining its assumptive in-transience. A work like Irwin’s *I° 2° 3° 4°* achieves this by interrupting the viewer’s thoughts

with sensations—the smell and sound of the ocean, the coolness of the breeze—calling attention to the museum’s situatedness. Similarly, Turrell with the *Mendota Stoppages* and with *Virga*, perforated the gallery walls and ceilings, engaging the vicissitudes of urban life and weather to create a perpetually conditional art.

In contrast, Michael Fried requires that art have “presentness”, a quality superseding circumstance. Nevertheless, he relies on his own situated experience to make this claim: his only means of determining that such an atemporal quality belongs to a work of art is to indeed engage with the art in question in real time. In this case, *what* he feels is proffered as the explanation for why he feels it: a behaviorist error. By citing “presentness” as an *a priori* characteristic of artistic (as opposed to “theatrical”) phenomena Fried “[ignores] first-person phenomenological as well as third-person empirical constraints in the formation of [his] basic conceptual tools” (Metzinger 2003, 3). He has transformed a conditional physiological response into an objective criterion of aesthetic judgement, and so “abstracts logical principles from incarnate inquiry and attempts to safely ensconce them in the Museum of Eternal Forms” (Johnson 2007, 106). He expects that another viewer will recognize “presentness” when she comes across it; but by doing so, Fried must himself extort complicity from the reader.

In an interview Irwin described how the *Art and Technology* experiments loosened the hold of such abstract constructs (Weschler 1982, 129):

I think that what happens is that in our ordinary lives we move through the world with a strong expectation-fit ratio which we use as much to block out information which is not critical to our activity. . . . So that what the anechoic chamber was helping us to see was the extreme complexity and richness of our sense mechanism and how little of it we use most of the time. We edit from it severely, in time to see only what we expect to see.

A description of the stimulus does not explain how or why we are stimulated. This is the key limitation in Fried’s methodology as it is of behaviorism. Looking back on his decision to begin to explore a conditional art Irwin (1985, 23) wrote: “It takes a peculiar kind of compounded belief to plan, proselytize, or thrust your abstractions onto the world”. If we take a formalist’s approach the question of what constitutes aesthetic experience is necessarily set aside for the sake of a rigorous determination of what constitutes the correct properties of an art stimulus. Max Kozloff described the same problem with regard to Fried’s one-time mentor Clement Greenberg (Newman 2000, 168):

The will to convince is not the same as earning your convictions. Now, Greenberg made sure to separate his descriptions from his judgments; they really didn’t evolve from his explaining, though they gave the illusion that they did. All other contentions against him are secondary, compared with this one. He had decided the worth of an artist “off stage”, according to his scheme, rather than by virtue of the particular artistic “phenomena”.

A similar problem arises with regard to the explanatory gap in cognitive science. There, the neuronal processes of the brain are observed in ever-increasing detail and yet, as Francisco Varela pointed out, that work takes place in circumstances, both literal and theoretical, that alienate them from first-person, individuated, circumstantially-contingent human life. Varela (1996) asserted that the gap could

only be bridged by inserting “disciplined, first-person accounts” of experience into the scientific study of consciousness. In neurophenomenological terms: “. . . explaining what is happening inside the black box is not explaining what is happening *for* the black box, so to speak. It is one thing to try to account for what is going on in the brain—at whatever level of explanation—. . . and another one to try to account for what we feel or think is going on. . .” (Petitot et al. 1999, 12). Varela’s proposed solution was to “naturalize phenomenology”, establishing a “scientific study of the processes of the phenomenalization of reality”. Varela clarifies: “I will not provide a naturalized account in the sense of ‘explaining away’ or ‘giving substance’ to the phenomenological description. My aim is just as much to naturalize phenomenology as it is to phenomenologize cognitive science” (Petitot et al. 1999, 577, n.1). In this regard, he shares a posture of inquiry with Irwin and Turrell, who wanted to study the process of perception *as it occurs*, rather than from the standpoint of theories for how it ought to, or is understood to, occur.

Behavior does not necessarily require consciousness to guide it; we conduct our lives to a large extent via unconscious means (Damasio 1999). But experience is another matter; it is shaped by our thoughts and memories, and aesthetic experience in particular is delineated by way of attention, an alert and directed form of interest. A critic necessarily hones his attentional faculties on works of art, providing him with more material from which to articulate the experience. Consciousness follows attention slavishly. As William James (1890, 381) puts it: “Only those items which I *notice* shape my mind—without selective interest, experience is an utter chaos. Interest alone gives accent and emphasis, light and shade, background and foreground—intelligible perspective, in a word”. To be sure, the sensory properties of the art object serve to snare and possibly hold that attention, but the experiments of light and space artists undermine the role of salience by presenting situations where all the perceptual ‘snags’ have been smoothed out, leaving us with no *thing* to attend to, and yet there is no denying the intensity of somehow “un-stimulated” viewer response. Asked to attend to a vacuum, the viewer can make art of anything, or even of nothing. What Robert Irwin and James Turrell show so well is that this murky transitional realm allows us to get beyond the categorizing “what” questions of behaviorism and formalism (i.e. of what do they consist?) to the “how” questions of art and consciousness (i.e. how and whence do they emerge?).

