



## Empiricism, Information Management, and Environmental Humanities

Scott SLOVIC (*University of Idaho, USA*)

### Abstract

*We live in an era of too much information and too little caring. Following up on the work of Numbers and Nerves: Information, Emotion, and Meaning in a World of Data (2015), I will turn my attention in this paper to various “imaginaries” (transcendentalism, vulnerability, and, in particular, singularity) as a way of suggesting how ecocriticism can overcome intrinsic human insensitivity to information about large, slow, distant phenomena. This paper will emphasize ecocriticism as a field deeply associated with information management and communication.*

### From a Winter Walk to Summer Flights

Readers of John Muir’s “A Geologist’s Winter Walk” (1873) may remember this essay chiefly for its exhilarated tone and the author’s passion not only for Yosemite Valley in general but for rocks in and of themselves: “They are dear friends, and seemed to have warm blood gushing through their granite flesh; and I love them with a love intensified by long and close companionship” (355). A few paragraphs later, after an unexpected tumble from a precipice, the usually sure-footed Muir chastises his feet for becoming too accustomed to stairs and pavement in the city, seeking to overcome his awkwardness by sleeping that night “on a naked boulder” and then devoting the following day to “tracing the action of the forces that determined this peculiar bottom gorge, which is an abrupt, ragged-walled, narrow-throated canyon, formed in the bottom of the wide-mouthed, smooth, and beveled canyon” (356). What Muir offers here is an analysis of glacial erosion as a geological process that formed Yosemite, but the geological data are encased in painterly and metaphorical landscape description. It is easy to lose the information within the story, but there is no doubt that the narrator has had a deeply, even painfully, empirical experience, surely leaving some of his own flesh and blood on the granite faces he has been examining. This approach to environmental writing—lived experience captured anecdotally and presented in essay format as a way of clarifying and energizing data—is one of the oldest strategies in the field of so-called “nature writing.” Literary and scholarly writers today, in the second decade of the twenty-first century, have adapted this approach to contemporary environmental concerns and to academic contexts. Much of my own writing occurs in a first-person, narrative mode, which some readers may recognize as what I have long called “narrative scholarship”; this common strategy in ecocriticism is “a means of vivifying the ‘immediate context’ of scholarly analysis and striving for a mode of communication that captures the emotional and

moral urgency of environmental experience” (“Narrative Scholarship” 315). Just as John Muir spent much of his writerly life walking, climbing, and occasionally tumbling in the High Sierra of California in order to gather first-hand, empirical data about natural processes, environmental writers today sometimes jet from continent to continent, conferencing and hiking in East Asian mega-cities and Scandinavian forests from one week to the next and reporting on their “findings” in the hybrid genre of narrative scholarship.

I write this after spending the past months crisscrossing the Atlantic and Pacific oceans to attend conferences, not only expressing my own ideas, but listening to hundreds of academic lectures, reading articles on the seventy-first anniversary of the bombing of Hiroshima in the Japanese edition of the *International Herald Tribune* in sweltering Tokyo, and contemplating the meaning of November-like rain and cold in Tampere in mid-August. Collecting information, contemplating information, and communicating information.

All of this flying around the planet is a process of engaging with data. Many people participate in this process even without such physical travel, simply by surfing the web. I realize now that my entire career in the environmental humanities since the mid-1980s, and more specifically in the branch of textual studies that Cheryll Glotfelty and Harold Fromm labeled “ecocriticism” in the mid-1990s, has been devoted to studying how our brains gather information from daily experience of the world and from the texts (verbal and otherwise) we seek out or by which we are bombarded through the news media. In books ranging from *Seeking Awareness in American Nature Writing* (1992) and *Going Away to Think* (2008) to *Numbers and Nerves: Information, Emotion, and Meaning in a World of Data* (2015), the latter of which I published with my psychologist father, Paul Slovic, I have explored the quirks and limitations of how the human mind receives, processes, and communicates information. I have also examined the ways that various forms of cultural expression, from literature to photography and digital compositions, serve to break through the psychological numbness caused by information overload and re-sensitize audiences to the meaning of information.

