SIGNALING STATIC: ARTISTIC, RELIGIOUS, AND SCIENTIFIC TRUTHS IN A RELATIONAL ONTOLOGY

by Robert Matthew Geraci

Abstract.   In this essay I point toward the difficulties inherent in ontological objectivity and seek to restore our truth claims to validity through a relational ontology and the dynamic of coimplication in signals and noise. Theological examination of art and science points toward similarities between art, religion, and science. All three have often focused upon a "metaphysics of presence," the desire for absolute presence of the object (the signified, the divine, the natural object). If we accept a relational ontology, however, we must accept that the revelation of presence is always simultaneously a concealment. This helps explain technoscientific achievement without recourse to a philosophically flawed objectivity. Twentieth-century information theory shows the impossibility of a "pure signal." By accepting that signal and noise are permanently interconnected, we begin to see how noise makes signal possible and even how noise becomes signal (allowing the discovery of novel facts). Information theory thus underscores important similarities and leads toward new approaches in aesthetics, Christian theology, and scientific research. By comparing art, religion, and science, I argue that rejecting a metaphysics of presence without rejecting presence itself allows human beings to know the world. Although religion, science, and art often seek the absolute presence of their objects, they function better without.

Keywords: aesthetics; art; epistemology; iconophilia; information theory; Bruno Latour; metaphysics of presence; noise; objectivity; ontology; philosophy; relationality; religion; science; Michel Serres; signal; subject; subjectivity; Mark C. Taylor; theology.

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WORLDLY WISDOM

A loss of absolute truth has attended the death of God, and that missing truth opens what might be an unbridgeable abyss between humans and knowledge.[1] If such a gap exists, however, how is it that our scientific endeavors retain such power? What does it mean to claim that there are no transcendental positions or objective perspectives while our technology grows in its capacity with every passing year?

As soon as philosophy exempts correspondence with the "outside world" from its realm of possible epistemological positions, one begins to wonder what knowledge can mean at all. An instrumentalist position, whereby science is merely useful without maintaining the ontology that formerly accompanied it, does not offer a satisfactory metaphysical position. If scientific research does not actually approach or address the "real" world outside of human understanding, how does technology continue to make such dramatic advancements? For the instrumentalist, truth becomes a catch phrase for religious (and perhaps scientific) fundamentalists but becomes passé in the world of philosophy, a gauche anachronism that must be discarded by the theoretically sophisticated (Rorty 1979, 359–77; van Fraasen 1994, 133; Feyerabend 1994, 145). Unless we are to assume, however, that truth has nothing to do with knowledge and that the knowledge itself, therefore, has nothing to do with the world of which we are a part, we must discover ways of discussing ontology and epistemology within the scope of the human experience.

In order to account for how humans obtain knowledge, we must redefine truth. Truth defined as the objective, transcendental view of the world cannot be supported. In the mid-twentieth century, advances in information theory and philosophy combined to establish a network and information theory that reapproaches truth; truth is fluctuating and temporal rather than static and eternal. Truth never comes to us as full presence, but its presence is always simultaneously an absence. To establish this new definition of truth, I argue that both the subject and the object are thoroughly relational entities. Relational entities must by nature change over the course of time, so their true existence can be perceived only through time and their relations.

Many theorists continue to argue that objectivity is the only mechanism by which technoscientific success can be explained (see McMullin 1994; 't Hooft 1994). By bringing theories of relationality to bear, I explore here the ways in which human knowledge relies upon a dynamic of presence and absence within three cultural forms: art, religion, and science. Without a relational ontology that brings presence and absence together, these enterprises remain inexplicable. Mystical theology offers a key insight into this problem of knowledge. While medieval Christian mystics denied that we might ever properly name or know God (see, for example, Pseudo-

Dionysius 1987, 61, and the anonymous *Cloud of Unknowing* [1981], 121–22), thereby in some sense establishing the impossibility of knowledge, we have nonetheless inherited a magnificent body of mystical works seeking the very knowledge that they deny. Silence is not the key to knowledge, but neither is absolute speech (scientific, religious, or otherwise). We must learn to hear what cannot be spoken if we are to understand science. Paradoxically, however, this unspoken will only be found within speech itself.

Even without an objective ontology, truth claims must be made. Take for example the artistic work of Anselm Kiefer. It might be argued that "To an Unknown Painter" (1982) represents the glory of Nazism. Although it would be true to say that there are those who see the painting as glorifying Nazism, the painting in truth does not do so; it does not present Nazi ideals in a positive light. Rather, Kiefer's work recalls the pain of the Holocaust and the evil inspired by Nazi propaganda and myth but also makes a plea for a better world through the work of the artist (Rosenthal and Speyer 1987). Truth claims can be laid as truth claims (for example, "Anselm Kiefer's work is not a glorification of Germany's Nazi past" or "there is one proton in a hydrogen nucleus") without accepting that truth is either eternal or located in objects as such.

I deny the absolute objectivity of statements but present them here for analysis. The interplay of presence and absence requires that all attempts to present or represent will also be concealments. Knowledge requires truth claims even though they are never complete or absolute. Rhetorically, then, networks are always concealed in so-called objective reports; naturally, this dynamic exists in whatever claims to truth I make in this essay.

Truth is a function not of objects or objectivity but of relationships. Human subjects are involved in, composed of, and empowered by those relations. The world can thus be experienced through science, religion, and art. Such truth never gives itself to us absolutely: there is no full presence in science (objectivity), just as the kingdom of God will never be fully realized in religion. Truth approaches us only through a simultaneous withdrawal. Objectivity aims toward a full presence, toward a signal without noise, but this goal is misguided. We receive a signal only amid a flurry of noise. There are no pure signals, no objective presence. An exploration of this kind of epistemology in art and religion shows that technoscientific practice relies upon networks of fluctuating relations. Science functions by following the movement of relations rather than by establishing a kind of static picture of objects.

Ontological Prophets

Modern Objectivity and the Self.   The belief that truth implies only correspondence of thought to a "real world" outside of human experience

plagues our understanding of human knowledge. Much of the critical insight into modern science owes itself to Kant's metaphysics, which shows up in the work of contemporary philosopher Karsten Harries. Harries hopes to explain technological success by indicating how human beings step outside the limitations of their immediate perspectives. Such a move provides knowledge that transcends finite perception. Although his goal is laudable (in that he offers an account for the successes of modern science) and his argument is interesting, his insistence upon the self-identical "objecthood" of the world outside our experience confounds his efforts.

