Science -- or fiction?

Journalist deems scientist out of bounds....

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Abstract
Consensus is a force that secures the boundaries of science. It is the means by which scientists decide what counts as *legitimate* scientific knowledge and professional behavior. The mass media participate in this process by reporting legitimated knowledge and behavior and rejecting, ridiculing, or ignoring the illegitimate. This rhetorical analysis addresses a case in which an elite scientist engaged in highly controversial research, prompting an elite journalist to respond with a scathing critique. Kenneth Burke's conception of the comic corrective offers a way to resolve this sort of conflict, which converges on different conceptions of reality.

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"Struggles over what will count as rational accounts of the world are struggles over how to see."
(Donna Haraway, Simians, Cyborgs and Women, 1991)

Introduction

In the scientific community, consensus is a force that secures the boundaries of science. By consensus, members of the scientific establishment decide on what counts as "fact" or "truth" -- that is, *legitimate* scientific knowledge -- and also maintain standards of professional behavior. The mass media play a role in this consensus process by reporting this legitimated knowledge and behavior and rejecting, ridiculing, or ignoring the illegitimate. This analysis addresses what can happen when a scientist breaks with consensus and violates the boundaries of science. It focuses on a case in which an elite scientist has chosen to engage in highly controversial research, prompting an elite journalist to respond with a scathing, tragically framed critique.

The scientist is John E. Mack, M.D., a tenured professor of psychiatry at Harvard Medical School, Pulitzer-prize-winning author, co-founder of Harvard's Center for Psychology and Social Change, and acknowledged expert in his field since the 1970s. Mack unquestionably qualifies as an elite scientist, a member of the scientific establishment, an authority and therefore an official boundary tender. Mack's controversial research is his study of people who believe they have been abducted by aliens (extraterrestrial intelligent beings). The journalist who responded to Mack's boundary challenge is New York Times science writer James Gleick, an award-winning author himself.[1] Gleick chose to critique Mack's work in a review of Mack's book Abduction, entitled "The Doctor's Plot" and published in The New Republic on May 30, 1994.[2] In this review, Gleick constructs a victimage ritual framing Mack's work as fiction, performance, play-acting that is not

entertaining but dangerous because Mack claims that it is real. Gleick deems Mack a violator, his work a violation -- of the conventional scientific world view and the accepted boundaries of science.

Kenneth Burke's conception of the comic corrective offers a path toward resolving this conflict, which converges on conceptions of reality. Burke would recommend hypochondriasis: making peace with the problem by adopting an interested attitude toward it. A comic corrective to Gleick's victimage ritual would broaden perspective on what may constitute legitimate scientific knowledge, what may count as reality, by expanding the framework within which they are explored and explained. This corrective would establish a frame of acceptance acknowledging that there may be more than one way to explore and explain reality; the widened frame would accommodate ambiguity and complexity. The key to such a corrective, as Burke wrote, is "encouraging tolerance by speculation" (Burke 1969, 442).

Analytical framework

Several assumptions are key to this analysis. First, communication is a symbolic process of creating, maintaining, and transforming reality (Carey 1992), and the mass media play a powerful role in creating reality by defining and describing it and maintaining public consensus about it (Hall 1982). Second, media content is both a source and a manifestation of culture, a form of cultural mapping that can reinforce values and beliefs or emphasize deviance from socially constructed norms: content typically leans toward "official" stories, and journalists routinely rely on "official" sources who are inclined to maintain the status quo (Shoemaker and Reese 1996). By these practices, among others, the media participate in defining norms and deviance (Ericson et al 1987). As agents of social control, the media tend not to screen out unconventional ideas but to identify them as deviant and even deride them in the process of reaffirming the ideological status quo

(Shoemaker and Reese 1996). As they do with other "official" sources, journalists turn to the scientific "experts" -- the scientific establishment -- for "legitimate" knowledge. The "deficit" model of scientific rhetoric that dominates communication between scientists and the public (Gross 1994) posits one-way communication, from scientist to public: scientists fill voids in public knowledge and assume that the public needs this knowledge, and understanding science is simply a matter of acquiring the right information (Holton 1992). Journalists play an important role in sustaining the cultural authority of the scientific establishment, by framing scientists as "experts" and serving as a conduit for conveying legitimate scientific knowledge to the public. The media traditionally have served as science boosters, reporting scientists' stories unquestioningly and framing scientists as heroic miracle-workers (Nelkin 1995).

Third, the reductionist[3] paradigm is the scientific world view which governs scientists' communications with the public. And fourth, science is a social construction (Berger and Luckmann 1966) -- a cultural institution, a process and a practice with rules and standards; a product of "ideological efforts by scientists to distinguish their work and its products from non-scientific intellectual activities" (Gieryn 1983). "Normal" science, as Thomas Kuhn describes it, aims to reinforce the dominant scientific world view; consensus building is a primary means of accomplishing this goal (Kuhn 1970, 5). The scientific establishment derives authority from this "idealized notion of pure, genuine scientific knowledge" (Hilgartner 1990). This "genuine" knowledge is for scientists alone, who decide what to disclose to the public and what to keep to themselves. By maintaining the boundaries of legitimate scientific knowledge, scientists retain the power to reject unacceptable, out-of-bounds knowledge as illegitimate, contaminated, and pseudo-scientific. Studying boundary work -- "when, how and to what ends the boundaries of science are drawn and defended in natural settings often distant from laboratories and professional journals"

(Gieryn 1995) -- is a good way of observing how scientists -- and journalists, too, as this analysis will show -- reinforce the dominant paradigm.

