tempts to account for transgression, the role played by Marxist-Leninist ideology in such accounts, the relation between state and public views of the various kinds of deviance, and Soviet efforts at deviance management, that is, at punishment, correction, and rehabilitation. One gets from this book, then, a broad sense of what is, in the author's phrase, "the criminological enterprise" in Soviet society.

The book is provocative on several scores. First, there is Connor's major conclusion that, despite the inadequacies of the available Soviet data, they do point to a disproportionate contribution to rates of crime, delinquency, and alcohol abuse by members of the urban working class, those who are less educated, less skilled, lower paid, less advantaged in general. What is striking about this conclusion is its similarity to what has been drawn from the data for American society. Thus, despite radical differences in organizational premises of the two societies, in respect to deviance at this point in history similar processes may well be at work, processes dependent upon some degree of intrasocietal variation in disadvantage or in access to societal resources.

Second, Connor's discussion of Soviet theoretical perspectives on deviance reveals a continuing dialectic between a social focus (which is unable to account for individual differences in behavior in the same social context) and an individual focus (which is unable to account for different rates of deviance in different social contexts or at different historical times). In order to deal with this problem of individual differences in behavior in the same social context, renewed attention is being given by Soviet scholars to the concept of personality, but now as a social-psychological concept involving concrete social learning experience rather than, as rejected earlier, a notion derived from psychoanalysis. That the social-versus-individual dialectic should be a critical issue in relation to Marxist-Leninist ideology is not surprising; what is of interest to note is that the very same issue is currently in contention in American criminology and sociology, and there is a parallel increase here in attention to personality as a social outcome which mediates relationships between society and behavior.

Third, although Connor feels there is nothing radically innovative about the Soviet approach to corrections, the heavy emphasis on the rehabilitative function of work, the diversion of minor offenders out of the criminal justice system, the wide use of conditional early release, and the reliance on the public as informal social control agents are all of theoretical interest to the correctional field. Data on recidivism rates, which would be needed to evaluate the success of these techniques, are not available, however.

The major shortcoming of the book is that its data are sparse, pieced together from disparate sources, and uncertain as to validity; Connor has had to rely on whatever he was able to find. His handling of this difficulty is highly commendable—he is explicitly cautious, he relies on convergence from multiple sources prior to drawing conclusions, and he repeatedly warns the reader of the tenuousness of the available information. What is unfortunate, nevertheless, is that the really key questions about Soviet deviance cannot, therefore, be answered by this book. For example, is the Soviet crime rate similar to that in American society? Has the Soviet crime rate changed systematically over the last two decades? Is alcohol abuse on the decline in the Soviet Union?

Thus, the more general question with which this review began must remain unanswered; despite the substantial contribution Connor's book has made, additional and better data will be needed before the impact of an alternative social organization on deviance rates can be adequately evaluated. That the more general question continues to be a viable one is supported by the intriguing observations of recent visitors to another contemporary society—China; they report that remarkable changes in behavior seem to have occurred in a relatively short period, and they emphasize, in relation to this, the apparent pervasiveness of informal social controls in Chinese society.

For those interested in Soviet society and, especially, in cross-societal comparative work on social problems, Connor's book is well worth reading. He has made an initial step which this reviewer hopes will be the beginning of a further advance in Soviet-American cooperation in the study, and perhaps even in the amelioration, of social problems.

RICHARD JESSOR
*Institute of Behavioral Science, University of Colorado, Boulder*

## A Crisis Dissected

**Blowout.** A Case Study of the Santa Barbara Oil Spill. CAROL E. STEINHART and JOHN S. STEINHART. Duxbury (Wadsworth), Belmont, Calif., 1972. xviii, 138 pp., illus. Paper, $3.

One of the few commendable side effects of wars and other calamities is that they generate interesting books. *Blowout*, a by-product of the Santa Barbara oil spill, is one of a number of antihysterical, rational commentaries on various aspects of "the environmental crisis" that have been coming to the fore in recent months. Neither a jeremiad nor a lullaby, *Blowout* occupies a critical middle ground not often found by modern environmentalists, somewhere between *The Population Bomb* and *The Doomsday Syndrome*.