Although Kant declares it to be out of bounds, the true world outside experience seems to be the object of the modern scientific enterprise. Harries traces the impossibility of perceiving this real world to Nicholas of Cusa, who in the fifteenth century explored the poverty of human perspective in describing the world (Nicholas of Cusa [1981] 1985, 52, 144). From Nicholas, Harries argues that to "get to 'actuality' or objective reality we have to reflect on perspectival appearance. Reality cannot in principle be seen as it is. Reality, as it is, is invisible" (Harries 2001, 34). Perspective and reality directly contrast; whatever we see, because it remains only a perspective, cannot possibly be true. What we see to be true changes as a result of where we stand or who we are. Galileo looked through a telescope and saw moons around Jupiter; several of his contemporaries looked through it and saw nothing.[2]

Harries argues that in order to experience truth, humans "rise" out of their own finite, historical, bodily existences. "Such dislocation and loss of place are essential to his search for the truth" (2001, 144). For Harries, truth lies outside of the human experience, but humans can transcend their own experienced lives. In short, Harries argues "that human beings transcend themselves as embodied selves; that, transcending themselves, they discover within themselves a ground of reason that is also the ground of nature" (p. 207). This power explains the authority of science and enables Harries to rescue some notion of truth from the rubble of perspectivism and relativity.

Harries thinks that such self-transcendence explains technoscientific success. Perspective, he claims, always rests within itself; as we have seen, all one has to do to negate its hold is relinquish its status as absolute (p. 42).[3] For example, to be aware that one's line of sight is limited by one's range of vision is to recognize that there is something beyond one's sight. Thus, perspective is transcended in a general awareness. This awareness of something "beyond" enables us to search further; moreover, it enables us to comprehend a world that is not bound by the structures of our immediate surroundings. Science goes beyond the commonsense experience of immediate awareness and transcends the boundaries of individuals and their experiences (thus becoming transtemporal, transspatial, repeatable, and so on).

Harries argues that there "is something profoundly right about the traditional view that makes an aperspectival knower the measure of the finite and perspectival human knower" (Harries 2001, 313) without ever really giving us reason to believe in either the transcendental subject or the profound rightness associated therewith. This belief hinges upon faith in a certain kind of reason. Harries, in arguing that modern scientific objectivity is correct, does so on the basis that objective reason governs existence absolutely (p. 123).[4] In the end, however, his attempt to resolve modern science and Kant's epistemology via perspectival (Hegelian) self-transcendence shows a fear that the contemporary world somehow threatens the modernist self. To preserve the majesty of the modern subject, Harries must convince us of the reality, and necessity, of scientific objectivity.

If we hope to understand the human subject, however, we must identify his or her relationality. Modern objectivity's movement to sever the relationships that network the subject within his or her environment does not effectively describe the human experience. In rejecting the modern subject, whose objective approach to the world cannot be maintained, we must reclaim the relationality inherent to the living human being. These relationships establish the individual.

Relationality and the Self.   The self posited by modern objectivity is untenable and calls for reevaluation. Twentieth-century French philosopher Michel Serres has sought to show the thoroughgoing relationality of the world. He describes a relational, fluctuating subject unsusceptible to Kantian metaphysics because the self belongs to and is composed by its manifold relationships. He rejects the belief that subjects and objects can be separated into categories, showing that subjects and objects mutually constitute one another.

Serres believes that grammar, which constructs relations in language, can describe relations in the world; thus, the world's relationality can be seen through the relations between pronouns, adjectives, and prepositions. Serres proposes that we view ourselves as the locus of many relationships, a *we* that experiences the world in its relationality. A mixture composes the subject; no monistic *I* exists, because, as the world shifts, so would any *I* (Serres 1997, 143). The world must be seen as ontologically constituent for subjectivity, so a monolithic, static subject is inconceivable.[5]

Serres's subject, represented by the pronoun *we*, must be read as a collection of adjectives, of relations (1997, 145). In this composite self, "the adjectives are immersed of themselves in each other and play unceasingly at being the subject: a melee in which each goes by turn and sometimes all go at once to the center" (p. 146). Pronouns are given definition by the adjectives that describe them; the adjective, or relation, currently reigning will define the subject from moment to moment. In this melee, the subject changes from moment to moment. As a site of relations, he fluctuates according to his surroundings.[6]

While adjectives describe and define the subject, to discuss the networks that permeate the world Serres believes we must use prepositions, which "don't change in themselves, but they change everything around them: words, things, people" (Serres 1993, 140). Speaking without prepositions strips away "the supple interrelations between these stiff, lumbering" nouns and verbs (p. 141). In a philosophy without prepositions, no action takes place, cause or effect; "Alfred reigned" is descriptively inane, but "Alfred reigned *over* England *in* the ninth century" reflects the history of peoples' lives.

Thanks to this "ontological grammatology," Serres shows that "individuals" (living or nonliving) are thoroughly embedded within networks. Individuals "are crossed by a network of relations; they are crossroads, interchanges, sorters . . . the thing is nothing else but a center of relations, crossroads or passages" (Serres 1982a, 39).[7] Therefore, analysis must approach the network of relations that compose the world. Not only do objects like hammers exist within networks (composed partly of their original materials, their manufacture, their uses, their possessors, and the system by which trees make wood), but subjects do as well. There can be no question: the human subject is relational.[8]

Harries's objectifying subject is the philosophical equivalent of "Alfred reigned." Neither the object nor the subject should be located transcendently; the subject owes his subjectivity to the objects that help compose him and vice versa. Truth, then, cannot be identified with Harries's transcendent subject. Rather than halfheartedly hope that we can somehow extend ourselves to some perspectiveless position, we must give up objectivity as the measure of truth.

The Reality of the Real.   Just as the human subject cannot transcend herself to some position that eliminates perspective and thereby shed her relationality, so the world around us will not succumb to static representation. Static, self-identical objects do not make up the world; rather, fluctuating, dynamically related entities surround us. The real world is not some objective plane where everything can be seen as it "truly is," as though truth could be ripped away from context. Reality is networked, relational.[9]

According to anthropologist of science Bruno Latour, however, science traditionally has sought to eliminate every subjective or relational element in its account, arguing that the data stand for themselves. Although the inclusion of additional information may be the rule for the social sciences, constructivism "seems always to *weaken* the claims to truth" (Latour 1998, 423) in the hard sciences. Scientists tend to reduce their own presence within research because otherwise they will supposedly distort our perception of the facts "themselves"; once the finite human being has been removed from the equation, the transcendental subject can easily observe the facts "as they really are" or at least approximate them more and more closely through research.