In *Numbers and Nerves*, which is one of the most explicitly data-focused projects emerging from the ecocritical discipline, we published five articles by social scientists on such phenomena as psychic numbing, pseudoinefficacy, and the prominence effect; seven examples of journalistic, literary, and academic writing that strive toward sensitivity to information; and then four interviews with distinguished environmental and social communicators on their strategies for teasing out the meaning of information on subjects ranging from air pollution in Mexico City to the industrial contamination of American rivers.

When I met with activist Vandana Shiva in New Delhi to conduct an interview for the book in 2006, we sat in a small café beneath a sign reading “This Is Coke Pepsi Free Zone” as Shiva talked about the cynical use of what she called “the anesthesia of destruction” employed by corporate and governmental actors in numbing the public to such misdeeds as the privatization of rural water resources in India through technical jargon, stacks of statistics, and simply an overload of information. Artist Chris Jordan, whom I interviewed in his Seattle studio in 2011, explained his use of unique computer software that enables online viewers to visit his website at [www.chrisjordan.com](http://www.chrisjordan.com) and click on such images as “Plastic Bottles, 2007,” where they can observe two million plastic beverage bottles as an aggregate and then—as if the viewer were walking toward the same image, which appears from a distance to represent a soothing, grayish, sand-like surface—bring into focus the individual bottles that constitute the abstraction of countless bottles. As Jordan puts it, enabling this “trans-scalar” experience

for viewers is an attempt on his part, as an artist, to “raise the issue of the individual’s role in the collective” (*Numbers and Nerves* 206), which is a way of making data poignant.

Whether flying across the planet in pursuit of information about the latest developments in the field of ecocriticism in Japan and Finland, Hong Kong and France, or sitting at home to reflect on such experiences in this article, I am participating in an empirical process, gathering information through direct observation and communicating ideas in the form of story. The psychological articles by Paul Slovic and his colleagues in *Numbers and Nerves*, which inform the journalistic and literary work later in the volume by such writers as Nicholas Kristof and Terry Tempest Williams, are based on empirical studies with human subjects, testing participants with “survey instruments” to reveal their reactions to various kinds of information.

I now see this emphasis on information as a broad trend in fourth-wave ecocriticism, the applied, material phase of the field that began around 2008 (“Editor’s Note” 619). Beyond personal narrative that examines lived experience, what else counts today as the empirical gathering and communication of data in the environmental humanities? The examples I provide below do not rely upon the first-person strategies I have just described, but they reveal the growing trend in ecocriticism and similar fields toward examining what counts as data and the effectiveness or ineffectiveness of various modes of communication.

### The “Apprehension” of Slow Violence

Rob Nixon’s phrase “slow violence,” highlighted in the title of his 2011 book *Slow Violence and the Environmentalism of the Poor*, has drawn attention to the unique and troubling era in which we live, a time of “violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all” (2). From climate change to deforestation, such vast, distant, and gradual environmental change disproportionately affects “those people lacking in resources,” which is often the result of “ethnicity, gender, race, class, region, religion, and generation” (4). Nixon’s project highlights the “empty-belly” environmentalism explained in Ramachandra Guha and Juan Martinez-Alier’s *Varieties of Environmentalism: Essays North and South* (1997) by exploring the work of “environmental writer-activist[s]” such as Wangari Maathai, Arundhati Roy, and Ken Saro-Wiwa, among others (5).

While the words “slow” and “poor” have particularly captured the attention of fellow scholars, I would argue that the key focus of Nixon’s project is on what he calls “apprehension,” the ways in which we perceive or fail to perceive information about what is happening in the world. Given the fact that so much of the world’s systemic violence eludes our human sensory capacity, we must rely heavily on data received from those who have special access to the impacts of slow processes. The questions “Who gets to see, and from where?” are central to such access. While Nixon is not writing from his own empirical perspective, locally-based writer-activists are better able to do so. As Nixon says,

Writer-activists can help us apprehend threats imaginatively that remain imperceptible to the senses, either because they are geographically remote, too vast or too minute in scale, or are played out across a time span that exceeds the instance of observation or even the physiological life of the human observer. In a

world permeated by insidious, yet unseen or imperceptible violence, imaginative writing can help make the unapparent appear, making it accessible and tangible by humanizing drawn-out threats inaccessible to the immediate senses. (15)