Context: the science wars

From the 17th through the 20th centuries, Western intellectuals have propagated a conception of science as "a unique form of knowledge whose power transcends the particularities of time and place," says science historian Steve Fuller (1996). Like monarchies, nation states, and other institutions of political power, science gained, retained, and maintains cultural jurisdiction over the dominant world view by promising to tame chaos, to establish order and control. Thus Francis Bacon's 17th-century adage still holds true for the late-20th -century scientific establishment: knowledge is power. If power is "the ability to control events and meaning" (Brummett 1994, 4), then science is certainly power -- and the conventional scientific world view publicly upheld by the scientific establishment reinforces this conception. By this world view -- variously characterized as reductionist, materialist, positivist -- "science" is a body of "objective" knowledge, or a method for obtaining such knowledge by description, explanation, and experimentation. The scientific establishment (including John Mack and many fellow Harvard scientists) possesses the cultural authority to decree what the world is (and should be) like, define reality, and thus tell people what they need to know and do not need to know, how they need to be and not be. By deeming reality material and knowable, the reductionist paradigm empowers scientists to assert control over it. The paradigm also dictates that science has unique and fixed qualities, defined by sociologist Robert K. Merton as communism, universalism, disinterestedness, and organized skepticism (Merton 1996, 268-9).[4] This ethos of science depends heavily on consensus; the scientific establishment reserves the right to maintain control of science by censuring those who stray outside the boundaries of consensus.

Though among themselves not all scientists may subscribe to the reductionist world view, nonetheless the scientific establishment continues to promote a public conception of science as objective, amoral, value-free and thus authoritative. But in recent years, critics have been questioning the validity of this conception, challenging the authority of science. The cultural context from which science draws its power has changed since the Cold War ended: questions about the function and purpose and status of science in society have spawned the so-called science wars of the 1990s, with Paul Gross and Norman Levitt's Higher Superstition (1994) serving as a call to arms. These two defenders of reductionism reject the constructivist conception of science, claiming this view wrongly equates belief with knowledge. "Science gives power to those who understand and underwrite it precisely because it sees accurately into the workings of nature," Gross and Levitt assert (1994, 220); "the status of science as a reliable, profound, and productive source of knowledge ought to be beyond serious question" (256).

Victimage rituals have been a key element of the science wars: the wars are largely a matter of finger pointing -- debate over what constitutes legitimate scientific knowledge and who has the right to decide what is legitimate has tended to degenerate into victimage ritual, typified by Gross and Levitt's attack on humanists and constructivists: for example, they blame "the academic left...humanists and social scientists" for promoting "irrationality" and displaying actual hostility toward the "content of scientific knowledge" (1994, 2-3). Scientists on the defensive blame those who question the value and purpose of science for lacking knowledge of science and threatening the authority of science; they depict themselves as victims of (sometimes willfully) ignorant people.[5] John Mack is a knowedgeable person, a legitimate scientist who is perceived as attacking science from inside the boundaries -- and "inside jobs" are more unsettling than "outsider"

transgressions, a violation of trust and a challenge to security. Gleick attempted to tackle the problem of uncertainty regarding the value and purpose of science by constructing an intricate victimage ritual blaming John Mack for violating public trust in scientific authority.[6]

Science, rhetoric, power

Although the reductionist paradigm requires that scientific knowledge be objective, the knowledge claims that scientists make to justify the possession of power are contextual. And "such epistemic contexts are always in flux," their boundaries continually challenged and reconstructed and "always intertwined with alignments of power and political resistance" (Rouse 1996, 416). Science is a social construction "given presence in rhetorical discourse" to assign authority, resources, and power (Taylor 1996). Scientific rhetoric is a key element of the process of constructing the symbolic reality of science, largely through consensus-building among scientists and communications between scientists and the public. The language and discourse of science are a key source of its power, a means of defining, validating, and reinforcing conceptions of scientific knowledge, truth, and reality (Montgomery 1996). The language of science -- especially the jargon of the scientific specialist -- renders the ordinary and familiar extraordinary and unfamiliar, include those who can speak it and exclude those who cannot (Montgomery 1996). Scientists use their reductionist construct of science as a rhetorical tool for staking out cultural authority (Taylor 1996), an authority that depends on the reductionist assumption of objectivity. Scientists characterize their work as detached, nonjudgmental, value-free -- that is, objective -- to establish that they can know what is true and real. Studies of the rhetoric that scientists employ in doing boundary work have shown how scientists use the media to establish and reinforce the limits of "real" science, debating claims and counter-claims within the reductionist framework, rejecting or excluding violators of the unwritten rules governing behavior in the scientific community (Collins

and Pinch 1995, Dearing 1994, Gross 1994, Sullivan 1994).

