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NEW DIRECTIONS IN ENVIRONMENTAL SOCIOLOGY

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Abstract

Recent research in environmental sociology is reviewed. Following a brief overview of the development of environmental sociology over the past decade, five areas of environmental sociological scholarship are discussed: (*a*) the "new human ecology," (*b*) environmental attitudes, values, and behaviors, (*c*) the environmental movement, (*d*) technological risk and risk assessment, and (*e*) the political economy of the environment and environmental politics. It is argued that while the early environmental sociologists sought nothing less than the reorientation of sociology and social theory, environmental sociology's influence on the discipline has been modest. Instead, environmental sociology has steadily taken on characteristics of the discipline as a whole, especially its fragmentation and its dualism between theory and the pursuit of middle-range empirical puzzles. Encouraging examples of recent work that creatively integrates theory and empirical research in environmental sociology are discussed.

INTRODUCTION

When Catton & Dunlap published their pioneering papers in *The American Sociologist* and *Annual Review of Sociology* in the late 1970s (Catton & Dunlap 1978a, Dunlap & Catton 1979), relatively few Western sociologists had a clear idea of environmental sociology as a subdiscipline. Since that time, however, environmental sociology has made major strides and, by certain standards, has come of age. But while the field has done well for itself by conventional standards, environmental sociology hardly set out to be

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conventional. During the early years of the ASA Section on Environmental Sociology, there was a vibrant *espirit de corps* that a new sociology was being nurtured—one that recognized the role of physical-biological factors in shaping social structures and behaviors, that was aware of the impacts of social organization and social change on the natural environment. Environmental sociologists sought nothing less than the reorientation of sociology toward a more holistic perspective that would conceptualize social processes within the context of the biosphere.

These lofty intentions, however, have largely failed to come to fruition. The discipline at large has handily withstood the challenges to its theoretical assumptions posed by environmental sociologists. Environmental sociology has become routinized and is now viewed—by both its practitioners and other sociologists—less as a scholarly "cause" or movement than as just another sociological specialization. More important for present purposes, environmental sociology has steadily taken on major characteristics of the larger discipline. It has become more specialized, fragmented, and dualistic. There is, on the one hand, a small core of largely theoretically oriented work, most of which is devoted to conceptualizing the human species and its constituent human societies as one species among many in the biosphere. On the other hand, the bulk of environmental sociological scholarship tends to consist of a "normal-science" working out of middle-range empirical puzzles.

The present paper is intended, in part, to update Dunlap & Catton's 1979 review paper. But whereas they sought to review the entirety of environmental-sociological scholarship, my effort is more circumscribed.[1] I focus on fewer areas of scholarship, ones that represent the major clusters of inquiry bearing on the dualism of environmental sociology. Five major areas of scholarship receive attention. First, I examine the theoretical core of environmental sociology, codified in the late 1970s. The next two sections of the paper deal with two areas—environmental attitudes and behavior, and the environmental movement—that were being actively researched before environmental sociology became recognized as a distinct subdiscipline and that continue to be major areas of research. The final substantive portions of the paper examine two relatively new foci of environmental-sociological scholarship—technological risk assessment and the political economy of the environment. Largely developed during environmental sociology's second half-decade, these draw relatively little on the core of environmental sociology.

Not only did Dunlap & Catton (1979) deal with a larger number of topics than does the present paper, but their framework for classifying environmen-

[1]In this review I thus neglect a number of substantive areas, such as social impact assessment and the built environment, that are of considerable importance in contemporary environmental sociology, in part because they have received admirable treatments in Freudenburg (1986) and Stokols & Altman (1986), respectively. I also deemphasize energy because it will receive extensive treatment in this *Review* at a later date.

tal sociological scholarship also reflects the higher degree of integration within the field in its first half-decade. Dunlap & Catton divided the literature into two major categories: "sociology of environmental issues" and "environmental sociology." By the "sociology of environmental issues," Dunlap and Catton referred to environmentally related phenomena (e.g. research on wildland recreation and resource management problems) that were of interest to sociologists before the rise of environmental sociology and that were explored through their traditional perspectives. By "environmental sociology" they meant inquiry that focused on "the physical environment as a factor that may influence (or be influenced by) social behavior" (1979:255). Much of this work is based on a recognition of the dilemma that "human societies necessarily exploit surrounding ecosystems in order to survive, but societies that flourish to the extent of overexploiting the ecosystem may destroy the basis of their own survival" (1979:250). Environmental attitudes and behavior and the environmental movement were among the major areas of work in Dunlap & Catton's framework. Had technological risk assessment and the political economy of the environment been major research foci at the time Dunlap & Catton were preparing their earlier review, these would probably have been included within the sociology-of-environmental-issues category as well. What Dunlap & Catton optimistically construed as the emergent, growing center of environmental sociology is here treated as a single category of scholarship, arguably in proportion to its representation at sociology meetings and in books and journals among contemporary environmental sociologists. In the final segment of the paper I comment on the implications of the relative decline of the core of environmental sociology for the future of this area of sociological specialization.

ENVIRONMENTAL SOCIOLOGY'S CORE: THE NEW HUMAN ECOLOGY

In their earlier review article Dunlap & Catton (1979) reserved the term "environmental sociology" for a specific category of inquiry focusing on the way in which factors in the physical environment shape and are shaped by social organization and social behavior. While the present review departs from such usage—basically by defining environmental sociology in terms of what self-identified environmental sociologists do—it is clearly the case that Dunlap & Catton's "environmental sociology" category comprises the core of the larger subdiscipline as I have construed it here.[2] To avoid confusion, I hereafter refer to the core of environmental sociology as the "new human ecology."

