

Peter C. van Wyck**Signs of Danger: Waste, Trauma, and Nuclear Threat**

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This book is a welcome addition to work in the fields of environmental sociology and the sociology of disasters for several reasons. First, it is successful in applying recent work in these areas from North American researchers such as Charles Perrow and Kai Erikson, as well as European theorists, including Paul Virilio, Ulrich Beck, Jacques Lacan and Slavoj Zizek. By applying the work of this diverse set of scholars to the particular case covered in this book, the author successfully illustrates the value and relevance of contemporary social theory to the study of environmental issues. This is especially true with respect to a much neglected dimension of social scientific studies of environmental issues, namely the subjective dimensions of risk and disaster impact. Notably, the analysis developed in this book goes beyond the conventionally narrow psychometric treatments of risk perceptions that are prevalent today and broadens the account to a more sociologically relevant study of the experience of ecological threats. This leads to the second reason for the importance of the book. The case covered in this book concerns a particularly important and vexing environmental issue that needs urgent consideration in contemporary times — the management of nuclear waste. Again, the argumentation developed in this book reveals the value of social theory to engage with, and offer insight into, what is often defined as purely a technical issue by many risk and environmental professionals. Third, from a pragmatic point of view, the insights gained from this case study analysis may be useful for the study of many other types of modern environmental risk problems such as global warming, ozone depletion, desertification, pollution and so on. Fourth, the book is written in a rather literary form, that is, one that appears to run along the author's stream of consciousness in such a way that it combines analysis and narrative in a very thought-provoking, interesting, but entertaining way; a rare quality amongst much academic writing. With this type of developing discussion, the empirical case itself serves as a launch pad for extended theorizing on environmental issues.

The empirical case, in the words of the author, is “an attempt to think about a monument to nuclear waste. An insane proposal from the end of an insane century” (p. x). Specifically, van Wyck analyzes the solution proposed by the U.S. government to deal with the nuclear waste generated from weapons production and research. Essentially, their solution was to dig a huge, deep hole in a 16 square mile tract of desert land near Carlsbad, New Mexico and fill it with the dangerous material. The site would then serve as a permanent underground disposal facility. The facility, referred to as the Waste Isolation Pilot Project (WIPP), would operate until around the year 2035, at which time it would reach capacity and be sealed shut. The interesting part (for the author and the reader) is that the federal government ordered a very large monument to be constructed to mark the fact that a huge threat exists beneath the surface of the site. The government recognized that the marker would have to be a very special one as it would have to ensure that people existing from the time of its construction into the far distant future (a legislated period of 10,000 years or 300 generations) would understand the monument's message, namely “Stay Away!”. In the author's words, the proposed monument represented “a singular meeting of the material and semiotic. And it is an enormous wager that hinges on making the waste safe — through burial — then making it

dangerous again — through signification. And in it must persist the groundless hope that the semiotic decomposition of the sign will take place at a slower rate than the nuclear decomposition of the waste” (p. xvi). The discussion of the implications of this desert monument serves as the basis of this book, because, as the author notes, it opens up a means of reading the anxiety of a culture, thus allowing him to enter an extended discussion of risk and the pathologies of threat. This is where the fun begins, as each of the substantive chapters deal with different sets of sociological implications associated with the project.

One of the first implications of the monument and the message that it conveys pertains to the nature of waste, particularly its temporal dimension. Van Wyck notes that waste can be conceived of in terms of being contained and confined (as in waste material in a landfill). In such a conceptualization, the issue of time does not really come into play because the waste is thought to remain in a spatially confined location forever. In contrast, time does play a role if waste is treated as compost material because the passage of time is required for the decomposition of the material needed to return the nutrients to the environment. So, what then is the situation with regard to nuclear waste? As van Wyck observes, nuclear material involves natural decay (in fact this is why the lifetime of a nuclear waste is defined in terms of half-life, the time required for the mass to be halved). As such, in a sense, nuclear material is a new form of waste: “matter without a place; a kind of waste that resists its own containment. A kind of waste that operates in a radically different temporality; it is material whose toxicity requires a different conception of history and time” (p.5). It is with this recognition that the analysis developed by the author adds an interesting dimension to the contemporary debate amongst disaster sociologists regarding the differences/similarities between natural versus technological disasters, and more recently, how this distinction is becoming blurred from an analytical point of view.

The second substantive chapter (entitled “Danger Signs”) draws out another set of implications concerning the monument, specifically, those related to semiotics. Interestingly, the author begins this part of the analysis with a discussion of time capsules; how they are used to communicate and the use of symbols therein. The discussion begins with this because, as the author correctly recognizes, the monument is essentially a sign, although a special type of sign. It is special because, similar to a time capsule, it must be designed as a free-standing, self-sufficient, and meaning-generating device (that includes instructions for the interpretation of its meaning). These requirements arise from the fact that the monument’s message must be understood far into the future, one in which the language and culture of the day (the year 12000 or so) has evolved beyond any semblance to that of contemporary times. In a similar sense, van Wyck observes that:

“Everything about the WIPP and the monument operates in a complex relation to a limit. At the limit of civilization; its place in the desert. At the limit of history; its time is the deep future. At the limit of the symbolic; auguring the language of the future has proven to be an extremely challenging task. At the limit of technology; the ability to engineer materials for this unprecedented duration.”

Thus, one soon realizes that the construction of the monument is not a simple technical task, but a task with many dimensions because of the need to design a pancultural/transhistorical sign. Enter the various interdisciplinary committees commissioned to address this formidable challenge. The discussion here is quite fascinating and I will only briefly review some of it to give the reader a taste.