The reductionist perspective motivates the scientific establishment to work hard at maintaining control over public conceptions of reality. Within this narrowly defined frame of reference, which does not accommodate ambiguity and complexity, science can explain the world. The basic question of scientific ontology is "what is there?" (Worrall 1994). The basic answer to this question is "everything." Within a broad frame of acceptance, both the question and the answer are reasonable and sensible as well as highly ambiguous and complex. However, scientists tend to operate within a narrow, more manageable reductionist frame of reference; within such a frame of rejection, the question and answer do not appear to be so reasonable and sensible. Hence, scientists are inclined to ask not "what is there?" but, more precisely, "what, in view of the evidence we have, and in particular in view of the evidence accumulated by science, is it reasonable to believe that there is?" (Worrall 1994, xi). This narrowly defined question can yield a narrowly defined explanation of what reality is, a clear and simple answer. The rhetoric of science depends on public trust to be effective; thus, "central to all situated utterances is a speaker who evokes appropriate emotions and endorses appropriate values" (Gross 1994), one who can explain what reality is, clearly and simply, one who is thus in control. John Mack has proposed widening the reductionist frame of reference, claiming that it may be inadequate to explain everything in our environment; he has asserted that emotional and spiritual experience are just as valid as physically sensed experience in attempting to explain and understand the environment -- suggesting that, contrary to scientific dogma, science *does not* know, *cannot* explain, and *is not* in control of everything in our environment. Gleick's reductionist frame of reference does not accommodate non-visible, non-material, non-measurable things. Thus Gleick has declared alien abduction impossible, unreal, and those who claim it possible wrong; he has depicted Mack as a violator of public trust in scientific authority.

Victimage ritual: the public betrayed

Scientific controversies are more often than not political, tending to involve challenges to the accepted scientific world view. The study of struggles over who has the right to speak as a scientific authority should improve understanding of the ways in which scientific elites form and function (Brante 1993, 189). This analysis, focusing on the role of the media in sustaining the power of the scientific establishment, should contribute to that understanding. In 1994, journalist James Gleick took it upon himself to condemn scientist John Mack for evoking inappropriate emotions and endorsing inappropriate values by studying the so-called alien abduction phenomenon. Gleick asserts in his critique that the abduction phenomenon is nothing but a fantasy and that Mack's research is consequently not legitimate science. Gleick employs two key, interlinking associational clusters in constructing his victimage ritual: he frames Mack's work as theater -- a sham -- and also a violation -- a shame, even a sin. He dismisses Mack's work as fiction, "mythology." He cites depictions of alien abduction on television and in the movies to maintain the image of Mack's work as theater, entertainment, not science. He also cites Mack for numerous violations of scientific standards -- for evidence, methods, and corroboration, to name a few. He especially dwells on images of sexual violation drawn from abduction accounts to emphasize the shameful nature of Mack's endeavors; transgressions of the ethos of science, framed as violations, are coupled with images of sexual violation. References to theater also reinforce the idea that Mack is a violator -- in Gleick's view, Mack is pretending to follow the rules of science, but he is actually disregarding or breaking them. He is pretending to care for his clients, but he is actually violating their safety and security, their mental well being. He is encouraging his clients to fabricate traumatic memories under hypnosis, a method that gets their guard down and leaves them open to a sort of psychic rape. Thus the theatrical aspects of Mack's work serve as a cover for his violations. Gleick uses images of sexual violation to emphasize his concerns about Mack's claims

of recovering suppressed memories of abduction. In Gleick's victimage ritual, memory is an especially vulnerable aspect of self: Mack is violating his clients' privacy, security, and identity by probing their memories; his work is akin to rape -- a violation of his clients and the boundaries of science.

Employing his two associational clusters, Gleick frames Mack as a fake -- a gullible believer posing as an expert -- and a violator of professional standards, public trust, and clients' well being. He blames Mack for letting down journalists (represented by Gleick), the public (also represented by Gleick), other scientific authorities, and Mack's own clients -- for failing to perform his duties as a scientific authority. Gleick dismisses Mack's research subject as "mythology." He accuses Mack of "blurring...distinctions between real knowledge and phony knowledge," rendering "all of us more vulnerable to faith-healers and Holocaust-deniers." Gleick opens his 4,612-word diatribe by framing Mack not only as a scientist who is engaging in theater rather than science but also as an authority who is not exercising proper judgment: "In the world of professional wrestling, fans fall into two categories...the Smarts and the Marks. The Marks believe that they are watching spontaneous contests of strength and skill. The Smarts know that they are watching a fascinating, highly plotted, roughly scripted form of dramatic entertainment.... In the world of unidentified flying objects, John E. Mack...is a Mark masquerading as a Smart." Gleick reports not that Mack possesses authoritative credentials but that he is *labeled* a "Pulitzer Prize-winning Harvard psychiatrist" on his book jacket. And he asserts that promotion of Mack's book "leans heavily on his professional trappings"; Mack's credentials become a costume, his publicists "sleazy." Gleick passes judgment on Mack for popularizing his work by publishing a mass-market book about his abduction research and talking about it on the television programs "Oprah" and "48 Hours" and "in supermarket tabloids." He thus indirectly accuses Mack of violating the unwritten rule that prohibits legitimate scientists from seeking publicity by attempting "to cash in" on "the flying

saucer craze": Mack's media appearances are a violation of scientific ethos and also a part of the "theater" that Mack calls research, in Gleick's view.