[2]It should be noted, however, that Dunlap & Catton's (1979) "environmental sociology" category is broader than that of the "new human ecology," since the former includes literature on social impact assessment, natural disasters, the built environment, and so on.

The core of environmental sociology is such not only because it has stimulated empirical research, but also because this theoretical work has been self-consciously fashioned as a critique of "mainstream" sociology. The common element within these otherwise diverse writings is a critique of the anthropocentrism of classical and contemporary sociological theory and of its limitations in understanding social change in a modern world that is increasingly constrained by ecology. Writers within the new human ecology often argue that Durkheim's social facts dictum has led sociology astray. Durkheim's *sui generis* conception of social facts has become widely accepted, and a virtual taboo has developed against explaining social phenomena by means of nonsocial factors. The new human ecology presents a variety of arguments to the effect that basic patterns of social organization are shaped by the imperative of human societies to derive their basic survival needs from the biosphere. Moreover, the new human ecology departs significantly from classical human ecology (e.g. Hawley 1981) by elaborating a distinctive argument: Instead of tending toward equilibrium with the natural environments from which they derive sustenance, modern societies tend to exhibit quite the opposite pattern—social dynamics that exacerbate environmental degradation and resource depletion. Analysts working from the new human ecology have generally asserted that a "genuine" environmental sociology (Dunlap & Catton 1983:119)—indeed, a sociology that is relevant to the pressing problems of the modern world—must shed its anthropocentrism and reject the notion that humans, because of their capacity for culture, technological innovation, and so on, are exempt from the ecological laws that govern the existence of lower species.

While the work of a good many environmental sociologists is typically seen to lie within the "new human ecology" (e.g. Burch & DeLuca 1984), the most influential work in this tradition has been by Catton & Dunlap (1978a, 1980; Dunlap & Catton 1979, 1983) and by Schnaiberg (1975, 1980). The tack taken here for examining the new-human-ecology core of environmental sociology is to compare and contrast the work of Catton & Dunlap with that of Schnaiberg.

The heart of Catton & Dunlap's formulation of a new human ecology is their analysis, at a broad "paradigmatic" or metatheoretical level, of the essential similarity of apparently diverse theories based on the classical tradition in terms of their "shared anthropocentrism" (1978a:41). They argue that "the numerous competing theoretical perspectives in contemporary sociology—e.g., functionalism, symbolic interactionism, ethnomethodology, conflict theory, Marxism, and so on—are prone to exaggerate their differences from one another." Instead of being "paradigms in their own right," these theories appear, to Catton & Dunlap, as minor variants on a larger "paradigm"; "we maintain that their apparent diversity is not as important as the fundamental anthropocentrism underlying *all* of them" (1978a:42, empha-

sis in original). The anthropocentric worldview underlying contemporary theories, based on ostensibly divergent views among the classical theorists, was labeled the "human exceptionalism paradigm" (HEP) by Catton & Dunlap. (It was relabeled in subsequent publications as the "human exemptionalism paradigm"; see Table 1). This anthropocentric paradigm is contrasted with a "new environmental paradigm" (NEP), which has been relabeled in subsequent versions as the "new ecological paradigm" (see Table 1).

Table 1 from Catton & Dunlap (1980:34) provides a summary of the authors' depiction of the fundamental assumptions of the HEP and the NEP. Table 1 also includes the major assumptions of the "dominant western worldview," which the authors consider to be the ensemble of values and ideologies that have predominated during the 500-plus-year boom of western expansion underwritten by finite supplies of fossil fuels and nonrenewable raw materials. Catton & Dunlap suggest that the dominant western worldview has been translated into the HEP in academic circles (see especially Dunlap & Catton 1983:115–16).

Clearly, the central issue involved in evaluating the new human ecology in general, and the work of Catton & Dunlap in particular, is whether the distinctions between HEP-NEP or traditional theoretical cleavages have the greater primacy (Buttel 1978; Catton & Dunlap 1978b, 1980; Dunlap & Catton 1983; Humphrey & Buttel 1982). Most environmental sociologists have accepted the validity of the HEP-NEP distinction, though many, including the authors themselves (Catton & Dunlap 1980), have come to argue that both cleavages are important.[3]

But because their theoretical work has been written at a highly abstract—essentially a metatheoretical—level, it has not been readily usable in empirical research. There have, however, been three areas of research stimulated by this theoretical work. The first, global-level research, has essentially been limited to one sociological study—Catton's own *Overshoot* (1980), an historical analysis of the increasing ecological impact of industrial societies. Catton's dire predictions are compatible with a good deal of nonsociological work, such as *The Limits to Growth* (Meadows et al 1972). Perhaps owing to its heavy use of bioecological concepts, however, it has stimulated only a modest level of sociological interest.

The second category of empirical research in the new human ecology has

[3]I have argued elsewhere (Buttel 1986a) that the major classical sociological theorists were concerned with natural and biological phenomena to a far greater degree than is typically acknowledged by environmental and nonenvironmental sociologists. That the contributions of the classical theorists to what is now referred to as environmental sociology have remained unrecognized can be largely explained by the fact that most sociologists have limited acquaintance with the full range of the classical theorists' primary writings and have learned the classical tradition through secondary treatments by sociologists with little or no interest in environmental and biological phenomena.