Serres hopes to dissuade us from accepting this "modernist position" as described by Latour through an examination of the multiplicity inherent in "objects." Rather than allow objects to stand alone as such, Serres calls them jokers, or *blancs*, for their ability to take many values.

I have given the name *joker* . . . to a sort of neutral or, rather, multivalent element, undetermined by itself, that can take on any value, identity, or determination, depending on the surrounding system it finds itself inserted in. . . . Neither the joker nor the thing are unknown; they are only undetermined. Like the chameleon, they are determined by their surroundings. (1991, 93)

Serres argues that jokers appear to take on determinate forms only because a network surrounds them and gives them such an appearance.[10] A joker cannot be the simple object of modern philosophy and science; it does not possess any static, eternally determinable form. Thanks to its multivalent capacity, however, the joker can seem to be such an object.[11]

Jokers remain capable of an infinite number of forms depending upon the network of relations into which they are inserted. A bone might be a ritual component for recalling one's ancestors, a weapon, an archaeological relic, biological evidence for evolution, a geometrical configuration, and many more things. The bone, as such, however, does not exist. Only a particular bone within a particular network of relationships is real. That bone could take on other values by simply being moved to a new arena, a new network; after such a move, the bone would not, could not, be the "same" bone.

Thanks to our participation in the relations of the world (as adjectives, through prepositions), we influence them. A relational subject thereby explains what could not be explained in the objectivist account. Power is possible for the relational subject, one who can move within the system of relations (Serres 1982b, 64). For Serres, it is the subject's participation in the world, rather than a transcendental observation, that enables him to affect it. Our presence in the world of relations makes our knowledge possible.[12]

Multiple, relational jokers replace unified, static objects, and relations establish truth. The real is not static, isolated, and constrainable; it changes, takes on many appearances, and resists final determination. Truth, as a description of reality, addresses jokers that assume varied positions. If truth is not just the ever more exact observation of an isolated object but is a description of relations[13]—the fluctuation of adjectives and prepositions—how do we experience it, and how does it function in modern science?

To describe this kind of truth, I situate contemporary currents in information theory to drive toward an exploration of truth in art, religion, and science. As Katherine Hayles (1999) has argued, information theory has been used to establish a dematerialized salvation of the "modern liberal self," but late–twentieth-century information theory can be used within a

systematically embodied approach to the world as well.[14] Disregarding traditional formulations of signal-to-noise ratio and replacing them with a relational information theory leads to an explanation of how religion, science, and art have epistemological authority.

THE GOOD NEWS

Because information never comes to us in any "pure" form, we are forced to give up notions of the absolute presence of a signal. There are no signals without noise. Serres's information theory outlines a theory of signals wherein background noise plays an essential role in the formation of information. In the objectivist account, the search for signal has been a desire to eliminate noise; but the relationship between signal and noise is more complex than this position has presented. Signal and noise become what they are only in the intertwined, interpenetrating presence of each other, and what was once noise can become signal.

In order for communication to be possible, we must look for a "signal" amidst the "background noise" of experience. For the objectivist, to remove noise would be to obtain a fully present signal. The essential character of a signal-to-noise ratio, in such a paradigm, is the difference between what we consider information and what we consider distraction: truth must be exclusively signal. In a relational ontology, however, we recognize that no signal is possible without noise and that noise, as the background of any signal, must be inherent in both information and truth.

Noise is confusing ("unformed") information, irreconcilable with our rationality and existing everywhere (Serres 1995, 61). The flow of relations causes constant noise. A dynamic of approach and withdrawal plays itself out as signal and noise: no signal will approach except through its own withdrawal, its "drowning" in noise. We will no more see pure signal than an objective object. For this reason, Serres argues that background "noise is the ground of our perception . . . no logos without noise" (1995, 7).

In an objectivist signal-to-noise ratio, noise parasitically prevents messages from transferring, which leads to the belief that for communication to take place all noise must be eliminated. While noise interferes with the transmission, however, it also provides the channel through which information moves. Even as noise "blocks" signals, it helps to organize them—"noise is a joker" (Serres 1982b, 67). We cannot have information (signals) without noise; it is the noise that permits the signal to emerge as signal (Serres 1982a, 81). Thus, what appeared to be an unnecessary evil reemerges as a necessity. The organizational structure of noise permits information transfer; without the noise, there would be no signal.

In addition to both blocking and transferring information, noise can "switch places" with signal. What was once considered signal is often per-

ceived as noise, and what was once noise becomes signal.[15] "In the system, noise and message exchange roles according to the position of the observer and the action of the actor, but they are transformed into one another as well as a function of time and of the system" (Serres 1982b, 66). This movement between noise and signal is critical to epistemology in a relational ontology, because it explains how we sort out truth from falsity.

In order to describe signal and noise, Serres offers an analogy of the guest and the host. Just as the guest parasitically consumes the host by eating of the host's largess, a parasitical noise blocks the transmission of a signal—it exists insofar as it prevents the realization of information. The experience of the signal requires the existence of a parasite that seeks to block it, as the parasite creates the background against which the signal can be perceived. In this way, the parasite becomes the host. Serres's philosophy reconfigures the parasite-host, noise-signal relationship so that the each element makes the other possible and each plays both roles. What is noise on one level becomes signal on another or in another time. Noise permits signal, and representations can, contrary to expectation, act as noise for the elucidation of an unspoken signal.[16]

Drawing on Serres and early cyberneticists such as Claude Shannon in his analysis of complexity,[17] Mark Taylor argues that "information is news. When we read or hear what we expect or already know, little or no news is conveyed. Information involves what is unexpected and, thus, is necessarily related to improbability. *Information, in other words, is inversely proportional to probability: the more probable, the less information, the less probable, the more information*" (Taylor 2001, 109).[18]

Signal and noise, constantly oscillating, reconfigure their own roles, producing profound changes in what might be probable or even possible. Therefore information becomes something of a process, a constantly fluctuating transition between signal and noise that can be examined only within its system of reference (Taylor 2001, 123). The entire history of relations demonstrates the efficacy of such shifting. When parasites are integral to a system (when signal depends on noise), information becomes the conveyance of the new.

