BOOKS: ENVIRONMENT

Lessons from a Slow Leak

Paul Schulman

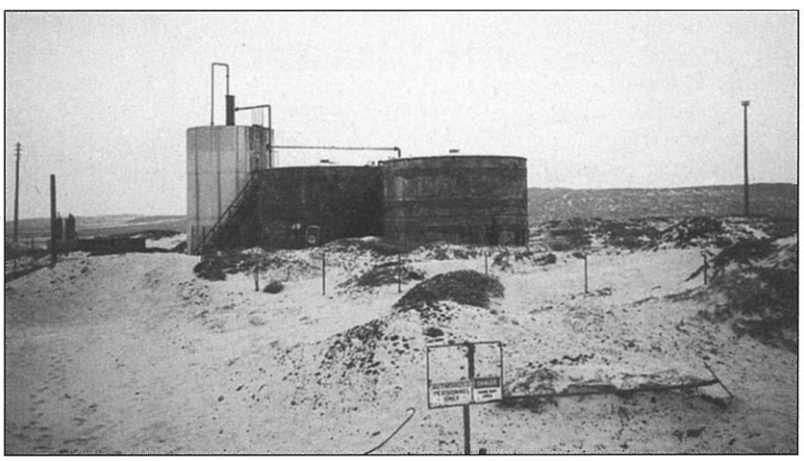
Since before the media age, industrial accidents have riveted public attention and prompted social and public policy change. In a society as generally unreflective about the larger impacts of technology as ours, industrial accidents become a focal point for public questions about our technological dependencies and the Faustian bargains we make with new technological capacities. From the *Titanic* to Three Mile Island and the *Exxon Valdez* to Bhopal, accidents have given rise to our most immediate exercises in technology "assessment." The results are mixed: in the crisis atmosphere of these accidents what is gained in attention can be lost in the often shrill and acrimonious tone of public debate.

Silent Spill
The Organization of an Industrial Crisis
by Thomas D. Beamish
MIT Press, Cambridge, MA, 2002. 232 pp. $55, £37.95. ISBN 0-262-02512-4. Paper, $21.95, £14.95. ISBN 0-262-52320-5.

Accidents have also spawned an insightful analytic literature on technological risk, which includes important works by Barry Turner, James Reason, Diane Vaughn, and Charles Perrow (*1–4*). The thrust of much of this research is that the risks of technology have an inevitable institutional aspect. All technologies are, in effect, "socio-technical" systems, and many hazardous technologies pose major challenges to the inherent limits in human and organizational capacities to identify problems and analyze them clearly. Failure cannot be precluded by technological design alone—despite the commitment, as one engineer put it, to design technologies that are "not only foolproof but damned fool–proof."

Sociologist Thomas Beamish's *Silent Spill* falls squarely within this analytic perspective. It is an exploration of the factors involved in the largest oil spill in United States history—up to 20 million gallons of oil and chemical "diluent" at the Unocal Corporation's oil field in Guadalupe Dunes, California, 170 miles north of Los Angeles. As the author contends, "Although they are common excuses for events such as the Guadalupe spill, avarice, deception, and dereliction of duty are too simplistic to explain away 38 years of grievous leaks that many individuals and organizations, with divergent interests, knew about during that time."

In his effort to understand the Guadalupe spill, Beamish adds a new issue to accident analysis: the slowly evolving and accumulating "crescive" event. Falling "between crisis and the customary order of things," the spill eluded the crisis-oriented attention of media and regulators until it reached such large proportions that it no longer fit into a frame-of-reference that permitted clear regulatory jurisdiction and an agreed-upon remedial approach. Like the proverbial frog in the frying pan, such slow motion problems do not offer clear thresholds or tripping points that activate detection and response. These events may well escape our current efforts at environmental regulation and management.



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Spill site. Production at the Guadalupe Dunes oil field began in 1948, peaked in 1988, and ended in 1990. To enhance the recovery of the field's extremely viscous crude oil, petroleum thinners (especially "diluent") were injected into well bores. The California Coastal Commission estimates that spillage of diluent has contaminated 60% of the field's 3000 acres.

The book itself fills an attention gap in existing accident literature and adds to our understanding of how such events can happen. It nicely weaves together several strands of research: "bounded rationality," which limited the ability of Unocal to recognize and maximize its own economic interests in containing the spill; the power of organizational routines to enforce conformity and divert attention from the unexpected; and organizational processes that "normalize deviance," in other words, those that cause gradual drifts in the perception and acceptance of key standards. Beamish also offers interesting insights into the crisis orientation of media coverage and the limited attention span of the public. He promotes a postmodern view of the relativity of perception and the power of prior assumptions to "frame" the definition and recognition of a problem.

Unfortunately, the author's method of analysis presents problems for some of his conclusions. For example, Beamish makes a major argument about the surrounding community having a deep and widespread distrust of the oil industry's motives and of the intentions of federal and state regulatory agencies. He maintains that the public linked the 1969 Santa Barbara oil spill, the nearby siting of the Diablo Canyon nuclear plant, and the "threat" of federally sponsored offshore oil development in an overall "skepticism toward the intentions of the federal government and an abiding suspicion of industry." Beamish argues that, contrary to theories of risk assessment that would apprise each of these issues in isolation, a "holistic" psychology of risk assessment evolved among residents of San Luis Obispo County. Through an "interpretive strategy that none of these formal risk analyses admit as a valid or even rational concern, they have connected the Guadalupe spill to their larger struggle to ensure the health and well-being of their home."