Rooted in the concerns and priorities emphasized in postcolonial studies, Nixon's project turns the idea of authority inside-out, valorizing the perspectives of the downtrodden and victimized. Thus the voices of jailed and martyred activists such as Maathai and Saro-Wiwa, in Kenya and Nigeria respectively, take on particular potency in relaying the predatory effects of global capitalism. While Nixon's project encompasses a range of prose forms, he points especially to such genres as "memoirs, essays, public science writing, polemics, travel literature, graphic memoirs, manifestoes, and investigative journalism" (25) as media for conveying "scientific and imaginative testimony" (14). These genres all require a combination of experiential data and research, gleaned from the authors' perspectives as activists in the trenches and/or inhabitants of regions afflicted by the lingering effects of colonialism and the ongoing ravages of industrial capitalism.

### **"Information Management" in Visual Art and Fiction**

The author of the 2014 monograph *Ecosickness in Contemporary U.S. Fiction: Environment and Affect*, Heather Houser's recent articles are building up to a new book with the working title *Environmental Art and the Infowhelm*, which studies "the aesthetics of information management" (author's homepage). Her 2014 article on David Foster Wallace's novel, *Infinite Jest*, and digital composition artist Chris Jordan's series of images, titled *Running the Numbers*, identifies the diverse range of expressive media with the capacity to represent and test the meaning of environmental information in the twenty-first century. "No one cultural form shoulders the full burden of disseminating information to media consumers today," she writes. "In movies and maps, verse and visualizations, artists experiment with the aesthetics of information management as an end in itself and as a spur to social, political, and environmental critique" (742).

Houser's study of Wallace and Jordan focuses on their aesthetic representation of garbage, noting that the artists "treat trash as packets of information in a climate where information risks becoming so much garbage. Their cultural experiments express the anxieties of overload..." (743). She argues that imagining "scenarios of environmental threat such as climate change, species extinction, and toxicity ... [is] a matter of making those phenomena that often come to us in the form of datasets or summary statistics more specific, tangible, and affectively charged" (744). Her project seeks to show how information management by way of "assembling, filtering, and aestheticizing information" serves to focus the public's awareness of particular environmental and social phenomena. This approach, as I have explained in *Numbers and Nerves* (77-78), is akin to the treatment of "spinning information" and "narrative framing" in the field of environmental communication studies, such as Julia B. Corbett's *Communicating Nature: How We Create and Understand Environmental Messages* (2006) and J. Robert Cox's *Environmental Communication and the Public Sphere* (3<sup>rd</sup> Edition, 2013). Houser's project is less overtly focused on first-person, experiential narrative as a mode of empirical discourse than Nixon is in the above-mentioned book, emphasizing instead the use of fictional story and visual composition as ways of injecting affective meaning into abstract information. Her own scholarly voice is neutral and analytical—even detached—but she lucidly contextualizes the strategies of artists such as Chris Jordan, whose

work is the visual equivalent of the Third World activist-writers featured in Nixon's study. She scrutinizes the "management" (collection and communication) of data in writers' and artists' work, but does not use the traditional, first-person mode of writing herself.

## The "Database" as Narrative Text

Ursula K. Heise, too, tends to eschew narrative scholarship and commentary on traditional first-person nonfiction, seeking instead to reveal the narrative heart of seemingly dispassionate and unaesthetic texts. I include her in this discussion not so much because of the style of her academic writing but because her research focus in recent projects is data communication.

In her 2016 book *Imagining Extinction: The Cultural Meanings of Endangered Species*, Heise considers how the representation of information about endangered species takes both predictable and surprising aesthetic shapes. Heise has long been interested in interpreting alternative media as texts suitable for critical analysis. An example of this is her commentary on Google Earth in the context of "place studies" in the 2008 volume *Sense of Place and Sense of Planet*. The chapter "From Arks to ARKive.org: Database, Epic, and Biodiversity" in the new book points, for instance, to a video presentation called *Brasil-Cerrado* by artist Siron Franco, taking advantage of what Heise calls "the enumerative power of the catalog" (61). She argues that the catalog or list functions as a means of conveying the disappearance of an entire species, but it may falter in representing the poignancy of individual losses.