Table 1 A comparison of major assumptions in the dominant western worldview, sociology's human exemptionalism paradigm, and the proposed new ecological paradigm (Source: Catton & Dunlap 1980:34)

	Dominant Western Worldview (DWW)	Human Exemptionalism Paradigm (HEP)	New Ecological Paradigm (NEP)
Assumptions about the nature of human beings	DWW_1 People are fundamentally different from all other creatures on Earth, over which they have domination.	HEP_1 Humans have cultural heritage in addition to (and distinct from) their genetic inheritance, and thus are quite unlike all other animal species.	NEP_1 While humans have exceptional characteristics (culture, technology, etc.), they remain one among many species that are interdependently involved in the global ecosystem.
Assumptions about social causation	DWW_2 People are masters of their destiny; they can choose their goals and learn to do whatever is necessary	HEP_2 Social and cultural factors (including technology) are the major determinants of human affairs.	NEP_2 Human affairs are influenced not only by social and cultural factors, but also by intricate linkages of cause, effect, and feedback in the web of nature; thus purposive human actions have many unintended consequences.
Assumptions about the context of human society	DWW_3 The world is vast, and thus provides unlimited opportunities for humans.	HEP_3 Social and cultural environments are the crucial context for human affairs, and the biophysical environment is largely irrelevant.	NEP_3 Humans live in and are dependent upon a finite biophysical environment which imposes potent physical and biological restraints on human affairs.
Assumptions about constraints on human society	DWW_4 The history of humanity is one of progress; for every problem there is a solution, and thus progress need never cease.	HEP_4 Culture is cumulative; thus technological and social progress can continue indefinitely, making all social problems ultimately soluble.	NEP_4 Although the inventiveness of humans and the powers derived therefrom may seem for a while to extend carrying capacity limits, ecological laws cannot be repealed.

consisted of several subnational or sectoral macrosociological studies that followed Catton & Dunlap's arguments about the role of ecological factors in social change. Much of this literature, focused on agriculture, was stimulated by Dunlap & Martin (1983) and, to a lesser degree, by a commentary on that paper by Coughenour (1984). This work, for example, included ecological analyses of migration and the incidence of part-time farming (Albrecht & Murdock 1984), research on the social ecology of soil erosion (Ashby 1985), analyses of the role of climatic factors in shaping energy consumption in agriculture (Gilles 1980), studies of the impact of ecological factors on technological change and innovativeness (Albrecht & Murdock 1986), and research on socioeconomic aspects of degradation of agricultural environments (Heffernan & Green 1986).

The third area of empirical research related to Catton & Dunlap's paradigmatic analyses has been survey research devoted to exploring commitment to the "dominant social paradigm" (see Table 1) and the "new ecological paradigm" among mass publics and segments thereof, by Dunlap & Van Liere (1978, 1984). They found strong endorsement of NEP tenets such as limits to growth and antianthropocentrism among environmentalists and moderate endorsement by the general public, and they also found items reflecting the various tenets to comprise an internally consistent "NEP scale" (Dunlap & Van Liere 1978, but see Albrecht et al 1982). They subsequently found that commitment to the dominant social paradigm, which they measured in terms of eight dimensions, was inversely related to concern for environmental quality (Dunlap & Van Liere 1984). Dunlap & Van Liere's conceptualization of societal debate over environmental protection as reflecting paradigmatic conflict has been extended in subsequent empirical research in the US and abroad (see e.g. Cotgrove 1982, Milbrath 1984).

The other major figure at the center of environmental sociology has been Allan Schnaiberg. Schnaiberg's approach differs considerably from that of Catton & Dunlap, though, like them, Schnaiberg views social structure and social change as being reciprocally related to the biophysical environment. Schnaiberg, for example, draws unabashedly on many of the sources—Marxist political economy, neo-Marxist and neo-Weberian political sociology—that were essentially dismissed as irrelevant anthropocentrisms in Catton & Dunlap's (1978a, b) earliest work. Moreover, Schnaiberg begins his most influential work, *The Environment* (1980), with a clear expression of the point that ecological systems and human (especially capitalist-industrial) societies have qualitatively different dynamics and must be understood through different concepts. Schnaiberg (1980:19) notes that the fundamental difference in dynamics relates to the fact that "the ecosystem changes over time from a simpler, faster-growing one to a more complex, slower-growing entity," while "almost the reverse is true of human economies."

Schnaiberg has become most influential through his working out of the notions of the "societal-environmental dialectic" and the "treadmill of production," which have become two of the most central environmental-sociological concepts derived from "mainstream" political economy and sociology (Buttel 1986a). Thus, while Catton & Dunlap have probably been most influential within environmental sociology, Schnaiberg's influence has been greater in the discipline as a whole. Schnaiberg's work (especially 1980: Chap. 5–9), however, has been pivotal in stimulating research on the political economy of the environment.

ENVIRONMENTAL ATTITUDES, VALUES, AND BEHAVIORS

As noted earlier, research on environmental attitudes and values predated environmental sociology and has continued to be one of the most important areas of research in the subdiscipline. The literature on environmental orientations can be divided into three major categories. The first consists of studies, almost always involving sample survey methodology, in which environmental orientations are explored to examine a social-structural problematic such as whether there are differences in the environmental attitudes and beliefs of different segments of the public (e.g. according to social class, gender, or age groups). The second category is that of studies, often involving experimental but sometimes quasi-experimental survey methodology, in which the researcher seeks to test hypotheses deriving from social-psychological theory. Third, a number of applied studies have attempted to determine the social factors related to behavior associated with the environment (e.g. littering, participation in recycling programs, household energy conservation) and to specify what mix of media messages, appeals, and incentives will help to induce proenvironmental behavior. These categories do overlap, however, and particular investigators have done research in more than one of these categories. Nonetheless, most studies tend to fall in one or another category, and this schema provides the basis for the summary below.