By avoiding unnecessary verbiage the Steinharts have managed to cram a remarkable amount of information and commentary into their little paperback, more than in some treatises twice the size. Few scientist readers, even those knowledgeable about oil and its effects, will come away from *Blowout* without learning a great deal. Everything relevant to the Santa Barbara accident has been considered: geology, oil extraction technology, the economics of oil, the history of oil spills, marine ecology, state and federal politics and laws, regulation and enforcement, oil cleanup technology, the role of conservationists and the press, and the implications of modern patterns in the use of energy are all examined in detail.

Perhaps the greatest value of *Blowout* is heuristic. The Steinharts have clearly delineated several durable, important problems that transcend the local agonies of Santa Barbara. The one that interested me the most, although it is by no means the central issue of the book, is the emergent awareness of the existence of "natural pollution." The Santa Barbara case may provide the prototypic example of natural pollution: as early as 1776, a Franciscan monk named Father Pedro Font noted that "Much tar which the sea throws up is found on the shores. Little balls of fresh tar are also found. Perhaps there are springs of it which flow out of the sea." This and other accounts of preindustrial California documented by the Steinharts make it clear that oil is no stranger to Santa Barbaran waters, although modern technology may have increased the

amounts by several orders of magnitude.

Natural pollution is sure to become a subject of increasing significance. Indeed it already crops up frequently in the literature. In 1960, H. B. N. Hynes, in *The Biology of Polluted Waters*, noted that toxic substances diffusing out of spruce and red cedar needles that had fallen into streams had been observed to inhibit fish and invertebrate populations. He said, "Had any mine or factory existed in the area it is probable that its effluent would have been the first suspect, and the investigation might not have been pursued further." Since that time, natural pollutants have been investigated even more intensively as agents of eutrophication in fresh waters (some of these studies were funded by the detergent industry), as contaminants of the air (from volcanic eruptions, grassland and forest fires, and so on), and as common substances in the sea. The Steinharts point out that roughly half the hydrocarbon pollution of the sea, the equivalent of a quarter of a billion gallons of petroleum a year, comes from natural sources such as the decomposition of organic matter and natural oil seeps, although they do not give the source of this figure. Man, in other words, has doubled the preexisting levels of pollution in this case.

Of course we can expect a reaction and counterreaction to such a politically useful concept—there are polluters who will take advantage of even a trace of preexisting pollution as a smokescreen to hide their own massive dirtiness, and there will inevitably be some environmentalists ready to dismiss any naturally originating (should we call it "organic"?) pollutant as insignificant compared with man's contribution. If we ignore both extremes we will find that there are a few straightforward but not necessarily simple questions to ask about each case of pollution: (i) What is the relative contribution of pollutants from natural sources to the total amount of pollution? (William P. Lowry, in a recent issue of *Ecology*, describes this as "the 'noise' on which any man-made [pollution] signal would be superimposed.") (ii) What is the capacity of the challenged ecosystem to deal with "extra," unnatural pollutants? In some cases we may find that ecosystems are preadapted to pollution, much in the same way (as A. Starker Leopold has pointed out) in which early successional and subclimax ecosystems contain many of the species preadapted to withstand the habitat modification imposed by man. In fact, the Steinharts argue that this was the case at Santa Barbara, although there are few hard data to support their claim. Conversely, we will find that there are ecosystems that have a very low tolerance for added pollutants, often because of low base-line concentrations under undisturbed conditions. Surely natural pollution is a subject that is ready to be considered in its own right, and it seems safe to predict that there will soon be papers and monographs that will deal with it exclusively.

The issue that really forms the heart of *Blowout* is the problem of governmental, industrial, and private reactions to environmental emergencies. After delineating the history of both the oil spill itself and the reactions of its main protagonists, the Steinharts conclude by describing two alternative ways of dealing with an event such as the one that happened at Santa Barbara. These they term the "Scientific Method" and the "Legal Method," the former implying a rational evaluation of data and the latter a studied appeal to hysterical fears and emotionalism. Those familiar with the environmental battleground, regardless of their personal orientation, may agree that the dichotomy is a useful characterization, although the labels "scientific" and "legal" are unfortunate —one can easily be rational or irrational in the practice of either profession.