Gleick adds punch to his victimage ritual by lacing his critique of Mack's work with references to sexual violations reported in abduction stories: "various forms of unwilling sex," "cosmic rapists," "gangs of alien sex abusers," "little gray rapists," "galactic sex crime," "alien onslaught," "the one-sexual-fantasy-after-another-as-told-to-me genre," "sex in a 'pod'," "Catherine is forced to lie on a table naked and spread her legs while an alien with cold hands inserts an instrument into her vagina," "Eve is fondled by three 'midgets'." He ticks off the ways in which Mack has violated the ethos of science: what equals scientific authority, in Gleick's view, is solid credentials, scientific objectivity, sound methodology, hard data, physical evidence, openness to criticism. Mack does not *know* that people have been abducted by aliens, Gleick concludes: he *believes* it. The idea that a scientist might be a believer clearly offends Gleick, who further belittles Mack for other questionable beliefs, calling him "a '60s late-bloomer" who "[fell] hard for Werner Erhard, Carlos Castaneda, est, Esalen and so forth." Mack's suggestion that the abduction phenomenon may have a "spiritual" element is also depicted as a violation: blurring the boundaries between science and religion is clearly a violation of scientific ethos: the separation of science -- "knowledge" -- and religion -- "belief" -- is important in Gleick's world view, and he characterizes belief in abductions as "anti-science," "anti-rational," a "cult." He goes so far as to equate belief with insanity: he calls the abduction phenomenon a "craze," a "tawdry belief mania." Gleick calls Mack "unrepentant" -- the worst kind of violator, a sinner who refuses to confess that his work is tainted by "contaminating influences" and his research methods unsound: Mack's research is "grossly lacking in respectable methodology," devoid of "data from psychological tests," lacking controls or negative cases as well as an "explanation of how he selected [his] case studies." Gleick

dismisses Mack's research method of hypnosis as theater, too, calling it "a fringe practice...as useful to carnival magicians and moviemakers as to clinical psychiatrists...a conspiracy between hypnotist and willing subject." And he charges that Mack even "uses language in [a] blousy manner" and "engages in a slippery form of rhetoric...to hedge his bets...a sickeningly corrupt style of hiding behind language." Gleick claims Mack dismisses criticisms of his research as "merely 'rational' or 'empirical' or, worst of all, 'Western'."

To sum up, Gleick characterizes Mack as an authority who has violated his social contract. As a scientific authority, Mack's job is to reinforce a conception of "reality" approved by the scientific community. Journalists -- and the public that counts on them for the "facts" -- depend on authorities such as Mack to reinforce accepted conceptions of reality. Like many of Mack's critics, Gleick makes much of this scientist's authority: what distinguishes Mack from your typical "flying-saucer nut is that he's got authority," he notes. Authorities are makers and enforcers of the (mostly unwritten) rules; they are not supposed to ignore or break them. Gleick perceives himself as a journalistic authority, and Mack has undermined his authority as a vendor of "fact" and "truth" by challenging his reductionist conception of reality. Thus Gleick blames Mack for not doing a proper job as an authority; Mack is flouting scientific authority and getting away with it *because he is a scientific authority.* Given Mack's authority and Gleick's narrow perspective on scientific reality, Gleick takes it upon himself not to ignore the errant Mack but to upbraid him publicly for shirking his duty, violating the socially constructed terms and boundaries of his authority, breaking a tacit agreement with society by which he is responsible for explaining what "objective" reality is and is not. Gleick aims to make Mack a scapegoat for everyone challenging the boundaries of science, within which reality is well defined. Like a court-martial, such an upbraiding should scare other authorities out of violating boundaries.

But while Gleick's victimage ritual is powerful, it is also confusing. For example, he labels Mack a "Mark" -- a dupe who cannot distinguish fantasy from reality -- who is "masquerading as a Smart" -- someone who can distinguish fantasy from reality but yet enjoy the fantasy as entertainment -- thus criticizing Mack for posing as an "expert" on reality but failing to distinguish reality from make-believe. Yet Gleick is ultimately unable to reject Mack's authority; indeed, a critical element of Gleick's victimage ritual is the assumption that Mack *is* a legitimate scientific authority. In addition, given that he subscribes to the conventional scientific world view, Gleick would have to agree that questioning and the formulation of hypotheses is a key element of the standard scientific method; science is intended to make known the unknown. Mack is asking questions and formulating hypotheses in an attempt to explain a phenomenon that no one understands; he has proposed that abduction accounts may be an indicator of a mystery worth solving. Gleick asserts that there is no phenomenon and therefore no mystery. But no matter how Gleick might trivialize and marginalize the subject of Mack's research, a mystery remains, and Mack is taking a scientific approach to solving it. The conventional perspective on science also dictates that disagreement with a theory or a finding does not warrant dismissal; an alternative theory or finding must be offered that can stand up to scrutiny. However, what Gleick attempts to do in his victimage ritual is dismiss Mack's theories and findings simply because he does not like them. Gleick oversimplifies the abduction phenomenon by declaring it a fantasy -- not real and therefore not requiring explanation. He exaggerates both Mack's willingness to believe and the prominence of sexual violations in abduction accounts to justify his frame of rejection. Gleick's victimage ritual diverts attention from at least two important points that warrant attention -- from scientists, journalists, and the public. One, trivializing the abduction phenomenon and blaming Mack for encouraging public interest in it enables Gleick to skirt around a question worth attempting to answer: why are abduction stories so prevalent in our culture, and what do they mean? And two, oversimplifying Mack's views and blaming him for undermining the authority of

science enables Gleick to avoid another important question: where exactly *should* the boundaries of science lie, and who should be able to participate in defining them?