Social-Structural Aspects of Environmental Attitudes

During the late 1960s public concern with environmental quality rose to a position of prominence on the national agenda (signified by the widespread "Earth Day" celebrations in April, 1970) so rapidly that it prompted Erskine (1971: 120), an editor of *Public Opinion Quarterly,* to refer to its rise as "a miracle of public opinion." But shortly thereafter, Downs (1972) published a widely cited analysis suggesting that environmental problems would likely proceed through the same "issue-attention cycle" experienced by most social problems, and that public concern about the quality of the environment was already showing signs of declining (also see Morrison 1973). Studies of

trends in environmental concern in the early 1970s began to document the decline hypothesized by Downs (e.g. Dunlap & Dillman 1976). Other researchers, however, subsequently challenged this conclusion by calling into question the adequacy of the statewide samples often used as well as the manner in which environmental concern was measured (e.g. Lowe et al 1980). By providing new data they showed the continued strength of public support for environmental protection throughout the 1970s (e.g. Mitchell 1979). More recent research has consistently found a significant rise in public concern with environmental quality in the 1980s, apparently in response to the perceived anti-environmental posture of the Reagan Administration—especially the controversies sparked in the early years of the Administration by Interior Secretary James Watt and EPA Administrator Anne Gorsuch Burford (e.g. Dunlap 1986, Mitchell 1984).

In retrospect it appears that two methodological issues contributed to the controversy over trends in environmental concern in the 1970s. First, studies showing a decline in the early 1970s (e.g. Buttel & Flinn 1974) relied heavily on measures of the "salience" of environmental problems—i.e. volunteered responses to "most important problem" questions, which are particularly subject to rapid decline for most social problems. Second, studies showing the continued strength of environmental concern throughout the decade (e.g. Lowe et al 1980, Mitchell 1979) relied on cross-sectional data or trend data (such as the NORC General Surveys) beginning in 1973 or later—after public concern had already declined from the fervor of Earth Day. Taking these issues into account, a recent comprehensive review of available longitudinal data on public concern with environmental quality indicates that after rising rapidly in the last half of the 1960s, such concern peaked in 1970. It then declined fairly rapidly in the early 1970s and very gradually throughout the rest of the decade (though always staying above its mid-1960s level). It has again risen substantially in the first half of the 1980s (Dunlap 1986).

Research on the social bases of environmental concern initially focused on the socioeconomic variables that reflected differential interests in achieving environmental protection. Early studies reported fairly consistently that those most concerned with environmental protection were well-educated, affluent young urbanites (e.g. Buttel & Flinn 1974). As survey evidence mounted, however, education and especially age (Honnold 1981) turned out to be the only socioeconomic variables consistently and significantly related to environmental concern. A majority of studies found income and occupational prestige to be, at most, only weakly related to environmental concern (Van Liere & Dunlap 1980).

While age, education and, to a lesser extent, residence consistently predict environmental concern, these and other sociodemographic variables explain only modest levels of variance (seldom over 10%) in measures of environmental concern. Indicators of political ideology have frequently been better

predictors, showing liberalism positively related to environmental concern (Buttel & Flinn 1978). Emphasizing these points, Mitchell (1980:5) has stressed that "support for the environmental movement is not limited to the affluent, the well-educated, or the young; it cuts across most demographic categories." Such findings suggest that support for environmental protection has "trickled down" the class and social structure of advanced industrial societies (see e.g. Cotgrove 1982, Morrison 1986).

The results from surveys of the general public thus provide little support for the widespread view that environmental concern is an "elitist" issue that may be inconsistent with the interests of the less affluent segments of society (e.g. Tucker 1982). The elitism charge (dealt with in more detail below) is often based on evidence of the above-average socioeconomic status of environmental *activists*—such as members of the Sierra Club—rather than on evidence of the correlates of environmental concern among the general public. Mitchell (1979) has shown that socioeconomic status is a much stronger predictor of membership in environmental organizations than of support for environmental protection, while Mohai (1985) has demonstrated that the link between socioeconomic status and environmental activism is primarily due to the link between socioeconomic status and general political activism.

Social-Psychological Research

Sociologists basing their environmental attitudes research on social-psychological theories have largely focused on issues relating to the cognitive structure of environmental orientations and to attitude-behavior congruence. Studies of the connections between environmental attitudes and behaviors have generally detected only modest associations. Heberlein in his own research and comprehensive review article on environmental attitudes (1981) noted, however, that the very general measures of environmental concern predominant in the literature tend to tap mere opinions (rather than attitudes). These environmental opinions are largely unembedded in cognitive structure and thus would not be expected to affect behavior significantly. Heberlein demonstrates that environmental attitudes, like most attitudes, show an internal cognitive consistency and are related to the number of accurate beliefs persons hold about attitude objects. Heberlein has suggested that environmental attitudes among the American public have become more differentiated since the early 1970s and that these more specific attitudes tend to be better predictors of environmental behaviors than are general environmental opinions (Heberlein & Black 1981).

Heberlein (1981) has noted that the vast bulk of research on environmental attitudes has been atheoretical and not rooted in attitude theory. Nonetheless, the most widely used attitude theory in environmental attitudes research has been norm-activation theory. Research in this theoretical genre was initiated by Heberlein (1972) and has been explored in both field (e.g. Van Liere &

Dunlap 1978) and experimental (e.g. Heberlein 1972) settings. The key argument within this perspective is that environmental behaviors or attitudes toward environmental protection reflect social-psychological processes involving the activation of moral norms against harming people (Stern et al 1986). Moral norms are activated when persons become aware of the negative interpersonal consequences of their actions and accept personal responsibility for the consequences of these actions. This theory has received substantial empirical support when applied to contexts such as littering, energy conservation, behavior in wildland recreation settings, and response to natural hazards (see the summary in Heberlein 1981). Social-structural-oriented researchers and practitioners of norm-activation theory have debated whether this theory is applicable to social changes associated with the environmental movement (see, for example, Dunlap & Van Liere 1977, Heberlein 1977).