Heise sees the Internet, on the other hand, as a way of overcoming the limited aesthetic and emotional texture of a mere list, using the example of installation artist Maya Lin's 2010 website *What Is Missing?* as a demonstration of the potential to combine the portrayal of "large-scale loss" and the "memorialization of individuals" (61). She writes:

In its attempt to zoom in to the local and back out to the global, to move the user back and forth between highly particular circumstances and a global panorama of endangerment, *What Is Missing?* diverts the aesthetic and functionality of Google Maps and Google Earth to the purposes of conservation. (61)

But what about the database itself as a medium for representing endangerment and extinction with aesthetic potency? Building upon the work of Umberto Eco and Franco Moretti on the concepts of lists, catalogs, and databases, Heise suggests that "Biodiversity databases and Red Lists of endangered species can be understood as a new variant of the modern epic or world text and as a new form of nature writing: the forever incomplete attempt to map the entirety of biological life and classify it according to its risk of extinction..." (65-66).

Much as Nixon's textual choices (especially testimonial memoirs) externalize empirical exposure to "information" to Third World activists, Heise draws her data from field scientists, such as contributors to the International Union of the Conservation of Nature's 2015 Red List of Threatened Species, which includes some seventy-seven thousand species. Her own work as an environmental humanist transfers the theories about lists mentioned above, along with studies of databases as "cultural forms" (66) such as Lev Manovich's *The Language of New Media* (2001), to a vital environmental context. She also shows her readers how to interpret biodiversity and extinction databases as texts possessing inherent narrative

structures, chiefly displaying “a focus on nature in decline, on decrease, disappearance, and the past” (75).

### “Multispecies Storytelling” at the “End of the World”

I would like to conclude by mentioning a recent publication that displays a boldly broad-minded approach to empiricism in the environmental humanities. Anna Lowenhaupt Tsing’s 2015 book, *The Mushroom at the End of the World*, addresses the commercial and ecological contexts of the matsutake mushroom, particularly as an emblem of the indeterminacy and, indeed, the precarity of the contemporary crisis-ridden world. “In this time of diminished expectations,” writes anthropologist Tsing, “I look for *disturbance-based ecologies in which many species sometimes live together without either harmony or conquest*” (original italics, 5). In other words, the stories embedded within the interactive lives of mushrooms, humans, and other members of their co-inhabited ecosystems offer something badly needed today. Namely, on a planet rife with ruin and alienation, in the midst of what Tsing calls “a global state of precarity” (6), we must look for new, surprising stories. Although Tsing is an anthropologist, she presented this work in June 2015 to an auditorium full of ecocritics and environmental writers at the biennial conference of the Association for the Study of Literature and Environment, suggesting a common concern for how data, like mushrooms, are gathered and distributed.

What is the methodology here? How does the search for “multispecies storytelling” (x) rely upon an empirical foundation? Tsing asserts a fundamental continuity between storytelling and scientific empiricism:

To listen and tell a rush of stories is a *method*. And why not make the strong claim and call it a science, an addition to knowledge? ... To learn anything we must revitalize arts of noticing and include ethnography and natural history. (37)

Stories may well suffer from “nonscalability” (38), the intrinsic singularity of narrative that disallows abstraction and broad-brush theorization, even quantification. Yet as she proceeds to defend the value of experiential story as a research method that enables “world-building knowledge” (x) at a time when the planet is “going haywire” (1), Tsing is essentially articulating the central role of the humanities in making environmental meaning. The story offered in *The Mushroom at the End of the World* is not so much the scholar’s own story, except insofar as she opens the book by discussing the rationale and strategy of her research, but rather the intertwined stories of matsutake mushrooms and the human communities that have gathered to cultivate and commodify this fungus. Just as Nixon, Heise, Houser, and I have asserted the effectiveness of individualized narrative and/or concretizing visual and verbal discourse to “charge information with interest and affect” (753), as Houser puts it, Tsing crafts the story of a single, singular fungus (and its human devotees) to reveal and drive home the ecological disturbance that is unfolding today on a planetary scale. Whether or not contemporary scholars directly employ in their own work the first-person narrative mode exemplified in Muir’s 1873 geological meditation, there appears to be a growing concern and fascination for the artistic and journalistic presentation of data.

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