To deal with temporal security aspects of the monument, the “Human Interference Task Force” was established in 1980. Their mandate was to consider those design factors that would ensure that there

would be no inadvertent human intrusion into the waste repository site. The key issue identified by this task force was how the meaning of the sign could be preserved throughout the (non)foreseeable future. To address this problem, the semiotics expert on the team recommended the use of folkloristic devices so that the symbol would not be geographically localized nor tied to any one language-and-culture. In other words, a symbol would have to be designed so that members of the future society would be disinclined even to visit the site, despite not knowing anything about the meaning of the site (or of the dangerous materials stored there). According to this logic, the symbol had to appeal to human perception at a “deep structure” level, and as such, it had to resonate with the universal characteristics of the human perceptual makeup. In this light, it was thought that depictions of facial expressions of fear, or depictions of people reacting with fear, should be used to mark the monument.

Building on the work of the Human Interference Task Force, ten years later the federal government established another interdisciplinary working group called the Futures Panel. Tied to the first concern of inadvertent human intrusion into the nuclear waste site, it was the job of this new group to identify the range and types of possible societies that would arise in the next 10,000 years near the site. This knowledge would then be used to calculate the probability and manner in which inadvertent intrusions could occur. This group considered a wide range of factors that could influence the way societies developed, including: technological change, geopolitical and linguistic shifts, changes in population distribution and density, changes in literacy rates, global catastrophes, and questions of cultural memory.

From their analysis of factors, many future scenarios were developed, and the author reviews two of the more bizarre ones. The first involves the possibility that in the year 2091, extremist feminist values will dominate. In such a society, twentieth century science would be demonized as being patriarchal; a result of misguided male aggression and arrogance. In such circumstances, intrusion into the nuclear waste site could occur as the Feminist Alternative Potash Corporation begins to mine the site (the area is known for its salt deposits). Although the feminist miners would come across the markers of danger, they would dismiss the depicted warnings as another example of inferior, inadequate, and muddled masculine thinking. Consequently, they would penetrate the storage area, thereby releasing dangerous materials.

A second scenario developed by the Futures Panel combines the work of Kuhn’s *Structure of Scientific Revolutions* with Marcuse’s *One-Dimensional Man*. In this future scenario, a Markuhnian Conspiracy forms to lead an antitechnoscientific revolution. In an attempt to locate sacred buried scrolls, these revolutionaries dismiss the warnings of the monument “as the arbitrary production of an incommensurable version of reality” and breach the nuclear waste storage area to release a geyser of radioactive brine.

Additionally, a third committee was formed in 1990, which was referred to as the Markers Panel. This panel consisted of experts from material science, architecture, anthropology, linguistics, archaeology, astronomy, communications, geomorphology, scientific illustration, semiotics and environmental engineering. The principal concern of the Markers Panel was how to design a system of marking that would convey the danger of the site to the future as well as one that would physically endure over time. The key issues identified by this group related to the question of linguistic mutation over time and the potential emergence of unique languages. Their proposed solution was to make the site itself look dangerous. Applying McLuhan’s notion of the “medium is

the message”, this group sought suggested a monument/marker design that would not in fact be dangerous itself, but would nevertheless signify danger. Again, based on the work of the other groups, the Markers Panel considered such symbols as: the Mr. Yuk symbol (i.e. the frowning face on household chemicals containers that is supposed to discourage children from drinking the content), to Edvard Munch’s “The Scream”, to the skull and crossbones symbol, as well as the nuclear trefoil symbol. A more elaborate design involved the placement of huge spikes bursting through the ground. All of these designs were meant to convey the message “Danger — Stay Away” to future generations.

The final substantive chapter, entitled “Threat and Trauma” involves a more theoretical discussion about the nature of ecological risks and threats raised by the case study. The range of issues treated here is quite sophisticated, including discussions concerning, for example: the calculability of risk as well its insidious nature (Beck) and the Pathologies of Threat (Lacan). The Pathologies of Threat discussion is particularly interesting because of the innovative application of Lacanian psychoanalysis based on the recognition by van Wyck that both the monument and Lacan’s work deal with signification. Here the author used various Lacanian concepts such as the imaginary, the symbolic and the real to develop an understanding of how people respond to ecological threats (such as the nuclear threat). He further extends this to analyze how responses to the extreme occur. In this connection, van Wyck astutely applies the work of Žižek to show how the various psychological mechanisms of repression, denial and disavowal are used in the case of ecological threats to make the problem have some sort of “closure”, but in essence, they all serve to avoid an encounter with the “real” of ecological threats. This is clearly the situation illustrated by the case of nuclear waste, as the formidable dimensions of the nuclear waste burial problem are not really confronted. Instead, the problem is treated “as if” a solution can be found through the frenzied application of science (obsessive/neurotic activity), the reading of a message or meaning into the crisis (projection), and disavowal (the project proponents know that the site cannot be guaranteed to be secure for 10,000 years, but they proceed as if it were possible).

In sum, despite the seriousness of the topic (or perhaps because of it) this is a very lively and engaging book. Most notably, the analysis is quite insightful from a sociological perspective and certainly represents an important example of how contemporary social theory can be used to analyze environmental risks and disasters. Having said this, I would quickly add that the treatment of the topic in this book is done in such a way that it would also appeal to those in a broad range of disciplines, including communication studies, cultural studies, and the social studies of science.

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