As probability changes, so does the information conveyed; information has lost its status as eternal fact but gained something else. Like Serres's relational subject, who possesses real power, Taylor's information—thoroughly embedded in noise—becomes powerful. "When programs are flexible and codes adaptable, noise can be processed in ways that allow novelty to emerge. In the open-ended revolution of information and noise, noise transforms the systems and structures that transform noise" (2001, 122). The interplay of signal and noise drives every system; within this interplay, the possibility of novelty arises. Power, in the sense of capacity, comes when we learn to move in the relations rather than in their negation. From within the relations, access to the novel is opened. News, the translation

of noise into signal, of nonsense into information, takes place within networks. Without a network, the news has nowhere to play.[19]

REVELATIONS

Using this new rationality of signal and noise, our search for truth can be opened up beyond science to include art and religion. Many modern philosophers have elevated objectivity to the sole arbiter of scientific truth and been unable to break free from it as the proper explanation for technological success (Harries 2001, 287). By revealing the metaphysics of presence that has existed in art, religion, and science, I advocate a new explanation for technoscientific power. None of these obtains absolute presence; we experience the new only through its withdrawal. The network ontology for which I have been arguing opens the door for a more thorough analysis of science, religion, and art. To maintain that the demarcation between these is based upon science's objectivity is misguided. Until we see how the scientific object becomes present we will not be able to explain this demarcation or how science functions at all.

Art.   From a certain point of view, the history of twentieth-century art draws out a profoundly theological view of representation and truth. In Taylor's language, art never offers absolute presence; it never captures its "object." Instead, art opens up discussion, a dynamic of presence and absence. It is only in the absence of absolute presence that presence becomes present at all. This process continues indefinitely, demonstrating the impossibility of a transcendent reality beyond. As Taylor argues, the guarantee offered by the transcendent perpetually fails to make good on its promise; art, therefore, rejects the possibility of absolute presence; there is always concealment operative in every revelation.

The success of art must be measured in terms of revelation and concealment, not revelation alone. Art does not succeed when it offers us the full presence of static objectivity, because, as Theodor Adorno argues, art never fully reveals its object. This is so not because such objects are finally unrepresentable but because no objects "out there" exist. There are no objects "out there" to be represented "here" in art. The revelation in art is masked in a simultaneous concealment. No artwork can present "something behind it." Adorno argues that the "instance of appearance in artworks is indeed the paradoxical unity or the balance between the vanishing and the preserved" ([1970] 1997, 80).[20] Art presents only through an irremovable dynamic of vanishing and preservation.

Representational art presumably offers us a means of capturing the "signified" within the "sign." Within a relational metaphysics, art, by refusing to perpetuate an idealistic notion of objectivity, works to represent while never fully doing so. Within that failure, however, the artistic object offers itself. Art never provides full access; its truth is never complete, never free

of contradiction. It is only in the play of figuration and disfiguration that art succeeds. Taylor traces the history of art in the twentieth century to show that the process of representation uses simultaneously both figuration and disfiguration. Twentieth-century art works through this dynamic.

Although many in the early abstractionist movement felt that art could reveal the Real through the simple negation of representation, Taylor argues that this sort of negation fails.[21] In *Disfiguring,* Taylor shows how twentieth-century art and architecture have sought to locate transcendental truth, first by dissolving form in abstraction, seeking to make a universal affirmation through the negation of figures, and second by reinvesting figures with meaning, purifying them of any movement beyond themselves. In the former, a search for transcendent truth through the dissolution of form results in "the absence of language. The process of dis-figuring —be it in painting or in architecture . . . erases signifiers in order to reveal the transcendental signified that is believed to be the Real" (Taylor 1992, 142). Such efforts, however, proved fruitless, leading back only to that which artists sought to discard. In the failure of abstraction, the sign that had been discarded regains its authority, only magnified.

Abstract art does not succeed because in purifying itself of symbols and reference it simultaneously purifies itself of life. "Instead of moving toward a synthesis, art and life were driven apart until art seemed preoccupied with an ideal realm that not only transcended but was irrelevant to historical actuality" (Taylor 1992, 144). In other words, the abstraction lost its connection to its audience;[22] it reified an objective world—the transcendent signified behind the sign (p. 189)—and sought to provide transcendent access to that world. Insofar as art moves away from the experience of life, it moves away from any possible discussion of the world. The formalization of abstraction, or its solidification of the Real, marks the end of its utility.

Upon this failure, modern artists continued their effort at reconciliation with the real in Pop art. In Pop, form is purified of meaning outside itself, and the real is now situated/located within the immanence of the figure (p. 144). As artists despaired of locating the Real in abstraction, they reinvested everyday existence, as well as the signs that characterize that existence, with the real, signifying the "death of the transcendental signified" (p. 179). Without a world beyond, they felt that truth must be found wholly within representation. "Since there is nothing outside the image, the image is [the] 'real'. . . Redemption is at hand" (p. 181).

Even this effort stagnated, however, when it discovered that, for all its efforts, it remained empty. Artists eventually rejected Pop art and its identification between the sign and the real. For Taylor, the abstractionist program to disfigure in the search for unfigurable transcendence is a modern logocentrism, a privileging of the Word beyond the language. Formal purity, then, is a "logo centrism," a privileging of the logo, the sign, as the

Word. This logo centrism cannot overcome the essential difficulties of the earlier logocentrism. For both, union "with the real . . . holds out the promise of overcoming alienation and achieving reconciliation. . . . Logo centrism shares this modern belief in realized eschatology" (p. 223). Because logo centrism fails to reconceive its task in significantly different ways from logocentrism, it succumbs to similar difficulties.

Logo centrism, Taylor argues, always fails to admit that "fullness is emptiness. Paradise is always a 'fallacious paradise'" (p. 224). Its assertion that it can fully realize truth in static form suffers immediately from the fact that truth *has no static form*. A full, permanent realization of the Real cannot be the truth. In this investment, the formal purity of logo centrism bows to the inevitable impossibility that led to its own creation. Modern art, characterized by the need to identify something that can be established as the Real, moves in circles. The search for absolute truth breaks down, leaving modern art with no choice but to find a middle ground between abstraction and form.