The matter of the names that the Steinharts assign to their categories of reaction is trivial, however; a more serious objection to the book is that having defined, with well-chosen examples, the right and the wrong way of evaluating environmental problems, the Steinharts themselves often take the wrong ("legal") way. The "legal" techniques they employ are subtle; an awareness of them underscores how easy it is not to be objective, even when you know the pitfalls and are trying hard to be fair, as the Steinharts obviously are. Indeed, the problems of objectivity encountered in this book confront everyone who has written about environmental deterioration.

First, there is the quickie characterization of good guys and bad guys. Thus we learn that the late director of the U.S. Geological Survey was a decisive man: "Pecora, a former Olympic athlete, liked action . . ." whereas his predecessors, presumably an unathletic and flabby lot, had mostly muddled about doing nothing. Former Interior Secretary Hickel, the hero of this story, is boosted similarly, if not so blatantly. (Hickel also wrote the foreword, a slapdash, one-paragraph affair which does not do justice to the book.) The Steinharts build a powerful case in support of the essential correctness and courageousness of the actions of Hickel, Pecora, and Science Adviser DuBridge's emergency advisory panels, but they unnecessarily weaken it by a writing style that can be heavy-handed, melodramatic, and simplistic in its descriptions of people. Worse still is their treatment of bad guys. How, for example, can the Steinharts, writing on matters from the provinces of political science, economics, law, ornithology, marine biology, ecology, petroleum geology, and geophysics, criticize an unnamed and unquoted young geophysicist from the University of California at Santa Barbara for rendering judgments about petroleum engineering?

Second, the Steinharts, quick to detect such flaws in others, do not always weigh evidence in a precisely "scientific" fashion. After properly criticizing the combination of misinterpretation of evidence plus acceptance of hearsay that enabled some oil opponents to claim that seals and sea lions were being wiped out by the disaster, the authors proceed to assert that "seals and sea lions were not dying at all. They were alive and well, cavorting in the oil on the sea off San Miguel." Perhaps so. But where is the evidence? The Steinharts cite only "interpretations," whose validity is not one whit enhanced by proof that the conservationists were also speculating. A bit farther on we read that "Later sightings of tagged animals gave no indication that oil had harmed any of the animals." This certainly sounds more "scientific"— until one thinks a bit about the nature of tag-recovery programs, particularly with marine animals, and the kinds of information they usually can provide.

With respect to fish we find the statement, "Most of the adult fishes, too, were able to avoid the oil. A large fish kill could not have passed undetected. . . . There is excellent communication among members of a school of fish, which helps them to stay together and to shun unfriendly waters." Maybe. But the second blowout went undetected (except by Union Oil, which kept silent for two days) until its resulting slick was 8.5 miles long. And

fish, even adult smart ones, are sometimes attracted to substances that prove toxic to them.

In the description of the "Scientific Method" we find the statement that "Fact after fact is piled up until the weight of the accumulated facts renders the conclusion indisputable." Nevertheless, we must ask *who* can assemble "facts" about beach and ocean ecology, corporate greed versus responsibility, political expediency versus heroism, sea lions, migrating whales, tourists, oil platforms, global energy use, the crust of the earth, the feelings of Californians, and other incompletely documented phenomena, and come up with "indisputable" conclusions? Value judgments and opinions are called for, too; there is no need to conceal them. The Steinharts might be surprised to learn that their main conclusions can be accepted by their readers, including this reviewer, without the accompanying certification of infallibility.

I think the reason the book is flawed in the manner described above is that the Steinharts were too close to the Santa Barbara mess to preserve total detachment. John Steinhart was a staff assistant for the government's scientific advisory panel and experienced, along with his colleagues, the full brunt of the vicious attacks and irrational charges made by some of the understandably panicked Californians. True, the governmental, industrial, and academic experts were not guilty of the incompetence, venality, and callousness ascribed to them; but they were at times pretty poor psychologists. For example, the Steinharts point out the dangers of secrecy, but then attempt to justify the total privacy of the advisory panel deliberations. Surely an extra session open to representatives of public organizations, even for one day, would have helped to prevent some of the hysteria that the Steinharts deplore, without ruining the "intensely private" rapport of the scientists on the panel. Presenting reporters with a "400-item bibliography," which they had neither the time nor the expertise to read, is a poor technique for keeping the public informed. The Steinharts also defend the oil industry's financing of the University of Southern California's study of the ecological effects of the oil, on the grounds that the participating scientists were honest and their conclusions were sound. Yes, but again the morality of the matter was at least open to question, and from a public relations standpoint—especially during a crisis—it was very unwise. The authors might have appreciated these things more readily if they had been farther from the action.