Applied Research on Environmental Attitudes and Behaviors

The final major component of the environmental attitudes and behavior literature has been that devoted to improving or evaluating policy with respect to programs intended to influence environmentally related behaviors. The bulk of this literature concerns research on energy-related behaviors and how these behaviors are affected by attitudes, incentives, public programs, and related factors.

The most comprehensive program of research in this area has been by P. C. Stern and colleagues associated with the Committee on Behavioral and Social Aspects of Energy Consumption and Production of the National Research Council (Stern 1986, Stern & Aronson 1984), with other major contributions by Olsen & Cluett (1979), Cramer et al (1985), and Heberlein & Warriner (1983). Most of these studies attempt to determine whether energy conservation can be induced most readily through economic incentives or noneconomic motivations such as moral norms (Stern 1986). The predominant conclusion is that while economic motivations and incentives may have some impact, these factors tend to be less important than nonfinancial motives, effective communication and information, and the trustworthiness of information and sponsoring organizations (Stern 1986, Heberlein & Warriner 1983, Black et al 1985).

THE ENVIRONMENTAL MOVEMENT

The environmental movement also predated the institutionalization of environmental sociology and has remained important through the mid-1980s. Early studies of the environmental movement (e.g. Harry et al 1969) were primarily aimed at understanding the social base and composition of the major

national environmental groups (e.g. the Sierra Club, the Izaac Walton League). Research over the past decade on major national environmental groups has built on the generalizations established in this early work and has shifted toward a more theoretical understanding of environmental movement mobilization. More recently, however, there has been an increased emphasis on local or specialized environmental groups such as the antinuclear and appropriate technology movements, as well as local movements generated by toxic waste and related environmental problems.

As noted above, the earliest studies of the major organizations of the nationwide environmental movement indicated that the members of these organizations tend to be predominantly upper-middle class. In particular, environmental movement members tend to be well-educated and to have professional and technical occupations. Shortly after the mobilization of the mass environmental movement in the late 1960s and early 1970s, criticisms of environmentalism argued it was elitist (see e.g. Neuhaus 1971 and the summary in Sills 1975). This criticism has continued (e.g. Tucker 1982) and has led to a long line of inquiry about the degree to which the movement is elitist (e.g. Gale 1983; Morrison 1973, 1986).

Morrison & Dunlap (1986) have provided a comprehensive overview and synthesis of this debate. They argue that the charge that the environmental movement is elitist logically has three components: (*a*) compositional elitism, the notion that environmentalists are drawn from privileged socioeconomic backgrounds; (*b*) ideological elitism, the notion that environmentalist activities serve to create an ideological rationale for distributing benefits to environmentalists and/or costs to other groups; and (*c*) impact elitism, the notion that environmental reforms, whether intentionally or not, have regressive social impacts. Morrison & Dunlap conclude that while environmentalists tend to be privileged, their class backgrounds do not differ from those of other sociopolitical activists, and the organized opposition to environmentalism, which draws heavily from the business community, is, if anything, more privileged than are the environmentalists. With regard to ideological elitism, Morrison & Dunlap suggest that some evidence supports the charge but argue that environmentalists tend not to act out of a consistent pursuit of self-interest. Impact elitism, in their view, "is clearly the bottom line" (p. 587), though Morrison & Dunlap see this aspect of elitism as the most complex and difficult to assess. They recognize that, on balance, environmental reforms tend to have modestly regressive impacts (see Buttel et al 1984 for a review of the evidence and a somewhat different conclusion). However, Morrison & Dunlap suggest that several environmental problems with disproportionate implications for the livelihood and well-being of the lower socioeconomic strata (e.g. workplace pollution) have received growing emphasis by environmental groups.

Prior to 1980 the bulk of the published research on the environmental movement treated the movement as a unique one—the "vanguard for a new society," to borrow from the title of Milbrath's (1984) recent book. Nonetheless, more recent research exhibits a major shift in emphasis, toward applying general theories of social movements and movement mobilization to the case of the environmental movement. Broadbent (1982) and Mohai (1985), for example, have applied variants of resource mobilization theory to, respectively, the differential patterns of environmental movement mobilization among the Western countries and to environmental movement participation in the United States. Both Broadbent and Mohai find resource mobilization theory helpful but incomplete. Broadbent argues that one must also consider center-periphery relations and the integration of the state to account for the low degree of environmental mobilization in Japan, while Mohai has argued for the need to integrate resource mobilization and social-psychological theory. Mitchell (1979), Godwin & Mitchell (1982), and Tillock & Morrison (1979) examined the US environmental movement in terms of the rational decision models of collective action developed by Mancur Olson (1965). Each of these studies found evidence of a "free-riding" phenomenon (as hypothesized by Olson), but Tillock & Morrison in particular argued that membership in and contributions to environmental groups cannot be fully accounted for by rational choice models of political behavior.

Environmental sociologists have also begun several lines of research into the political role of environmental organizations. Mitchell (1985) and Lowe & Goyde (1983) have done some of the major studies of environmental groups in national politics. Lowe & Goyde (1983) and Pepper (1984) found that British environmental groups tend to be internally divided—and often at odds with one another—because of very different orientations toward the environment, technology, and environmental reform. Buttel (1985) evaluated the recent US literature on environmental politics and found that it is dominated by pluralist approaches even though there was a major shift toward neo-Marxist and neo-Weberian theories of the state during the 1970s.