Postmodern art seeks to refigure its own tactics—to disfigure while figuring so as to reveal the possibility of figuration (through its impossibility). Neither abstraction nor figuration will do, so artists have sought a path between them; disfiguring art creates an interplay between figuration and the elimination of figuration, and thereby "disfiguration uses figure against figure to figure what cannot be figured" (p. 277). In disfiguring, artists retain the figure but disfigure it in ways that allow the possibility of an other to approach. Taylor argues that "disfiguring figures the unfigurable in and through the faults, fissures, cracks, and tears of figures" (p. 8). This disfiguring rift, or fissure, is an absence (p. 278) that permits the refiguration of disfigured figures; that is, the unrepresented represents the unrepresentable by creating a play between presence and absence. Disfiguring refuses to allow presence to present itself absolutely; in doing so, it makes presence experiential in the present through its own absence. The rift is neither present nor absent but plays between the two (p. 304).

In art, possibility must be the condition of both existence and nonexistence. The rift in figures will itself figure what cannot be represented; it opens the door to possibility. Art, as a joker, remains essentially unconfinable. Art interacts with the observer; it creates a play between presence and absence, possibility and impossibility. Art seeks to bring out an other, but that other can never be fully present. Such presence is forever fragile and incomplete, unable to fully bring itself forth. It is only the impossibility of figuration, Taylor argues, that provides any hope of its possibility. Without the "unfigurable," nothing could be figured.

Religion.   Like the artistic effort to realize full presence, much of contemporary theology seeks to describe the approach of the other. But that approach can be seen or said only through its own withdrawal. Although certain theological positions have dreamed of unmediated access

to God or the Real World Beyond, I advocate a shift away from such hopes for absolute presence. In a relational ontology, unmediated access must be rejected; in its stead, theological language must address a God who is in a certain sense contingent, whose approach is necessarily tied to a withdrawal. Thus, relationality and a dynamic of presence and absence become a path out of the witch's den of religious epistemology, but will it be marked by bread crumbs or by stones? I shall use an unconventional voice in theology to answer this question. Drawing upon Latour, whose early work was in science studies but who has taken up theological speculation (Latour is Roman Catholic), I hope to offer a theological response to religious metaphysics of presence.

Although modernist epistemology has doomed religion to near nonentity status,[23] religion, Latour claims, "cannot be limited to an inner conviction" (2001, 218); it must say something about the world. He advocates an approach in both religion and science in which the focus is on the movement of knowledge rather than static images, concepts, representations, facts, and so on. He calls this belief in the power of translation from one moment to the next *iconophilia*. Within iconophilia, "we have nothing but representation to which should be added the formidable spiritual addition of *more* re-representation to understand again and anew what is, what was, presented the *first* time. Religion is not about transcendence, a Spirit from above, but all about immanence to which is added the renewal, the rendering present again of this immanence" (2001, 219). This rendering is a continuous process, never achieving any end; the Spirit must return again and again. Its approach is ever accompanied by its need for renewal, a withdrawal that marks the impossibility of its own absolute presence. The first time of religious presence is new every time; it must be renewed or else it will cease to be; religious presence never comes absolutely. Re-presentation must be re-newal of presence.

For the iconophilic, religious images gain their epistemological authority in the translation from one image to the next, from one concept to the next. "Iconophilia is respect not for the image itself but for the movement of the image. It is what teaches us that there is *nothing to see* when we do a freeze-frame of scientific and religious practices and focus on the visual itself instead of the movement, the passage, the transition from one form of image to another" (Latour 1998, 421).[24] Static images, when reified as ontologically factual, destroy whatever truth content they may have possessed. Rather, in order for religious images to teach us, they must be moveable, fluctuating, translatable.

Religious messages, Latour argues, are "not about having access to a superior reality beyond, but about designating the speaker as the one who receives the gift of life anew, and suddenly, starts understanding what those messages finally—but always provisionally—meant" (1998, 435). The notion of a superior reality beyond reflects the religious effort to objectify

both natural and religious worlds while establishing a human subject very closely akin to the objective modern subject presented by such thinkers as Harries. When religious practitioners objectify sacred worlds in eternal, uncontestable form, Latour thinks, they miss the point of religion; religious messages must be renewed from moment to moment.

Religious participation must actively respond to the religious message and reconfigure that message. Any effort to pass along The Message will result in failure. As Latour puts it, "if you fail to modify the imagery you also fail to convey the message" (2001, 227). The religious individual who seeks to pass along the good news cannot do so by strict repetition. Rather, she must involve herself in the message to convey new information to a new believer. Such must be the case whether the medium of transmission is speech, art, or ritual.

Religious images point, through translation, to religious truths, but those truths are never finished, never static. Truths must remain eternally incomplete in order that they might bring about a relation to God. God cannot be brought before oneself without a simultaneous departure, an absence that indicates only the barest hint of presence through what cannot be said. Latour argues that God's presence, as "unsayable unsaid," "exists" only in the translation of the message, something that is neither said nor seen but comes and goes in between the transmissions. In such a world, all knowledge of God must be provisional, "since God is another mediation, another way of saying what is present, what is presented again and anew, what is, has been, and will be. But Presence is in no way construed as a substance beneath, everlasting under its attributes" (Latour 1998, 434). The presence of God is not objective, eternal, and absolute. God's presence is an eternal movement toward presentation.

Just as a/theoesthetics leads Taylor to a/theology in *Disfiguring*, aesthetics helps Latour discuss Christian theology.[25] Perspective, he says, "allows Quattrocento painters to *highlight* in a most dramatic fashion the discrepancies, the cracks, that allow the paintings to make the presence real" (Latour 1998, 430). Religious art succeeds by redirecting our attention toward what cannot quite be seen within the artwork, not by directing our attention to some transcendent world beyond. Such art plays, once again, with immanence and transcendence—with presence and absence—without succumbing to utopian ideals of realization. This effort to point "through cracks into the discourse" (1998, 429) closely resembles Taylor's effort to show a "nonnegative negative theology that nonetheless is not positive" (Taylor 1992, 316) through the "rift."

Such mediations allow Christian artists to avoid the idolatrous reification of the static image; instead, the absences in the work play constantly with presence. In order to experience the divine, we must accept simultaneously its inaccessibility. Still, this does not mean that theology must give up altogether. "All the meditations of Christianity are about bringing *real*

presence, not about illustrating themes" (Latour 1998, 432). Religion as presented in Latour's Christianity rejects the temptation of absolute religious presence. Religious practice and belief require a relationality that cannot be the absolute, full presence of a theology committed to a metaphysics of presence. That tradition, which contributed so mightily to the aims of scientific objectivity,[26] requires reformulation in religion and likewise in science.