The trouble is that the author offers no systematic survey research to confirm the depth or character of the "suspicion" he imputes. His approach, described in a methodological appendix, relied on "analytic induction." He "pieced the story of the spill together...by relying on the coalescence of multiple sources as opposed to verifying separate sources...." Beamish formed assessments from a variety of conversations, none of them standardized, some of them unplanned. Moreover, a great many—if not most—of these conversations were with community and environmental activists. The holistic connections and expressions of distrust could just as easily have been elements of political strategy as reflections of deep-seated community senti-

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ment. The author's analytic method does not allow him the possibility of distinguishing the two. It seems relevant that, as he notes, a county ballot initiative to restrict facilities for off-shore drilling passed by only a 53 to 47% margin. Although Beamish attributes the closeness to a campaign spending advantage on the part of the oil interests, the result hardly seems to confirm his attribution of a deep, widespread, and generalized environmental distrust in the community.

Some of the author's arguments also seem inconsistent. He concludes, for example, that "it would be misleading to seek a purely 'objective' point from which to make decisions concerning the spill or its cleanup. Environmentally based hazards must be perceptually processed and problematized before they are seen and acted on as such." Yet at the same time, Beamish argues that "[t]he real consequences that we and the environments we inhabit face from instances such as the Guadalupe spill should not be seen as relative even if they are, in part, socially constructed....Increasing our understanding of the interpretative processes that surround ignorance and acknowledgment of threats is a necessary step toward remediation." One wonders how it is possible to understand such "ignorance" regarding threats without some objective truth against which to identify it. What standpoint is available to the analyst freed from a "social construction" in order to gain the distance from which to understand it?

The problem Beamish faces is one encountered by others who apply a postmodern or deconstructivist framework to their analyses of modern society and its institutions. They simultaneously wish to have some of their own arguments elude this same analytic perspective. The author argues that "it is misguided to give special privilege to technical-expert appraisals of risk...thus, decisions of risk should be made democratically so that the subjectivity of laypersons as well as that of experts is a part of the decision-making process." Nonetheless, he wishes (as others have) to assert definitive judgments about risk, particularly when subjective assessments might underestimate the "true" risks at hand. Risk assessment might be subjective, but Guadalupe Dunes "exemplifies a genre of environmental catastrophe that portends ecological collapse." Individuals may selectively choose what to attend to, but implicitly the correct perception is that of the author, who claims we are facing "a pandemic" of environmental crises. It is a subjective world, but we can still identify the "routinization of evil."

Despite its postmodern paradox, the book provides a very useful analysis. Beamish raises a number of important questions about our ability to manage environmental risks, and he is particularly insightful about the weakness of the regulatory process in the face of crescive events. The book quite accurately reflects our current knowledge base about technological accidents. This knowledge does not constitute a science of accident prevention, but it offers important critical and cautionary perspectives. Although they cannot offer design-based safeguards against technological accidents, works like *Silent Spill* call into question approaches to technological design that ignore social or organizational factors, or that seek a "damned fool–proof" standard of safety. This, in itself, is an essential first step for the mitigation of technological risk.

References

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BOOKS: ANTHROPOLOGY

Dealing with Disaster

Robert McC. Adams

Disasters may be perceived by their victims as sudden, unexpected events. But in any larger view, they unfold over longer (often much longer) periods of time. Human societies evolving in scale and complexity encounter, or generate, new and unanticipated vulnerabilities—including exacerbated instabilities of the ecosystems in which we live. On a global scale, as interdependencies across great distances interact with previously unnecessary rigidities of scheduling, these vulnerabilities have themselves become increasingly complex and unpredictable. As a result—or is this only a subjective impression?—disasters grow in the scale of their effects and become more frequent, threatening to match efforts to develop new technological means of managing or overcoming them.

Catastrophe & Culture
The Anthropology of Disaster
Susanna M. Hoffman and Anthony Oliver-Smith, Eds.
School of American Research Press, Santa Fe, 2002. James Currey, Oxford, 2002. 324 pp. $60. ISBN 1-930618-14-X. £45. ISBN 0-85255-925-9. Paper, $24.95. ISBN 1-930618-15-8. £16.99. ISBN 0-85255-926-7.

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By their nature, most disasters involve unexpected combinations of properties and consequences, at several levels of aggregation. Both in responding to them and in studying them, there are obvious advantages to a holistic approach that fully embraces the social as well as the natural setting. The contributors to *Catastrophe & Culture* stress social factors. Although they exclude "processes that result from human intentionality," one senses the rather odd assumption that disasters can reasonably be approached as the domain of anthropology alone. Yet on the evidence supplied, anthropology's involvement with the subject has been rather slender and heretofore focused largely on disasters faced by subsistence farmers or pastoralists at relatively low levels of integration. The authors seem not to recognize the fundamental need for an interdisciplinary approach that involves collaboration among practitioners and specialized researchers from different backgrounds.

The volume also lacks acknowledgments of the responsibility or suitability of anthropologists for active roles in disaster anticipation, management, reconstruction, or rehabilitation. With rare exceptions, what the discipline is seen to offer is primarily a "nuanced understanding" and "more holistic perspective." And unfortunately, this more comprehensive overview is "rarely asked for and more rarely appreciated."

To counter this, Susanna Hoffman and Anthony Oliver-Smith offer a spacious and compelling outline of what is needed of research on the subject. Like the processes leading to disasters, responses to catastrophes extend over time. They are shaped by complex interactions among individuals, groups, and organizations that have disparate needs and interests. Effective study of the processes of adjustment and recovery requires observations of and discussions with the victims. To understand disasters, the editors advocate a pairing of "multisite ethnography with quantitative methods capable of accessing greater levels of aggregation."

Many chapters highlight the discordant effects of disasters on their victims such as the interplay among social and environmental variables and particular natural hazards. Oliver-Smith notes that vulnerabilities are "often differentiated along axes of class, race, ethnicity, gender, or age, at different levels of risk from the same hazard and of suffering from the same event." In an eyewitness account of the 1991 fire