While a substantial amount of research by environmental sociologists focuses on the "mainline" national environmental groups, inquiry has increased into specialized environmental groups that are organizationally separate from—and, at times, at odds with—the large national organizations. Three types of specialized environmental movement groups have received the greatest attention: (*a*) the antinuclear movement and, in particular, the mobilization of protest in the aftermath of the Three Mile Island (TMI) accident in March 1979, (*b*) movements in response to toxic waste and other chemical disasters, and (*c*) the appropriate technology movement.

The US antinuclear movement began in the 1950s when an "elite quarrel" (Mitchell 1981) emerged over whether the Atomic Energy Commission's

management of nuclear technology was excessively promotional. This elite quarrel became transformed into a mass movement in the 1960s when many local and national antinuclear groups engaged mainly in legal protest. In the middle and late 1970s the movement shifted to direct action, which was reinforced by the TMI accident in 1979.

Given that the antinuclear movement is, in part, organizationally distinct from the environmental movement, considerable research has sought to assess whether these two movements draw on the same sociopolitical bases. The weight of the evidence indicates that the enviromental and antinuclear movements have very similar bases of support in terms of social characteristics (Mazur 1981, Mitchell 1981, Dunlap & Olsen 1984, Scaminaci & Dunlap 1986) and political ideologies (Scaminaci & Dunlap 1986). But given the fact that the antinuclear movement has made a greater effort to attract a radical constituency (Mitchell 1981), its supporters may be somewhat more leftist or radical than those of the mainline environmental movement (Ladd et al 1983). However, the antinuclear movement has had an uneasy and ambivalent relationship with the traditional left in most Western countries (Nelkin & Pollack 1981).

The TMI accident has received a great deal of research attention, especially because it led to a demonstrable decline in public support for nuclear power (Sills et al 1981, Freudenburg & Baxter 1984, Freudenburg & Rosa 1984). The most longstanding research program in this area has been by Walsh and associates. Walsh has tested several hypotheses from resource mobilization and rational decision theories while documenting the massive local mobilization against the restart of TMI-1, spearheaded by existing and new antinuclear organizations. In contrast to one of the key premises of resource mobilization theory, Walsh (1981) has demonstrated that discontent should not be treated as a constant, since the TMI accident played a major role in generating grievances and mobilizing opposition to the restart of TMI-1. Walsh and Warland (1983) have found that "free-riding" among TMI-area residents opposed to restarting TMI-1 was pervasive, though the free-riding phenomenon was more complex than Olson (1965) has portrayed it.

A considerable literature on public mobilization against toxic wastes has recently converged on a number of generalizations. Lo (1986) has observed that the character of movement mobilization depends upon the class composition of the local community and the response of local government and business elites to initial protest actions. In working and lower-middle class communities where residents tend to lack the organizational resources to influence effectively the siting or operation of toxic waste facilities, unsatisfactory responses by local or extralocal elites tend to lead to feelings of powerlessness and ultimately to hostile outbursts and often to an expansion of the scope of the conflict to include larger issues such as democratic

responsiveness (see also Levine 1982, Hamilton 1985, Finsterbusch & Humphrey 1986, Reich 1984). Lo (1986) has argued that the pattern of mobilization in upper-middle-class communities is quite different and depends upon the response of local elites. If the elite response is favorable, organizationally skilled community members become actively involved in influencing the political process, confining the protest to toxic wastes issues. Where initial protests fail to achieve the support of local elites, movement mobilization tends to follow the pattern of a combination of bureaucratic-political tactics and expansion of the scope of the conflict. Reich (1981) has investigated public and private responses to toxic chemical disasters in the United States, Italy, and Japan. He detected common patterns: Toxic chemical issues moved from private grievance to public concern and then to a political issue, and polluters attempted to resist grievances by "non-issue" strategies. He found that there were differences in mobilization and tactics among victims in the three national contexts, with victims in the United States utilizing state legislators as advocates, those in Italy utilizing parties and unions, and those in Japan using private groups and opposition parties.

The third type of specialized environmental group receiving significant research attention has been the appropriate technology movement. Several environmental sociologists have explored whether appropriate technology themes might redirect the course of the environmental movement or provide the basis for a broader mass movement that could more effectively link environmental and equity concerns (Schnaiberg 1983, Morrison 1980). Several researchers, however, have noted that the appeal of appropriate technology as a major environmental strategy must be tempered by a number of realities. Schnaiberg (1983), for example, has argued that the theoretical assumptions underlying appropriate technology strategy and appeals are naive because they fail to recognize the intensity of commitment from broad quarters of society to resource-intensive production and consumption systems. Frahm & Buttel (1982) have noted that the petty-bourgeois/anti-welfare-state ideology of the appropriate technology movement would ultimately lead to its being coopted by a rise in conservative sentiment such as occurred during the early years of the Reagan Administration. It is now widely acknowledged that the appropriate technology movement has declined greatly in its public visibility and appeal during the mid-1980s.