Science. The modern scientific self rests assured in his assumption that science successfully locates truth in objective explanations either by realizing a full presence of scientific objects or, at a minimum, approaching ever closer to such presence.[27] Twentieth-century history and philosophy of science, however, often belie this claim. Such studies indicate that science does not function in the linear way in which it was conceived; instead of approximating ever more closely the "true" scientific object, the sciences move in haphazard direction, neither finding nor seeking any static objects. Such a search, in fact, would be counterproductive, would limit scientific progress.

Recent scholarship indicates no objective relation between scientific theories and "objects in themselves." The discovery of scientific truth involves, even if unknowingly, comprehension of the relations that compose each theory, the "objects" of those theories, and the human beings involved in their manufacture. Science works within networks that access the world only temporally. Like the provisional God of Latour's Christianity, scientific objects give themselves only through their passing, their translation.

Harries claims that science achieves results through self-transcendence and objective perspectives. The "superiority of the new over the old science is based not so much on its particular insights but rather on a change in its form of description" (2001, 287).[28] Supposedly, science progresses by objectively describing (circumscribing) objects and subjects. As a history of metaphysical speculation, Harries's thesis amply demonstrates the historical shift away from appearances toward things "in themselves" and the perspectival transcendence required to approach those things. As an explanation for technoscientific achievement, however, his description falls short.

In the thinking of Thomas Kuhn and Paul Feyerabend, we see a critical strike against objective scientific progress.[29] Furthermore, thanks to Latour's analysis of mediators, some of the problems inherent to objective ontologies may be resolved in a science that takes relationality seriously (even if its chief actors do not!). These thinkers help to resolve concerns over the role of society and belief and history in scientific thought, the existence of things "in themselves," and the restriction of epistemology to rational thought. Kuhn has shown that all knowledge is necessarily obtained socially and even according to arbitrary prejudice. He argues that although

scientific observation plays a vital role in discovery of scientific truth, so too do society, individuals, and even random accident ([1962] 1996, 4). Scientific discovery is fully enmeshed within the lives of human beings—scientists, governments, and so on. It is within such social networks that discovery takes place; scientific observation could not exist without them. Paradigm shift works when objects are jokers, taking on any number of possible values and functions. These jokers function within the bounds of paradigms, histories, and sociocultural networks as well as within a network of environmental factors.[30]

Discovery and manipulation of these jokers is likewise not simply a function of objective reason. Feyerabend argues that science, at its core, does not uphold the rigorous rationality that it claims. Objective rationality, he argues, would not push science forward ([1975] 1993, 18–19). In order to understand the world, scientists repeatedly have broken their own rules of engagement. Although scientific propaganda often hides the role of society, individuals, expectations, and more from its legacy of discovery, the history of science shows a long list of facts that are thoroughly incorporated into networks. Facts do not exist outside their cultural frameworks; there are no scientific discoveries that exist independently of historical circumstances ([1975] 1993, 51).[31]

Unfortunately, scientific propaganda often insists upon the complete self-sufficiency of its facts. Scientists smooth out the complicated webs of technique, theory, actions, and actors that contribute to knowledge. Rather than vigorously documenting or understanding the relationships inherent to their task, scientists uphold a masquerade that objects in themselves somehow contribute truthful knowledge about themselves to scientists. For them it "is essential that a tiny core of information escape from the setting and let you ignore the rest" (Latour 1998, 424). This escape would be the full realization of presence; thus do we see a scientific metaphysics of presence.

For all this difficulty posed by the modern world, Latour offers a solution. Just as we must be iconophilic in art and religion, we must resist the urge toward idolatry, the reification of images or concepts, in science. Such stasis could be replaced with a network wherein we might make use of translations from one image or concept to another (Latour 1993, 121).[32]

The problem with idolatry in science is that it dissolves its own referent. Without a system, scientific observations, conclusions, and theories would all be useless. "An isolated scientific image is meaningless, it proves nothing, says nothing, shows nothing, has no referent. Why? Because a scientific image, even more than a Christian religious one, is a *set of instructions to reach another one* down the line. . . . The whole series has meaning, but none of its elements has any sense" by itself (Latour 2002, 34; see Latour 1987, and compare to Taylor 1978**)**. Scientific data, though they may sometimes look to be isolates, are thoroughly relational. Without what Latour

calls a "cascade of images" there is nothing to see in scientific practice.

Truth, in Latour's analysis, disappears when we seek to identify static objects (represented as images, concepts, things "as such" or "out there"); if we wish to gain knowledge, we must look in the translations from one representation to the next. Human beings must find a dynamic knowledge if we are to resist the lures of idolatry or iconoclasm.[33] We should neither worship icons nor destroy them, but use them for what they are. The scientific object, as an icon, comes to us only incompletely; its stasis is entirely dependent on its process of movement within the system.

In arguing that scientific experimentation functions through ritual patterns of behavior, it has been shown that laboratories require relational frameworks for their very lifeblood, even if experimentation can be successful without conscious awareness of this relationality (Geraci 2002[34]). The laboratory consists of a multitude of events, things, compositions—the history of interactions, actors, and actants that have composed it.

In the lab, we must explore and interact with the relations that constantly undergo Latour's process of translation. That which is forever in translation cannot give itself to us as absolute presence; the scientific object will never be fully with us; there is no fully present scientific object (within or without our perceptions). Because of this, scientific observation is "an ongoing process" (Geraci 2002, 905). Our ability to follow the cascade, to see how the scientific process translates from one image to the next, is the key to our technological power. Following the cascade "gives us the ability to resolve the difference between the accidentally experienced world and the ritually constructed laboratory world" (2002, 903) through the translations of scientific mediators. This play of translation empowers us technologically.

This understanding of presence displays the inherent absence of the scientific signal (object). The only scientific signals are those to which our attention has been attuned. In the laboratory, our attention is directed toward certain elements in the world (2002, 901–2). Thus what appears to distinguish scientific presence from, for example, religious presence is the ways in which we direct our attention.[35]

Scientific research relies on the world's relationality, not its objectivity, in order to function. Only a network ontology explains technoscientific success; a network ontology brings us one step further in understanding the role of presence (and thereby learning) in scientific progress. Just as contemporary theology suggests that we must refuse the allure of realized eschatology (the presence of the divine in its fullness), so in science we must resist our inclination to conceive the world objectively (the presence of the object in its fullness). Technoscientific knowledge does not come objectively; rather, it comes to us incomplete, as a presence that is not full presence. By immersing ourselves in that dynamic, we improve both our sciences and technologies.

