

entrepreneurship

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of entrepreneurship, it is here suggested, is a new combination of already existing elements in the **economy**. Schumpeter also emphasizes that one of the great difficulties for the entrepreneur is that he or she has to break with the past. There is typically a strong resistance to change that has to be overcome, if there is to be an innovation.

In a famous passage in *The Theory of Economic Development*, Schumpeter enumerates the main types of innovation: (1) the opening of a new **market**; (2) the introduction of a new merchandise; (3) the introduction of a new method of production; (4) a change in the organization of an industry; and (5) getting a new and cheaper source of raw materials or half-manufactured goods. Innovations, in other words, can happen anywhere in the economic process, from the assembly of material for production to the end product being marketed and presented to the prospective customer. What drives the entrepreneur is not so much money, Schumpeter also argues, as the joy of creating, the possibility of creating one's own kingdom, and to succeed for the sake of success. A successful innovation, Schumpeter adds, creates entrepreneurial profit – which tempts others to imitate the initial entrepreneur till a situation is reached when no more entrepreneurial profit is to be had. In *Capitalism, Socialism and Democracy* (1942) Schumpeter, finally, feared that huge corporations would kill the initiative of the individual to be an entrepreneur.

As Richard Swedberg shows in *Entrepreneurship* (2001), post-Schumpeterian research on entrepreneurship has, to repeat, been interdisciplinary in nature. There exists, for example, whole literatures on entrepreneurship by psychologists, economic historians, and economists.

Sociologists lack a sustained tradition of studying entrepreneurship but have nonetheless produced a number of interesting studies during the last few decades. One genre of such studies deals with so-called ethnic entrepreneurship or the role that entrepreneurship plays in various ethnic groups. One insight, for example in Roger Waldinger's *Ethnic Entrepreneurs* (1990), from this type of literature is that successful ethnic entrepreneurs have to find other customers than their co-ethnics (“the ethnic market”) if they are to become truly successful. Sociologists also tend to emphasize the role of the **group** in entrepreneurship, as opposed to the single individual. Entrepreneurship in modern corporations, for example, often means the putting together of a group, in combination with an effort to stimulate its members to work on some task, as Rosabeth

Moss Kanter shows in *The Change Masters* (1983). Finally, much contemporary sociological research looks at the earliest stages of entrepreneurship, so-called start-ups, but also what goes on before these exist – an issue which is discussed in Howard E. Aldrich's entry on “Entrepreneurship,” in R. Swedberg and N. Smelser (eds.), *Handbook of Economic Sociology* (2004). RICHARD SWEDBERG

environment

Since its emergence as a political and social issue during the 1960s, the environment has been a topic of sociological interest. Owing to its intrinsic complexity and its intimate connection to a non-social and nonhuman “natural” realm, the environment has shown itself to be difficult to subject to sociological scrutiny, however. The traditional demarcation between nature and **society** that is assumed by many, if not all, sociologists to be a defining characteristic of **modernity** has caused difficulties, which have been reinforced by institutional barriers which tend to separate sociologists from other environmental scientists, as well as from the users of their knowledge.

Nonetheless, in recent years sociologists interested in the environment have produced a variety of theoretical insights and empirical research findings, even though there is little agreement among them about how environmental issues are most appropriately to be comprehended and investigated. The sociology of the environment, or environmental sociology, as it is sometimes called, has suffered from many of the same processes of specialization and compartmentalization that have affected other sociological subfields.

In comparison to other areas of social life, and in relation to the discipline as a whole, the environment has remained a relatively marginal topic of explicit sociological interest. It can be suggested that other social scientific disciplines have been more successful in “appropriating” the environment as a topic for investigation. Particularly in regard to external research funding and programs in environmental science, sociologists have tended to be less active and less visible than political scientists, psychologists, economists, geographers, and policy scientists. This is not merely because of a lack of entrepreneurial skill or energy on the part of sociologists. There is also a structural or disciplinary basis for the relative lack of interest in the environment among sociologists.

For one thing, most of the classic sociological texts give short shrift to environmental problems, and have thus provided little intellectual guidance in helping latter-day interpreters to deal with

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them, either theoretically or empirically. Generally viewed as “side effects” or subplots in the main story-lines of **modernity** and **modernization**, environmental issues were, for the most part, bracketed out of the foundational narratives of the discipline. **Karl Marx**, **Max Weber**, **Émile Durkheim**, and **George Herbert Mead**, as well as **Herbert Spencer** and **Ferdinand Tönnies**, all expressed in varying degrees a positive attitude to the human exploitation of the natural environment, if they referred to it at all. They all shared a respect for, and indeed sought to emulate, the natural and engineering sciences, whose development is generally considered to be one of the root causes of environmental problems.