A comic corrective: reality is more complex...

Scientific world views are what Kenneth Burke calls "perspectives"; motives derive from perspectives, and actions derive from motives (Burke 1984, 92). The reductionist perspective motivates the scientific establishment to work hard at maintaining control over public conceptions of reality. Within this narrowly defined frame of reference, science can explain the world. But Mack's challenge to the reductionist world view is a threat to the authority of the scientific establishment: no one can explain the phenomenon that Mack is studying within the reductionist frame. "There is a vast range of reported human experiences that cannot be understood by the laws and mechanisms of Western science," according to Mack (1992); "it could be argued...that those of us who rely exclusively on intellect and rationalism to arbitrate reality are as prone to bias and distortion as those who have been accused of misrepresentation by virtue of lack of education...." The reductionist, materialist conception of reality agreed upon by scientists and accepted by the media and the public as authoritative conflicts with Mack's conception. The tragic frame employed by Gleick narrows, simplifies, and rejects in order to dismiss Mack's research as illegitimate. Gleick's narrow perspective defines reality as bounded, material, predictable, observable, knowable. Mack's broader perspective accommodates a conception of reality that is bounded and unbounded, material and immaterial, predictable and unpredictable, observable and unobservable, knowable and unknowable. Gleick's world view does not accommodate the possibility of alien visits or abductions; especially maddening is Mack's refusal to reject people's claims of abduction. In Gleick's frame of rejection, Mack can and should be held up to high standards and can and should be ridiculed for engaging in abduction research. Gleick explicitly challenges Mack's way of knowing by claiming that he "should know better." Mack calls abduction a "phenomenon" -- a

subject worthy of scientific study. Gleick calls it a fantasy, a "tawdry belief mania," a "craze" not worth a legitimate scientist's attention. Mack claims his motive for studying the abduction phenomenon is scientific curiosity and a desire to help troubled people. Gleick charges that Mack is "toying" with his clients and motivated by a desire for profit.

Mack has written that the reductionist paradigm requires "the a priori exclusion of vast amounts of data simply because that information is in conflict with that point of view.... To exclude data because it does not fit a particular view of reality can only, in the end, arrest the progress of science and keep us ignorant": such a restrictive world view does not accommodate "human consciousness and experience as legitimate ways of knowing about reality" (1995, x-xi). Mack has suggested that a widened frame of reference might accommodate the abduction phenomenon: "My choices...were either to stretch and twist psychology beyond reasonable limits, overlooking aspects of the phenomenon that could not be explained psychologically...i.e. to keep insisting on a psychosocial explanation consistent with the prevailing Western scientific ideology. Or, I might open to the possibility that our consensus framework of reality is too limited and that a phenomenon such as this cannot be explained within its ontological parameters. In other words, a new scientific paradigm might be necessary in order to understand what was going on" (Mack 1994, 20). Mack's perspective is almost a frame of acceptance -- but not quite. By asserting that reality goes far beyond what scientists now say is real and that we do not know how far beyond it goes, Mack attempts to widen his frame. But he also describes his work as real and legitimate science by conventional standards -- he insists that he is maintaining his objectivity, using sound methods, attempting to falsify his claims, and submitting his data to peer review. He enforces existing disciplinary boundaries by specifying what he is and is not qualified to do as a properly credentialed psychiatrist. By attempting simultaneously to expand and confine his perspective, Mack disturbs the boundaries of science without necessarily extending them. For example

(emphases added):

• Mack asserts in a journal article: "discussion of [the abduction phenomenon] is skewed due to a lack of first-hand *clinical information* and to cultural *biases* to which we all are vulnerable.... An *adequate analysis* of subjective abduction experience should be *corroborated across reporters*, should *predict* the form of future reports, and should *predict* the general future behaviors of the persons involved" (McLeod et al 1996, 160).

• He explains in his book: "...I am *reporting* the experiences of the abductees as told to me and *not presuming* that everything they say is literally true.... [T]he *objective distance* between me and the experiences...should be understood...." (Mack 1995, ix)

• He depends on the approved vocabulary of science: "Efforts to establish a pattern of *psychopathology* other than disturbances associated with a traumatic event have been unsuccessful. Psychological *testing* of abductees has not revealed *evidence* of mental or emotional disturbances that could account for their *reported* experiences.... My own *sample* demonstrates a broad range of mental health and emotional adaptation...." (Mack 1995, 4)

• He attempts to take a disinterested stance: "As personal reports are our principal source of knowledge of abductions, we must be especially *rigorous in evaluating* their *authenticity*, affective intensity, and *consistency* ...as well as the motivation, *skepticism, believability* and sincerity of the reporter in reference to his or her own experience...." (Mack 1995, 424)

Mack has not yet been able to persuade his critics to adopt a broader perspective on reality. A comic corrective to Gleick's victimage ritual would provide an expanded perspective on reality that would be better than other, narrower perspectives because it would explain more and exclude less; it would be more useful. Such a corrective would enable both Gleick and Mack to maintain their authority while accommodating different perspectives on reality. It would accommodate all questions that might be asked. Mack himself has suggested adopting this sort of perspective:

"Let's not just debate 'Is it real? Is it not real?'...let's move on to 'Something's going on here'...and look at 'What does this really mean for us?' 'What does it mean for our cosmology?' 'What does it mean for psychiatrists clinically in terms of our categories?' 'What does it mean for us in terms of our relationships to the ecology and to the environmental crisis?' What does this mean in terms of domains of reality?'...." (Bryan 1995) Kenneth Burke described conventional scientific knowledge as "bureaucratized wisdom" (1984, 228). In Burkean terms, Gleick is concerned about knowing, while Mack is concerned about understanding. Gleick expects a crisply drawn cognitive map from his scientific authorities, depicting exactly what is "there" -- that is, "real." Mack deems such maps inaccurate or incomplete -- "mistaken," as Burke would say. Mack must draw a new cognitive map to point the way toward the kind of scientific knowledge that may answer the question "what is there?" without actually putting that knowledge -- "everything" -- on the map. This new map should point the way. It must show how to get "from what to what" without pinning down all the details of "what," given that "what" is not fixed but always changing.

A comic corrective to Gleick's victimage ritual would require an expanded definition of reality: it would depend on the idea that reality is not absolute but evolving -- it is what one needs to know in order to get along. The point of knowing about the world, understanding reality, is to get along in the world, to be accommodating of change in reality. Science tells us what is in the world, but it does not tell us how we do (or should) relate to what is in the world, how we do (or should) live in the world (Appleyard 1992). A pragmatic attitude toward the challenge of defining and describing reality should lead to a Burkean "both-and," rather than an "either-or," perspective. John Dewey explained his philosophy of pragmatism as an extension of empiricism focusing not "upon antecedent phenomena but upon consequent phenomena, not upon the precedents but upon the possibilities for action" (Dewey 1970, 33): "The objects of ordinary perception" are "starting

points for reflection and investigation" rather than "final...culminations" (Dewey 1929, 100). Dewey proposed that a useful attitude toward scientific knowledge and reality should rest on acceptance that "knowledge is eventual" -- that is, the outcome of a step-by-step though not necessarily linear) process. Such an attitude would yield the understanding that sense-perception and reason-conception are not competing methods of acquiring true knowledge. A perception indicates what is, while a conception makes explicit the meaning or value implicit in a percept, Dewey explained; true knowledge is a product of the union of percept and concept. This kind of knowledge carries meaning and value; it is not absolute and fixed but action-oriented and evolving; it acknowledges that reality evolves.

An evolving reality is neither absolute nor relative. But reductionist reality is absolute; the reductionist world view conflates scientific knowledge, absolute truth, and objective reality. Given the key role of rhetoric in science, some clarification of terms is in order at this point.[7] Discourse is substantive, as Burke wrote; it constitutes -- it assigns and transforms substance (Burke 1969). The discourse of science constitutes science, and a central element of this constitution is the scientific conception of reality. In the reductionist world view, truth cannot be relative: relativism -- typically defined as a theory stating that true and absolute knowledge of reality is impossible because knowledge is contextual, defined and limited by time, place, and individual perception -- is framed as anathema to science. The word "absolute" -- derived from the Latin *absolutus*, meaning "to set free" -- has come to mean perfect, unerring, certain. (One synonym for "absolute" is "God.") "Relative" is typically posed as the opposite of "absolute" and thus tends to convey the idea of imperfection, error, uncertainty. However, "relative" can also mean relational, associative, connective. Although Burke asserted that he was not a relativist, his conception of knowledge as both contextual *and* true to the nature of reality is a relative conception

in this sense. The key to constructing a comic corrective to Gleick's critique is to explain how the two are linked.

In attempting to transcend the apparent dichotomy of absolutism and relativism, it is worth considering not only that "relative" can also mean "relevant" and "pertinent" but also that "transcendence" derives from the Latin word meaning "to climb across." Feminist science theorist Donna Haraway shows a way toward transcending the absolute-relative dichotomy in her critique of both scientific absolutism and relativism as impossible stances promising "vision from everywhere and nowhere equally and fully...." A better alternative, she proposes, "is partial, locatable, critical knowledge sustaining the possibility of webs of connections called solidarity in politics and shared conversations in epistemology" (Haraway 1991, 191). Transformation and transcendence occurs, as Burke noted, in areas of ambiguity (Burke 1969, xix). A reductionist perspective on reality generalizes, simplifies, lowering, lessening, narrows, and debunks, Burke explained (1969, 96-97); it does not accommodate complexity and ambiguity. Burke recommended aiming for representativeness rather than reduction -- not only an accurate but also a complete (that is, complex) representation. Strategies of transcendence and transformation rest on the assumption that there is no ultimate truth, just a constant process of seeking truth, he explained. And not all ways of seeking the truth are equal: some ways are better. Transcendence is a means of finding a better way, Burke said; it involves adopting a perspective -- choosing a position -- from which two seemingly opposing points of view "cease to be opposites" (Burke 1984, 336).