A few additional defects could easily be corrected in a subsequent edition. The lack of decent references is mystifying and "unscientific." *Blowout* averages less than than three specific reference citations per chapter, and there are yet fewer footnotes. There is not even an entry for the Plymouth Laboratory's landmark report on the *Torrey Canyon* disaster, previously the most important book on the effects of oil spills. Moreover, the text abounds with short quotations and paraphrases, many of them unattributed to a verifiable source. The maps are useful, but I needed a diagram of an oil drilling rig. I also would have liked the customary short biography of the authors. On the credit side, the quotations that the authors use to introduce their chapters are superb and brilliantly appropriate.

The Steinharts have done a great service by grappling openly and well with the *real* problem of Santa Barbara. Pollution is an inevitable consequence of our life-style—it does not suffice to blame the "wicked" industrialists and "corrupt" public officials for every disaster. Indeed, the people who do this, so thoroughly exposed by the Steinharts, call to mind Orwell's characterization of some British intellectuals of the left during the Second World War: "There is little in them except the irresponsible carping of people who have never been and never expect to be in a position of power." How much easier, in the face of the frustrating complexity and powerlessness of modern life, to criticize the polluters as if they were others than to face squarely the terrible dilemmas of the environment and to accept a share, however small, of the responsibility. Skillfully using Santa Barbara as a case study, the Steinharts have shown, in depth and with unusual clarity, how the transfer of blame is an inevitable corollary of what Hardin has called "the tragedy of the commons." Despite faults that might sink a lesser book, *Blowout* is now the best specific treatise on the subject of oil spills, and, in general, a work whose balance between sane analysis and a legitimate feeling for the problems of man will earn it a high place in the literature of crisis.

DAVID W. EHRENFELD
*Department of Biological Sciences, Barnard College, Columbia University, New York City*

## Primitive Affluence

**Stone Age Economics.** MARSHALL SAHLINS. Aldine-Atherton, Chicago, 1972. xiv, 348 pp., illus. $8.95.

This volume is a major contribution to economic anthropology. Sahlins's argument, original and important, deserves summarizing. First, he argues, Paleolithic cultures, while poor in goods, are affluent in that their members are not frustrated by unfulfilled wants (that is, their means do exceed their ends). That hunters and gatherers do not barely survive is evidenced by their satisfaction with the products of a short (two- to four-hour) workday. Their affluence consists in their not producing as much as they could and in their indifference to freely offered additional goods (which would hamper their mobility). Neolithic societies also show underutilization of resources, especially of labor, again evidenced by a short (four- to six-hour) workday (and that not every day).

Sahlins then argues that kinship and chieftaincy are the structures in both Paleolithic and Neolithic cultures that generate effort, output, and movement of goods in excess of the limited desires of the domestic group. That the wants of Paleolithic and Neolithic peoples are limited is expressed in "Chayanov's rule": "the greater the relative working capacity of the household the less its members work" (p. 87). The rule is tested against reports on time worked by working members of families arranged according to the ratio of total family members to working members. The narrower the extent and degree of kinship or political organization, the closer is observed behavior to the norm of Chayanov's rule. Sahlins thus arrives at what we may call Sahlins's first rule:

> Domestic control becomes an impediment to development of the productive means. . . . Kinship, chieftainship, even the ritual order, whatever else they may be, appear in primitive societies as economic forces. The grand strategy of economic intensification enlists social structures beyond the family and cultural superstructures beyond the productive practice. In the event, the final material product . . . is above the domestic propensity [p. 102].

Sahlins's second rule (of primitive exchange), which accounts for the effectiveness of kinship and chiefly pressures in inducing additional output, is:

> A material transaction is usually a momentary episode in a continuous social relation . . . the connection between