TECHNOLOGICAL RISK AND RISK ASSESSMENT

The environmental movement has played a major role in increasing public concern about technological risks (Nelkin 1974, Short 1984). The increased public recognition of technological risks and growing pressures to rationalize state regulation of risks have combined to lead to the creation of a "danger

establishment," a major subset of which is an "environmental risk establishment" that conducts risk analyses, translates these analyses to policymakers, and weighs these analyses in the determination of policy (Dietz & Rycroft 1984). Until the 1980s sociologists had little interest in risk assessment (Short 1984), save for sociologists of science interested in technical controversies (e.g. Nelkin 1974, Mazur 1981) and social psychologists who studied risk perceptions (see Covello 1983). Since 1980, however, there has been an outpouring of research on technological risk phenomena.[4]

Attention by environmental sociologists to technological risk and risk assessment was greatly stimulated by TMI, Love Canal, and related instances of technological hazards and by the politicization of risk assessment. In the early 1980s several books and articles appeared that presented diametrically opposed arguments about the biases of and the nature of the public interest in technological risk assessment. Douglas & Wildavsky (1982) criticized the environmental risk establishment for exaggerating the magnitude of these risks and contended that the American public's risk perceptions have no basis in objective reality. Schnaiberg (1980), on the other hand, has stressed that biases exist in the assessment of technological risks in the direction of overestimating social benefits and ignoring major social costs (see also Clarke 1986, Jasper 1986).

Inquiry by environmental sociologists into technological risk has proceeded in several directions. Mazur (1981) has developed a research program on the dynamics of public protests against technological innovations and technical controversy. His studies provide support for the notion that mass movements against technology rise and fall according to the degree of public interest in a related larger issue. For example, nuclear power protests were high when the public was concerned about fallout (early 1960s), the environment (early 1970s), and the energy crisis (mid 1970s). Mazur shows that these movements follow a particular cycle in which media coverage of protests broadens the base of public opposition and leads to a mass movement. Dietz and colleagues (Dietz & Rycroft 1984, Dietz et al 1986) have researched the values and behavior of the "environmental risk establishment" and the role of risk assessment in the policymaking process. They have found that risk assessment professionals differ greatly in their support for the use of risk assessment and benefit–cost analysis—in particular, that persons employed by environmental groups are the least supportive. Nelkin and colleagues (Nelkin & Pollack 1981, Nelkin 1974, Nelkin & Brown 1984) have developed a longstanding research program on the origins of technical controversies and the politicization of public policymaking. Nelkin has emphasized the origins

[4]A related, rapidly growing area of environmental-sociological scholarship—one that links environmental sociology with the sociology of science and political sociology—is that of the political economy of technological innovation (see, for example, Perrolle 1986, Buttel et al 1985).

of technical controversies in disagreements within the scientific community and in the vague and shifting boundaries between competing technical and political aspects of risk assessment. Further, her studies have demonstrated that concerns about risk and declining trust in scientific judgments and in existing decision-making procedures often become transformed into more far-reaching scrutiny of the legitimacy of political systems, as in the context of the West German antinuclear movement (Nelkin & Pollack 1981).

The sociology of technological risk and risk assessment has been given particular impetus over the past few years by the work of Short (1984) and Perrow (1984, 1986). Short developed a comprehensive view of risk, risk perceptions, and risk assessment, and he set forth a research agenda for uniting these issues with contemporary sociological theory. Perrow has become widely known for his notion of "normal accidents," a concept that was developed during the course of his work on the TMI accident. By "normal" (or "system") accidents Perrow means inevitable failures in complex technical systems, such as nuclear power plants, petrochemical plants, and air traffic control systems, that result from the complex interactions of technical components and their tight coupling. Perrow has noted that while failures in such high-risk systems are inevitable and thus "normal," the political process in the aftermath of accidents such as that at TMI typically leads to diagnoses emphasizing human error. Such diagnoses are seen to result from the growth-oriented values and elite-biased political interests underlying risk assessment and evaluation procedures, and they serve to buttress continued use of the technology. Perrow (1984) has also developed a typology of technological systems based on the tightness of "coupling" and on the extent to which there are linear vs complex system interactions. He has argued that each type of technology and the risks it poses require a distinctive authority system consisting of different combinations of centralization and decentralization.

POLITICAL ECONOMY OF THE ENVIRONMENT AND ENVIRONMENTAL POLITICS

The political economy of the environment and environmental politics are not entirely new areas of inquiry in environmental sociology. From the early 1970s sociologists have devoted attention to the nature of environmental politics (see e.g. Morrison 1973, Schnaiberg 1975). Nonetheless, this area of inquiry has been considerably broadened during the 1980s. The 1970s can be seen in retrospect as an era of fundamental reorientation of political sociology, chiefly because of the scrutiny of pluralist theory and the increased prominence of neo-Marxist and neo-Weberian theories of the state (see e.g. Carnoy 1984). Save for the work of Schnaiberg (1980) and Humphrey & Buttel (1982), these new perspectives on political structures and processes had very little impact on US environmental sociology until the early and

mid-1980s. Nonetheless, the 1980s have witnessed increased attention to the political economy of the environment and environmental conflict by US researchers, much of which appears to have resulted from collaboration with European colleagues (e.g. Schnaiberg et al 1986). The result has been a new literature that is rapidly growing.

The environmental–political economy literature in both the United States and Europe has largely drawn on a combination of neo-Marxist and neo-Weberian perspectives. Schnaiberg's (1980) *The Environment* is the best US example of this cross-fertilization, while Rudig & Lowe (1987) is a comparable European effort. Two major interrelated issues have been explored in this emergent literature: (*a*) distributional conflicts in and implications of environmental policy, and (*b*) the alignment of environmental and related movements and groups in national politics, particularly vis-a-vis labor and "new social movements." The major compilation of this research is the anthology by Schnaiberg et al (1986). Lehmbruch (1986) argues that while corporatism works well with regard to policy arenas such as economic stabilization, these arrangements are not conducive to environmental policymaking. Environmental organizations, characterized by a loose network structure rather than by dense interorganizational networks, find it difficult to function in corporatist arrangements. Also, environmental concerns, unlike wage bargaining, are more long-term and imprecise and do not have a developed exchange calculus vis-a-vis corporate interests. Meidinger (1986) notes, however, that there has been a trend toward market mechanisms ("emissions trading") in US air quality regulation and enforcement, despite environmentalist opposition to the notion of a "property right to pollute." This new pattern of regulation and enforcement has emerged because of corporate interests and the pervasiveness of a "new regulatory culture" that represents broad consensus on "interest group liberalism" (Lowi 1986). Meidinger argues that the key consequence of market mechanisms of regulation is that they render the regulation and enforcement processes largely invisible and depoliticized and tend to be biased toward the interests of wealthy groups with the greatest ability to purchase emissions permits.