Conclusion

Until the 1960s, rationalizing schemas had enabled a body-mind divide in twentieth-century American art and psychology. For the New York-centered art world, such a schema meant the “neutral” white cube. For the behaviorist, it was the off-limits “black box” of consciousness. The work of modernist art critics such as Michael Fried on the one hand and behaviorist psychologists like B.F. Skinner on the other allowed for ideas (the purview of philosophers and critics) to be abstracted

from action (the realm of behaviorist psychologists), effectively exacerbating the explanatory gap. In each of these cases, the analytical method precludes the viewer-subject from recognizing her role as the agent in which actions and ideas integrally emerge. In Southern California, however, developments in quantum physics and space exploration were rapidly undoing Newtonian paradigms of a stable, measurable, and atomized world. Astronautics necessitated a psychology that could accommodate novel and disorienting states. Cognitive psychology in turn assumed an embodied mind for which consciousness was understood to be a material process. In this setting Maurice Tuchman launched the Los Angeles County Museum of Art's *Art and Technology* Program (1968–1971) where Irwin and Turrell investigated the parameters of perceptual thresholds with sensory deprivation devices such as the anechoic chamber and ganzfeld sphere. Both in effect were like the white cube (absent an art “object”), providing undifferentiated spaces for contemplation. But Irwin and Turrell's experiments pushed the logic of the gallery space to such an extreme that they proved the impossibility of its presumed neutrality. To understand how these circumstances become artistically meaningful singularities, the behaviorist input-output model must be replaced by one more robustly phenomenological. Current work in neuropsychology that recognizes the contingencies of conscious experience provides that insight. An insistence upon the conditional nature of experience displaces the presentness of autonomous art with absences, leaving (quite literally) nothing to which one can attach attributes and opening the door to a situational approach.

References

- Adcock, C., (ed.) (1990), *James Turrell: The Art of Light and Space*. Berkeley, CA: University of California Press.
- Alberro, A. and Stimson, B. (eds.) (1999), *Conceptual Art: A Critical Anthology*. Cambridge, MA: MIT Press.
- Baars, B. (1997), *In the Theater of Consciousness*. New York: Oxford University Press.
- Berthoz, A. (2000), *The Brain's Sense of Movement*. Cambridge, MA: Harvard University Press.
- Blackmore, S. (2006), *Conversations on Consciousness*. Oxford: Oxford University Press.
- Butterfield, J. (1993), *The Art of Light and Space*. New York: Abbeville Press.
- Cage, J. (1961), *Silence: Lectures and Writings by John Cage*. Hanover, NH: Wesleyan University Press.
- Churchland, P. (1986), *Neurophilosophy*. Cambridge, MA: MIT Press.
- Compton, M. (1970), *Larry Bell, Robert Irwin, Doug Wheeler*. London: Tate Gallery of Art.
- Damasio, A. (1999), *The Feeling of What Happens*. New York: Harcourt, Brace & Company.
- Davis, M. (1992), *City of Quartz*. New York: Vintage Books.
- Dewey, J. (1934), *Art as Experience*. Chicago, IL: University of Chicago Press.
- Emmerik, P. V., in collaboration with Herbert Henck and Andrés Wilhelm (2003–2007), *A John Cage Compendium*. <http://www.xs4all.nl/~cagecomp/>
- Flores-González, L. M. (2008), “Phenomenological Views on Intersubjectivity: Towards a Reinterpretation of Consciousness”, *Integrative Psychological and Behavioral Science* 42: 187–193.
- Fried, M. (1964), “New York Letter”, *Art International* 8: 81–82.
- Fried, M. (1967), “Art and Objecthood”, reprinted in Michael Fried (1998), *Art and Objecthood*. Chicago, IL: University of Chicago Press.