A comic corrective to Gleick's victimage ritual would transform and transcend both absolute and relative conceptions of reality by acknowledging that partial, situated perspectives are neither absolute nor relative and, together, provide a more complete -- thus, better -- knowledge of reality. It would depend upon a conception of science as a practice of exploring reality from different

perspectives. It would acknowledge that the stance of objectivity dictated by the conventional scientific world view is what Haraway calls a "god trick" -- a disembodied, dislocated, and thus impossible stance. Haraway calls for a more realistic, situated and embodied scientific perspective: "we need to learn in our bodies, endowed with primate colour and stereoscopic vision, how to attach the objective to our theoretical and political scanners in order to name where we are and are not" (1991, 190). She argues that partial perspective is not only a valid perspective but ultimately a better one: a multiplicity of partial perspectives might yield, collectively, the broadest possible perspective on reality, certainly broader than the non-situated, hypothetical, objective perspective. This conception of partial perspective is not a relativist conception. As feminist science theorist Sandra Harding notes, the conventional, reductionist world view of science and the embodied, situated, contextualized, feminist world view are not equally legitimate. The conventional, so-called objective view does not acknowledge underlying beliefs and assumptions and is thus limited (Harding 1987). The contextualized perspective is better: in Burkean terms, it is more well rounded. This "feminist empiricism," as Harding calls it, expands rather than restricts perspective, challenging "the incomplete practice of the scientific method, not the norms of science themselves" (Harding 1987, 113). Synthesizing and integrating information gathered from as many different perspectives as possible should yield a broader understanding of reality: this approach might be the best way to get as close to the truth as possible.[8] A more well rounded perspective on reality provided by a comic corrective would recognize that subjective experience is not better than objective knowledge, or vice versa: they are different, not equal, two partial perspectives that together come closer to the truth than either one does alone. They are not relative in the typical relativist sense; they are relative in the sense that they are relational and pertinent.

To sum up, the sites in the Gleick-Mack conflict where transcendence is necessary are assertions

about reality. Mack has attempted to transcend conflict with reductionists by asserting that the abduction phenomenon is not necessarily an indication that alien beings are visiting earth and kidnapping people nor some sort of hysteria or insanity but perhaps an indication of some greater reality that we do not yet understand and some spiritual experience for which we may not yet be ready. But he keeps returning to the constructs of reductionism to justify his work, thereby undermining his own efforts to transcend them. Gleick attempts a downward transcendence of this conflict by debunking Mack's claims and declaring the abduction phenomenon a "cash cow" fed and milked by the entertainment industry. But his framework is far too narrow to permit any kind of dialogue on the subject. Gleick transforms the ambiguity of the abduction phenomenon -- and, more broadly, the nature of reality -- into a certainty by insisting that since Mack and his subjects have no physical evidence of their claims, those claims certainly are bogus -- they cannot be real or true. Mack attempts to transcend this ambiguity by insisting that the reductionist conception of reality is too narrow to accommodate the abduction phenomenon. Rejecting Mack's views as relativist, Gleick asserts that, "outside of hard science, all too many academics" -- like Mack -- "have fallen into the conceit that anyone's version of reality is as valid as anyone else's...." He dismisses Mack's research subject as unreal, abduction experiences as bad dreams. He explicitly accuses Mack of "blurring...distinctions between real knowledge and phony knowledge." Mack claims, on the other hand, that "a vast range of reported human experiences...cannot be understood by the laws and mechanisms of Western science...." Mack is trying to avoid operating in this narrow frame; he is trying to accommodate emotional and spiritual experiences as "real"; Gleick, on the other hand, is tightly constraining his frame to keep them outside the boundaries of scientific reality.

The nature of human physiology virtually dictates acceptance of a perspective on reality that accommodates tremendous ambiguity and complexity. First, the complexity of human physiology

is representative of complexity in the world at large. Second, the complexity of physiology renders people not only highly sensitive to their environment but also vastly different from one another in their abilities to sense and comprehend their environment -- and even a single individual can exhibit a broad range of sensitivity over time. The human brain alone is complex "beyond belief.... Even the pinhead-size brain in wasps and houseflies has so far defied circuit analysis" (Durham 1989, 216). The human sensory system is almost unfathomabbly complex, including distance, contact, and internal sensors; mechanoreceptors, chemoreceptors, and pain receptors; cutaneous receptors, proprioceptors, and special (eye, ear, nose) receptors -- all of which operate independently and interconnectedly. A comic corrective to Gleick's victimage ritual thus could acknowledge that reality is so complex that attempting to explore and explain it within a narrow framework is not reasonable. The corrective would accommodate an ambiguous, complex, relative-relational conception of reality.

Conclusion

Differing perspectives are not worth fighting about, but they are, indeed, worth talking about. As Haraway, Harding, and Burke point out, synthesis and integration of a multiplicity of individually limited perspectives is a better way of getting closer to the truth than a single narrow perspective, (especially one that does not acknowledge where it comes from, as it were). The more perspectives are considered, the greater is the likelihood of learning something new. The so-called science wars are a product of the scientific-cultural imperialism that has prompted hegemonic reductionists to reject more well rounded perspectives on reality and reaffirm the scientific authority of a limited, controlled reductionist world view. However, as Merton and Kuhn (among others) have explained, science does not logically and inevitably produce an absolute depiction of reality, as scientific knowledge of reality is, after all, a product of consensus. Thus, even the reductionist conception of reality actually is not fixed but simply what participating scientists agree is the best

way of explaining what the world is like *for now*. A comic corrective to Gleick's victimage ritual therefore does not require a wrenching change in perspective, only a broadening.