Pollack (1986) and Buttel (1986b) have provided parallel insights into the nature of the "political opportunity structures" of environmental groups. Pollack has argued that these are shaped by the nature of political systems and activism. He has demonstrated that the breadth and intensity of antinuclear sentiment in the United States, France, and West Germany, along with variations in the degree of centralization of nuclear regulatory structures, have affected the political accomplishments of the antinuclear movement. Buttel (1986b) has argued that in addition to the degree of centralization, the degree of state autonomy vis-à-vis civil society, which is shaped by class structure and historical aspects of political development, is another important component of the political opportunity structure of environmental movements.

The second vital component of the political economy approach has been that directed at understanding environmentalism as a component of the broader phenomenon of "new social movements." Inglehart (1971) noted in the early 1970s that a "silent revolution" was emerging in the European countries. He postulated that a major transformation of social values was underway from an emphasis on materialism and physical security toward "post-materialism" (i.e. greater concern with the quality of life). Inglehart (1977) argued, following a Maslowian hypothesis of the hierarchy of needs, that this value shift was a product of adolescent socialization experiences in a milieu of 1960s affluence. Watts and colleagues (Handley & Watts 1978, Watts & Wandesforde-Smith 1981) were soon to stress that Inglehart's rendering of "post-materialist values" had major similarities with pro-environment attitudes (see also Cotgrove 1982).

During the late 1970s, however, a vigorous debate occurred as to the adequacy of Inglehart's conceptualization and empirical data (se Van Deth 1983, and references therein). In particular, theorists of "new social movements" (e.g. Burklin 1985, Kitschelt 1985) began to argue that conceptualization of this value change as "post-materialism" ignored the most fundamental aspect of the transformation: The emergence of a "post-industrial" occupational structure in advanced capitalism and the consequent undermining of the working-class base of social democratic and other left parties. Gorz (1982:69), for example, has argued that the industrial working class has ceased to be the principal motor of social change in advanced capitalism and that it has been replaced by new social movements—principally environmental, peace, and feminist movements—that reflect the interests of the "post-industrial neo-proletariat" (or "new middle class"). Many European researchers thus have moved toward understanding the environmental movement as a fundamental feature of the new political landscape rather than as an interest group or lobby, as has been the case in much US scholarship. These scholars have made major advances in making connections among the generation and persistence of environmental values, local and national mobilization of environmental groups, environmental degradition (especially episodic phenomena such as toxic waste incidents), the rise of "green parties," and the disintegration of traditional left parties (see especially Burklin 1985, Rudig & Lowe 1987, Papadakis 1984).

ENVIRONMENTAL SOCIOLOGY AFTER A DECADE AND A HALF: ITS STATUS AND PROSPECTS

Environmental sociology has exhibited both persistence and change since the time that the expression was coined in the early 1970s. These patterns of persistence and change have corresponded with several overall trends in environmental sociology. Environmental sociology has become less a schol-

arly cause or movement and more a conventional specialty area within sociology with relatively little influence in redirecting social theory as a whole. Less focused on its theoretical and metatheoretical core (the "new human ecology"), environmental sociology has become more diverse and fragmented, and afflicted with many of the same problems as sociology at large—innovative theoretical works tend to have a limited audience, and methodologically sophisticated quantitative research tends to be confined to problems that lend themselves to large data-sets and statistical precision. There has been uneven progress in environmental sociology toward bridging the dualisms—structure vs agency, nominalism vs realism, materialism vs idealism, methodological precision vs. substantive importance—that continue to pervade the discipline as a whole (Giddens 1979). In particular, the dominant feature of the theoretical core of environmental sociology and of the literature in several substantive areas of the field (e.g. some work in the political economy tradition) is that it is largely structural in nature and stands in need of modification in order to incorporate subjectivity and agency. Likewise, much of the empirical literature in environmental sociology receives theoretical guidance that is exclusively subjectivist and microsociological and that could benefit from a more macrostructural orientation.

There are several encouraging exemplars for bridging this gulf and reintegrating environmental sociology. Some of the more notable include Dietz's (1987) provocative insertion of the perspective of Jurgen Habermas into social impact assessment, Rudig & Lowe's (1987) methodological commentary on the literature on environmental values and politics, and Dunlap's continued efforts to flesh out his conception of the "new ecological paradigm" at both the micro and macro levels. But many of the more promising approaches to the reintegration of environmental sociology have, in my view, come from an unlikely origin: the sociology of development (see Buttel 1986c). Redclift (1984) and Bunker (1985) have developed powerful new approaches to the sociology of development by focusing on the interactions between the biophysical environment and third-world peasant economies. Each has sought to analyze the relations between development and ecological processes by focusing on both the subjectivity of actors and the objective or material aspect of agrarian structures in peripheral capitalism. These efforts, which have yet to be incorporated into the US environmental sociology literature, nonetheless indicate why environmental sociology stands to benefit considerably through cross-fertilization with other substantive areas within sociology.

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