- Gilbert-Rölfe, J. (1993), "Expression: Lines, Dots, Discs; Light", in R. Ferguson (ed.), *Robert Irwin*. Los Angeles: Museum of Contemporary Art, Los Angeles, NY: Rizzoli Publications, 93–111.
- Gilman, B. (1905), "The Museum Commission to Europe", *Communications to the Trustees*, III. Boston, MA: Boston Museum of Fine Arts.
- Gilman, B. (1906), "The Experimental Gallery", *Communications to the Trustees*, IV. Boston, MA: Boston Museum of Fine Arts.
- Greenberg, C. (1962), "After Abstract Expression", *Art International* 1: 24–32.
- Hamlyn, D. W. (1961), *Sensation and Perception*. New York: Humanities Press.
- Hamlyn, D. W. (1990), *In and Out of the Black Box: on the Philosophy of Cognition*. London: Basil Blackwell.
- Husserl, E. (1991), *Ideas Pertaining to a Pure Phenomenology and a Phenomenological Philosophy, First Book: General Introduction to a Pure Phenomenology*, trans. Fred Kersten. Dordrecht and Boston, MA: Kluwer Academic Publishers.
- Irwin, R. (1970–2004), Robert Irwin Papers, Getty Research Institute, Research Library, Accession no. 940081.
- Irwin, R. (1977), *Robert Irwin*. New York: Whitney Museum of Art.
- Irwin, R. (1985), *Being and Circumstance*. Larkspur Landing, CA: The Lapis Press.
- James, W. (1890), *Principles of Psychology*. Cambridge, MA: Harvard University Press.
- Johnson, M. (2007), *The Meaning of the Body*. Chicago, IL: University of Chicago Press.
- Judd, D. (1969), "Complaints: Part I", *Studio International* 177: 166+.
- Koppes, C. R. (1982), *JPL and the American Space Program*. New Haven, CT and London: Yale University Press.
- Leider, P. (1966), *Robert Irwin*. Los Angeles, CA: Los Angeles County Museum of Art.
- Lee, P. (2006), *Chronophobia: on Time in the Art of the 1960s*. Cambridge, MA: MIT Press.
- Magnifico, M. and Lucia B. D. (2001), *Villas Menafoglio Litta Panza and the Panza di Biuomo Collection*. Geneva, Milan: Fondo per L' Ambiente Italiano.
- Mandler, G. (1975), "Consciousness: Respectable, Useful, and Probably Necessary", in R. L. Solso (ed.), *Informational Processing and Cognition: The Loyola Symposium*, New Jersey: Erlbaum, 229–254.
- Metzinger, T. (2003), *Being No One*. Cambridge, MA: MIT Press.
- Miller, G. A. (2003), "The Cognitive Revolution: A Historical Perspective", *Trends in Cognitive Sciences* 7: 141–144.
- Neisser, U. (1967), *Cognitive Psychology*. New York: Appleton-Century-Crofts.
- Newell, H. (1980), *Beyond the Atmosphere: Early Years of Space Science*. Washington, DC: Scientific and Technical Information Branch, National Aeronautics and Space Administration.
- Newman, A. (2000), *Challenging Art: Artforum 1962–1974*. New York: Soho Press.
- Odenwald, S. F. (2002), *Patterns in the Void*. New York: Westview Press.
- O'Doherty, B. (1976), *Inside the White Cube* (expanded edition, 1986). San Francisco, CA: Lapis Press.
- Palmer, S. E. (1999), *Vision Science: Photons to Phenomenology*. Cambridge, MA: MIT Press.
- Perchuk, A. (2006), "From Otis to Ferus: Robert Irwin, Ed Ruscha, and Peter Voulkos in Los Angeles", Ph.D. dissertation, Yale University.
- Petitot, J., Varela, F. J., Pachoud, B. and Roy, J.-M. (eds.) (1999), *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*. Stanford, CA: Stanford University Press.
- Pinker, S. (2002), *The Blank Slate*. New York: Viking Press.
- Robertson, W. G. and Wortz, E. C. (1969), *The Effects of Lunar Gravity on Metabolic Rates*. Washington, DC: National Aeronautics and Space Agency.
- Schrödinger, E. (1935), "The Present Situation in Quantum Mechanics", trans. J. D. Timmer, *Proceedings of the American Philosophical Society* 124: 323–338.
- Skinner, B. F. (1964), "Man", *Proceedings of the American Philosophical Society* 108: 482–485.

- Skinner, B. F. (1974), *About Behaviorism*. New York: Alfred A. Knopf.
- Smith, D. W. (2007), *Husserl*. London: Routledge.
- Thompson, E., Lutz, A., and Cosmelli, D. (2005), "Neurophenomenology: An Introduction for Neurophilosophers", in Andrew Brook and Kathleen Akins (eds.), *Cognition and the Brain: The Philosophy and Neuroscience Movement*, Cambridge, UK: Cambridge University Press, 40–97.
- Tuchman, M. and Livingston, J. (1971), *A Report on the Art & Technology Program of the Los Angeles County Museum of Art 1967–1971*. New York: Viking Press.
- Turrell, J. (1980), *James Turrell, Light and Space*. New York: Whitney Museum of American Art.
- Varela, F. J. (1996), "Neurophenomenology: A Methodological Remedy for the Hard Problem", *Journal of Consciousness Studies* 3: 330–350.
- Vitz, P. C. and A. Glimcher (1984), *Modern Art and Modern Science: The Parallel Analysis of Vision*. New York: Praeger.
- Watson, J. B. (1925, rev. ed. 1930), *Behaviorism*. New York: W.W. Norton.
- Weschler, L. (1982), *Seeing is Forgetting the Name of the Thing One Sees*. Berkeley, CA: University of California Press.
- Whiting, C. (2006), *Pop L.A.: Art and the City in the 1960s*. Berkeley, CA: University of California Press.