It can be suggested that this identification with science, and the attempt to make sociology itself into a science, has served to limit the seriousness with which sociologists have concerned themselves with the environment. Even though there were significant differences among them, the founding fathers of the discipline placed whatever criticisms they might have had about science and technology and the exploitation of nature in the margins, or footnotes, of their works. While Marx, for instance, praised the “civilizational role” of modern industry and of its science and **technology** in no uncertain terms, he only noted in passing that this **civilization** had negative implications for nonhuman nature. He never placed environmental issues in the foreground of his analyses of capitalist society, which was exclusively focused on the underlying dynamics, or laws of society. Similarly, Max Weber analyzed and, on occasion, bemoaned the **rationalization** processes of contemporary life, but the environmental implications of those processes were never examined explicitly. As such, the environment was marginal to the formation of a sociological identity, or imagination.

As sociology became institutionalized in the course of the twentieth century, the environment continued to be neglected as a topic of investigation. The kinds of environmental problems that became socially significant in the 1960s – industrial pollution, energy and resource limitations, consumer **risk** and safety – were issues that fell far outside the disciplinary mainstream. They had either been delegated to other social science disciplines (economics, geography, and political science, in particular) or they were seen as aspects, or secondary dimensions, of other sociological concerns, such as **urbanization**, **social conflict**, regional development, or science and technology. It might be suggested that the paradigms or

disciplinary matrices of sociology as a field had come to “frame” the sociological objects of study in such a way as to make environmental issues marginal at best and invisible at worst. The environment was seldom viewed as an independent variable or a social issue in its own right.

The environmental debate of the 1960s, associated with such popular writings as Rachel Carson’s *Silent Spring* (1962) and Paul Ehrlich’s *The Population Bomb* (1968), had only a minor impact on sociology. The key texts of the environmental “movement” were written by natural scientists or science writers, and received little interest from sociologists. For reasons of language and **education**, as well as inclination and interest, the new issues were considered of secondary importance for sociologists. It was not until the emergence of major environmental conflicts in the 1970s, particularly over energy policy, and nuclear energy in particular, that an environmental subfield began to develop with any intensity.

Subsequent sociological concern with the environment has been strongly divided into what **C. Wright Mills**, in *The Sociological Imagination* (1959), once called “grand theory” and “abstracted **empiricism**.” While the theorists have sought to integrate environmental issues into broader conceptualizations and frameworks of interpretation, the more empirically minded have gradually added environmental issues to the growing number of **social problems** and **social movements** that they investigate. In this respect, a sociological interest in the environment has often been mixed with an interest in other social domains: the media, public administration, urban conflicts, and development. Little attempt has been made to “test” the rather abstract notions that the theorists have proposed with empirical research, and there has been little coordination of the various projects carried out by the empiricists in order to develop generalizations or systematic comparisons. As a result, the sociology of the environment has come to be fragmented into a number of approaches that are seldom combined in any meaningful way.

In theoretical terms, sociologists have generally tried to incorporate the environment into the received frameworks of interpretation that they have derived from the so-called classics. Many have been the attempts to apply the terminology of Marx, Weber, or Durkheim to the sociology of the environment. An early effort by Alan Schnaiberg (*The Environment: From Surplus to Scarcity*, 1980) proposed the concept of the “treadmill of production” to characterize the social basis

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of environmental problems, which was derived from the Marxian concept of capital accumulation. Schnaiberg and the many other Marxian theorists who have followed have generally sought to frame environmental problems in materialist or historical materialist language, and thereby to connect the environment to relations of production. As with environmental economists, these theorists have tended to see environmental problems as dependent on, or determined by, other more fundamental social processes.

The influential theory of **Ulrich Beck** has, on the other hand, drawn on the classical conceptions of Tönnies and Weber to develop a **social theory** in which environmental problems are given a more central or determinant place. In the 1980s, Beck proposed the concept of risk society as an all-encompassing term to reflect the underlying **social changes** that had brought environmental issues into social and political life. Like other theorists of **postindustrial society**, Beck's theory posits a fundamental shift in the overall logic, or **rationality**, of society, in his case from the production of goods to the manufacture of uncertainty, endemic risks, and dangers. Environmental problems are thus a structural characteristic of the contemporary age, a determinant factor in society. For Beck and many of the "risk" theorists who have been inspired by him, social processes and activities are no longer dominated by the conditions of modern industry – instead, we have entered the age of what Beck terms "reflexive modernization."

At a somewhat lower level of abstraction, and with a more explicitly political ambition, the risk-society thesis has been modified into a theory of "ecological modernization," which has exerted a wide influence over many European social scientists and policymakers. Ecological modernization has been developed both by sociologists and by political scientists for analyzing institutional arrangements and administrative procedures that have been devised, primarily in relation to the political and social programs of so-called sustainable development. As such, ecological modernization has served perhaps more as a political **ideology** or policy doctrine than as a theoretical framework for academic sociologists.

A distinction can be made between those theories that seek to link environmental issues explicitly to **sociology** and social theory and those that draw on concepts from the natural and environmental sciences, and are thus less directly disciplinary. This "ecological turn" has been facilitated by interdisciplinary research programs in global environmental change and human ecology, as

well as by institutional linkages, or **networks** that have been established between sociologists and environmentally interested scientists in other fields. Some have distinguished between environmental sociology and ecological sociology. In the more ecological theories, social processes are depicted in terms of resource and energy flows, as theorists make use of concepts derived from systems theory, and, more recently, **complexity theory**.