BREAD CRUMBS

Because of the inherent relationality of the world, we can never hold eternally valid truth claims. Rather, we must screen truth through those relations that tie us to our environment. Modern objectivity cannot conceive of entities or jokers in relation, much less offer any truthful account thereof; information theory opens the door for such understanding by accepting the coimplication of signal and noise. Information theory allows the network to shift through the constant play of relations, opposites, and even seemingly distinct objects (which we now know to be related, coimplicated jokers). Within such a constantly oscillating world, truth can be identified in its fluctuating, temporal, thoroughly relational character. Such assertions, of course, will remain forever contradictions—they will veil in seeming objectivity that which they hope to expose in their relationality. Nevertheless, they offer a certain kind of power.

Human beings make use of this veiled revelation to explore and affect the world. In our scientific, religious, and artistic efforts, we do not need to ontologize any objective representation in order to account for human knowledge. Rather, human knowledge is a play of concealment. Truth is relational. While the static is necessarily static, the fluctuating and relational can be news to us.[36] Truth depends upon the world, which we experience through the move from noise to signal and back again.

We are not doomed to solipsism or condemned to ignorance; we make use of the tools at our disposal—the relations in which we are enmeshed—to comprehend the world. Art, religion, and science all offer us a glimpse of truth, even though that glimpse will never be more than the "absence of presence that is not an absence." We come to know and address the world through our direct statements, statements that are always incomplete. It is within the relations of such "flawed" speech that our arts become artistic, our theologies religious, and our sciences technological.

Religion, science, and art all can resist a metaphysics of presence. While certain trends in the philosophy of science have sought to idealize the acquisition of unmediated access to scientific objects, and some theologians have sought unmediated access to God, neither of these fields needs such a presence. There is no presence without absence, and scientific endeavors, which surreptitiously rely upon a network theory that they often deny, are caught up within this constant play. Closer approximation to the absolute object does not mark scientific progress. Progress is the progression of the system, the movement from one image to the next, and, thereby, the development of the novel. Objectivity is nothing but old news, which is no news at all.

NOTES

1.   See Friedrich Nietzsche ([1888] 1982, 484; 1968, 12) on the nihilistic loss of truth and Martin Heidegger ([1927] 1962, 272) on the relationship between the loss of transcendent subjectivity and the death of God. Karsten Harries, whose philosophy I address in the next section, argues that the relationship that Heidegger presents does not eliminate human knowledge upon the death of God, but his theories suffer from a significant flaw of their own.

2.   Or, worse, they saw quite the opposite of what Galileo proposed (Feyerabend [1975] 1993, 99–102). Although Harries traces this sensory distrust as far back as Nicholas, it came to fruition during the scientific revolution, which Steven Shapin characterizes by a fundamental divorce of truth from everyday apprehension of phenomena (despite the assault of empiricism against traditional sources of knowledge). As Shapin says, the Copernican view of the world "drove a wedge between the domain of philosophical legitimacy and that of common sense . . . subjective experience was severed from accounts of what objectively existed. Our actual sensory experience, we were instructed, offered no reliable guide to how the world *really was*" (1996, 53). Curiously, both empirical methods (observation through the telescope) and an accompanying mistrust of sense perception (rejection of everyday experience as well as a newfound need to train one's observation skills) combined to leave Galileo in the right.

3.   This logic closely resembles that of G. W. F. Hegel, who argued that to think of the infinite is to transcend the finite into a region of universal thought ([1827] 1988, 121). For Hegel, self-awareness equals self-transcendence; likewise, Harries believes that to be aware of one's own perspective (that is, to be self-aware) is to transcend that finite state. Similarly, to know oneself is to surpass oneself in Hegelian thought; true self-awareness is to know one's own essential identity with God (p. 191). Compare to Harries: "Meditation on the infinity of God or the infinity of the world of which we are part thus presupposes and awakens the human knower to the infinite with himself" (2001, 148).

4.   Although Heidegger argued that the death of God denied the validity of objectivity and the transcendental subject, Harries argues that the connection between these two notions does not justify Heidegger's conclusion. According to Harries, the ideal of objectivity is legitimate, and the transcendental subject who grounds it continues to found the objective search for "the real."

5.   In marking the subject as ontologically constituted by the object world Serres makes his first powerful shift away from Cartesian subjectivity. For Descartes, the object world is subsumed within subjectivity and gains its epistemological authority only via the thought processes of the individual (Descartes 1996, 39). For Serres, however, the object world, as relational constituent of the subject, provides reality for the subject (as opposed to vice versa).

6.   The Cartesian *I* that underlies objectivist metaphysics like those of Harries is a foundational *I*; it founds the object world. Serres' *we*, however, founds nothing but is rather constantly founded within the noise of multiplicity. The relational *we* exists within the network and is a product of the network; it does not seek to capture or create the network. It is, rather, a "pocket" of rationality amid the background noise of the universe.

7.   Serres's understanding of the self as a multiplicity has a forerunner (and probable influence) in Nietzsche's conception of the relational self (1968, 269–70).

8.   Compare to Mark Taylor: "The self—if, indeed, this term any long [sic] makes sense—is a node in a complex network of relations. In emerging network culture, *subjectivity is nodular* . . . formed when different strands, fibers, or threads are woven together" (2001, 231).

9.   After Nietzsche, a number of thinkers have elaborated theories of relationality to replace the objectivity presupposed by much of modern philosophy and science. Such theories amount to a reconsideration of the fundamental nature of the world. Everything, insofar as it is intrinsically relational, is exempt from ontological assertions about its individuality and self-identity.

10.   We experience jokers as determinate objects when we observe them within networks. Jokers gain the semblance of determination precisely because they are able to fit within an infinite number of contexts. It is the joker's multiplicity that gives it the possibility of being perceived as a self-identical object. Accordingly, only "the joker, the token with many values can take on one particular number, code, figure, appearance, or another" (Serres 1991, 160). Observation of entities as objects could not take place were it not for the chameleonlike indeterminacy. Any static object, one that did not adapt to its new surroundings, would be impossible to experience. We could not situate it within any context and, therefore, would not be able to "observe" it. Our own observation of jokers is a participation in those things' relations. We are caught up in and implicated within the relationality of jokers and are, indeed, jokers ourselves.