As Burke acknowledged, though, most people are not willing to do what they need to do in order to get along: that is, they are not willing to be tolerant, to round out their frames of reference. Gleick's victimage ritual is not a conventional negotiation of scientific knowledge claims but rather a skirmish in the ongoing science wars. Gleick declares his allegiance in these wars as he observes that, "outside of hard science, all too many academics" -- like Mack -- "have fallen into the conceit" -- another theatrical reference, implying something imaginary -- "that anyone's version of reality is as valid as anyone else's...." Gleick is comfortable with his reductionist perspective on reality; it provides him with a familiar, dependable, highly readable cognitive map. It is a good defense against chaos and confusion. Mack, on the other hand, is interested in exploring the unknown -- unmapped, "unseen realms."

Mack the scientific authority and Gleick the journalist share responsibility for explaining science to the public; they need to adopt a perspective that will enable them to bridge the gap between their respective world views and continue fulfilling their responsibilities. The comic corrective described here would enable them to develop and maintain their own partial perspectives and accept other perspectives as well; it would enable them to be agnostic -- doubting but accepting -- rather than atheistic -- non-believing and rejecting. This corrective would depend fundamentally on the concept of an active stance of acceptance. Active acceptance does not require approval or endorsement; it is thus a suitable stance for a skeptic. What Mack wants it to do is shed further light on the nature of reality as well as how people experience reality and make meaning from it. What Gleick wants to do is provide the public with an explanation of reality that is as simple, comprehensible, and complete as possible. The comic corrective proposed here would aim to

broaden, amplify, and accommodate perspectives on the abduction phenomenon, to integrate and synthesize what appear to be conflicting conceptions of reality. "The comic frame is charitable, but...not gullible," Burke noted (1984, 107). A comic frame of acceptance should provide Gleick and Mack -- and all others who perceive themselves to be in conflict over the nature of reality -- a way of establishing common ground and deciding how to proceed from there. Perhaps they could agree that thousands of people believe they have been abducted by aliens. Perhaps they could agree that these people are not "crazy." They cannot presently agree on why these people believe they were abducted, because they do not know enough about the experiences to answer the question.

Comic corrective is not a panacea. It cannot, as Burke noted, correct the cause of alienation -- between science and the public in this case (Burke 1984, 175). A comic corrective such as the one outlined here could aim, however, to promote tolerance and acceptance, avoid rejection, and foster a broad public dialogue about the nature, function, purposes, and effects of the way of knowing, the professional practice, the cultural institution we call science. Such a corrective would permit those involved in the dialogue to transcend the right-wrong, legitimate-illegitimate sort of debate that has characterized the science wars in this decade, moving beyond disputes over which perspectives are valid to determine which are useful. Science should be a part of our "equipment for living," in Burkean terms (Burke 1973, 304). "We need to stop thinking of science as the place where the human mind confronts the world and of the scientist as exhibiting proper humility in the face of superhuman forces," writes philosopher Richard Rorty (1987, 39); we do not need to debunk science or scientists, Rorty says, but we do need to consider them in a broader perspective. As long as they persist in the war mode, science warriors can do nothing but continue clashing. In the name of science, they should lay down their pen-swords, broaden their perspective and strive for science peace as their goal. ###

Notes

1. Gleick won a National Book Award for Chaos, a popular science book about chaos theory.

2. It is worth noting that The New Republic is itself a member of the elite media, written for and cited by those who consider themselves to be opinion leaders and intellectuals.

3. The conventional scientific world view is variously described as reductionist, positivist, materialist, empiricist. For simplicity's sake, this paper will describe the conventional scientific world view as reductionist. Reductionism may not necessarily be the operative world view in scientific research. But studies of science communication (Nelkin 1995) have shown that in its dealings with the public, the scientific establishment prefers to maintain the traditional reductionist world view and employ the cognitive deficit model (Hilgartner 1990) as these frames reinforce the authority of science.

4. Merton's standard of universalism requires that in order to qualify as certified, knowledge must stand up to "preestablished impersonal criteria, consonant with observation and with previously confirmed knowledge"; claims must be untainted by a scientist's "personal and social attributes" (Merton 1996, 269). Communism requires that knowledge be "a product of social collaboration and...assigned to the [scientific] community" (271); "communication of findings" is one important way of meeting this standard. Disinterestedness dictates that science must be subject to "the exacting scrutiny of fellow experts" (275), that scientists be accountable to other scientists and no one else. Organized skepticism mandates "temporary suspension of judgment and detached scrutiny of beliefs" (276).

5. Perhaps the most infamous attack of this sort is physicist Alan Sokal's "hoax" on the editors of the cultural studies journal Social Text. (See Mukerjee 1998).

6. Compared to a news or feature article, a book review does not call for multiple perspectives, rebuttals, or other ways of providing for balance or fairness that are commonly employed in news or feature stories. Thus Gleick's choice of format makes it easy for him to attack Mack.

7. Sources consulted about definitions were Webster's Third New International Dictionary, unabridged, 1986, Merriam Webster Inc.; and Roget's International Thesaurus, 3rd edition, Thomas Y. Crowell Co., 1962.

8. Haraway calls this broadened perspective on scientific knowledge "embodied objectivity.... [I]nsisting metaphorically on the particularity and embodiment of all vision...and not giving in to the tempting myths of vision as a route to disembodiment...allows us to construct a *usable* [emphasis added] doctrine of objectivity..." (Haraway 1991, 189).

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