The sociological interest in the environment has from the 1970s been fragmented into a number of empirically delineated specialty areas. Sociologists have investigated a wide range of environmental conflicts, movements, and forms of activism, as well as the myriad processes of institutionalization, professionalization, (see **profession(s)**) and organization of environmental concern. There has also been a continuous research activity, using quantitative and survey methods to explore public attitudes to environmental problems, shifts in media coverage of environmental issues, membership patterns in environmental organizations and campaigns, and aspects of environmental **lifestyles** and consumer preferences. In these more empirical areas, links have been established between environmental sociologists and sociologists of science and technology, as well as with organizational sociologists and scholars of social and political movements. In many cases, particularly in relation to local environmental conflicts, sociologists have combined an academic and an activist role in new forms of action, or action-oriented research.

In both theoretical and empirical terms, the sociology of the environment has provided fundamental contributions to what might be called the reinvention of the sociology of knowledge. Since the use of knowledge and expertise plays a central role in almost every significant environmental conflict, sociological analysis has helped elucidate some of the main processes involved. Depending on the terminology, these processes have been characterized as organizational learning, reflexive knowledge, citizen science, or cognitive praxis, to mention only some of the concepts that have been developed. In this respect, the sociology of the environment has contributed to the broader social understanding of knowledge production, and has, in many specific cases, combined environmental sociology with the sociology of science, or scientific knowledge. The way in which science has come to be used in environmental policy has been a major focal point of sociological investigation.

environmental movements

The sociology of the environment has also been central to the opening of sociology as a whole to interdisciplinary and cross-cultural interactions. An environmental focus or point of departure has proved valuable for initiating collaboration across disciplinary boundaries and for opening spaces for communication between the human and the nonhuman sciences. As a result, there has been a fertilization and “translation” of theoretical terms and concepts in both directions, and there has also been a variety of hybridizations of social scientists and natural scientists into transdisciplinary environmental scientists.

In the future it can be expected that the tension between environmental sociology as a distinct subfield within the discipline and as a part of a broader and less academically defined intellectual activity will continue. The value of sociological understanding for the resolution of environmental conflicts and the solution of environmental problems is significant, and it is to be hoped that sociologists will continue to contribute to the broader pursuit of a sustainable development or an ecological society.

ANDREW JAMISON

environmental movements

– see **social movements**.

environmental rights

– see **rights**.

epidemiology

Defined as the study of the patterning and determinants of the incidence and distribution of disease, the discipline of epidemiology is concerned with environmental factors – whether physical, biological, chemical, psychological, or social – that affect **health**, and also considers the course and outcomes of disease in individuals and in **groups**. Where social variables are emphasized – the distribution of disease by social circumstances and **social class**, for instance, rather than more strictly biological aspects of sex, **race**, or geographical **environment** – the term social epidemiology is often used.

The formal beginning of the discipline was in the nineteenth century with the work of the pioneers of **public health**. John Snow (1813–55), in his *Report on the Cholera Outbreak in the Parish of St. James, Westminster* (1854), famously demonstrated the transmission of cholera through contamination of the London water supply, “cured” by the removal of the handle of the Broad St. pump. The epidemiological approach, comparing rates of

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disease in subgroups of populations, became increasingly used in the late nineteenth and early twentieth century, applied at first mainly to the investigation and control of communicable disease.

Well-known examples of its nature and successes include assisting in the eradication of smallpox in the world by the 1970s. A classical triumph of epidemiology was the conclusive demonstration by Sir Richard Doll (1912–2005) in 1954 of the association between smoking and lung cancer. This classical follow-up study of the mortality of almost 35,000 male British doctors continued to offer results for over fifty years. In 2004 a new report in the *Lancet* celebrated this milestone in public health by showing that the risks of persistent cigarette smoking were actually greater than previously thought, and about one-half to two-thirds of all persistent smokers would eventually be killed by the habit. It was also shown, however, that quitting at any age, even up to the 60s, gains years of life expectancy.

Epidemiology is essentially a statistical discipline, dealing in rates of disease and mortality, but has always acknowledged multiple and interactive causes of ill-health. Behavior and **lifestyle** are increasingly held to be important in the causal analysis of population, and epidemiology studies their effects, and also how the control and prevention of problems in both can be more effective.

One of the most recent examples of the contribution of epidemiology has been to the study of the HIV/AIDS epidemic, where it has been vital to trace out the worldwide patterns of spread and control, rates of transmission, and changing outcomes. This health crisis has also been responsible for some coming-together of ethnographic and qualitative sociological methods of enquiry with the more statistical science represented by epidemiology, since unconventional methods were necessary to gain knowledge (of, for instance, drug use, prostitution, and intimate sexual behavior) essential for the **modeling** of epidemiological **statistics** and predictions.

Medical **sociology** in some respects grew out of social epidemiology, and still has close links with it. Some divergence between the disciplines, however, relates to the fact that epidemiological statistics are *population* statistics and so can say nothing about any individual. How doctors present this to patients, and how lay people interpret at a personal level the statistical facts of epidemiology in the form of rates and probabilities, is a topic of interest in medical sociology, particularly in the currently active fields of **genetics** and **risk**.