11.   Although Serres's approach to epistemology and ontology is based on his understanding of information theory and quantum theory that themselves derive from an objectivist approach to science, his relational approach to the joker does not succumb to the failures he and others ascribe to neo-Cartesian/Kantian epistemological understandings of science. Because Serres situates the joker within a fluctuating field and as constituted by the totality of its environment and not simply as a fluctuating member of the field, he eludes the difficulties posed by the use of concepts drawn from objective science. That is, his explanation for science itself differs from the expressed methodology of objective science and therefore draws upon the results of scientific knowledge without requiring that such knowledge ascribe to his theoretical approach.

12.   Although the subject's presence is necessary in order to access the world and gain information, the relational subject differs from the objective subject in its approach to knowledge. The standard watched quantum pot, for example, requires a constant, absolute presence of the subject (perpetual, static interaction). The relational subject rejects his own absolute presence even while rejecting the absolute presence of the static scientific object; in doing so, the relational subject permits the noise critical to a signal-noise relationship. In the next section I describe the signal-noise relationship and the role of subjectivity in knowledge in greater detail.

13.   I argue in the next section that such a description is inherently flawed—that no description can even be conceived in absence of its refutation. Each description (including this one!), as a presentation of some kind of presence, will always be accompanied by an unavoidable absence. A claim's temporality and falsification, then, is tied to that claim's veracity.

14.   This, of course, is Hayles's objective in *How We Became Posthuman* (1999). I intend to make use of information to explore "presence" in the world's relationality; this will show how human beings know the world in its relationality, thereby developing a theory of technoscientific success.

15.   The history of sciences, for example, is replete with cases like that of Einstein's expanding-universe prediction, which he wrote off prior to Hubble's discovery of the red shift and afterwards reincorporated.

16.   This signal is never the absolute presence of objectivity or the idealized eschatology of early Abstractionism, which I discuss in the following section. It is only the possibility of signal, the signal that signals only through the noise of its own absence.

17.   Taylor might not call his analysis a theological one, but we must never lose sight of his postmodern a/theological enterprise.

18.   Compare to Serres: "Thought negotiates the *noise*, negotiates the unexpected, it moves instinctively toward the unforeseeable" (1995, 136).

19.   See Taylor 2001, 65 and his predecessors: Kuhn [1962] 1996, 52–53 (on paradigm anomalies), and Feyerabend [1975] 1993, 152 (on irregularity).

20.   Compare Walter Benjamin's brief discussion of the "veil" in art (1996, 351). Adorno's use of concealment probably stems directly from this.

21.   For a clear example of the search for the transcendent Real in abstraction, see Kandinsky [1914] 1977.

22.   An example is Mies van der Rohe's Seagram Building. Taylor points out that purified architecture ends up distinguishing itself from the streets, from the community. Its purification marks an "aloofness" (1992, 141).

23.   Admittedly, Hegel argued that religion holds an important place in the historical realization of Spirit, but he nevertheless subjugates this place to that of philosophy, which he argues offers a more effective realization.

24.   Iconophilia also characterizes Latour's recent attempts at understanding science, as I show later on.

25.   Taylor's *Disfiguring* (1992) follows upon his earlier work, *Erring: A Postmodern A/theology* (1987) which outlines a/theology, but the logic of *Disfiguring* seeks to defend a/theology by leading up to it through a/theoesthetics.

26.   By searching for and believing in a realized eschatology—the absolute presence of the kingdom or of God—the Western theological tradition opened the door for a science that similarly seeks a full and absolute presence of its objects (Noble 1997, 9–20). This scientific presence could be conceived of only in objective terms. By reconsidering this religious tradition in light of recent theories of religious presence, I hope to find a pathway leading away from scientific objectivity but without sacrificing technoscientific accomplishments and explanatory power.

27. The ideal of such presence advocates the ontological validity of objectivity. Supposedly, scientists achieve presence by isolating objects "in themselves," extracting them from their constitutive networks.

28. As Shapin points out, science prior to the scientific revolution was based on Aristotelian metaphysics rather than, supposedly, any systematic approach to observation (1996, 15–30). Harries describes this approach as a newfound awareness of perspective that seemed to allow the individual to transcend his own limitations in order to approach a world outside of, but responsible for, his perceptions.

29. Neither Kuhn nor Feyerabend argues that progress is a completely worthless term—it has its uses both temporally and in some evolutionary sense—but they both argue that progress cannot be defined as correspondence to (or closer and closer approximation of) objects, "as such."

30. Interestingly, Serres's joker might have profound implications for the so-called incommensurability thesis in the history of science. Insofar as something might be repositioned in a new paradigm, dialogue between paradigms might be possible.

31. Given that independent, self-sufficient facts are not and have never been discovered, Feyerabend argues that scientists alter our experience of the world—they help us to explore and understand the relationships that characterize the world (for example, through quantum electrodynamics) and actually *manufacture* new relationships ([1975] 1993, 75–76). When scientists make discoveries, they simultaneously present us with a glimpse of relationships characteristic of the world and change that world by creating new relations. In the absence of a relational definition, truth has been conceived in Platonic terms, a philosophical misapprehension. As Feyerabend puts it, love "of truth is one of the strongest motives for replacing what really happens by a streamlined account, or, to express it in a less polite manner, love of truth is one of the strongest motives for lying to oneself and to others" (p. 247). Or, as Adorno writes in his *Negative Dialectics,* the "immutability of truth is the delusion of *prima philosophia*" (1973, 40).

32. In the second chapter of *Pandora's Hope* (1999) Latour shows how we might follow scientific images, calculations, and so forth across a series of transformations in geography, pedology, and biology, thus gaining access to the world in and through the many translations (simultaneously "natural" and "cultural").

33. Latour's previous work directed our attention to scientists in action (1987), but he now extends this analysis to the "in action" of the scientific references through iconophilia. Thus a continuity is established in terms of translation across time and space.

34. This essay argues that religious ritual has formed the basis of scientific experimentation and that successful experimentation owes its advances to this ritual behavior, which enables the translation of knowledge from the laboratory to the outside world.

35. This calls for further elaboration, but the issues exceed the scope of this essay. In essence, however, one thing that demarcates science from religion, art, politics, and economics is the way in which attention is focused. In particular, different places (labs, shrines, and so on) serve to direct our attention in different ways.

36. As every adult and child knows, the news is not always good. We need to find ways to direct research in such a way that we at least improve our odds of trumpeting good rather than bad news. See Midgley 1992; Noble 1997; Stahl 1999.

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