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Book Reviews

Human ecology

Human Ecology: Fragments of Anti-fragmentary Views of the World. D. Steiner and M. Nauser, eds. 1993. Routledge, London, xxvi + 365 pp.

Gregory Bateson in *Mind and Nature* argued for a new science of survival specializing in putting together the fragmentary perspectives of other disciplines. This volume, originating in a conference organized by geographers in Switzerland in 1989, illustrates many of the merits and difficulties of such an undertaking. "Human ecology" may well be an adequate label for the ambition to integrate different discourses on sustainability and human-nature interaction, but after decades of discussions there are still a number of competing approaches as to how such integration might best be achieved. Against this background, the editors have admirably succeeded in indicating some of the most promising avenues.

The normative foundation of human ecology is easier to delineate than its conceptual framework. Its point of departure is immediately evident in the evocation, in the book's abstract, of "an environmental catastrophe of global proportions" and the questioning of modern, "technocratic" rationality. The environmental crisis is identified as a fragmentarizing "crisis of society" which can only be alleviated through a "new kind of consciousness" conducive to responsible, sustainable lifestyles.

In biology, sociology, anthropology, geography and psychology the editors recognize the 5 interdisciplinary "roots" of human ecology. They argue persuasively not only that it should be "centred in the social sciences and the humanities rather than in the natural sciences", but also

that it inevitably must embrace "trans-scientific components of a philosophical and religious nature". Of the 19 contributors, 11 are geographers, 3 psychologists and one a biologist. The absence of contributions from sociologists is well compensated for by the strong interest in Giddens, Luhmann and Habermas shared by many of the Swiss geographers. On what anthropology might have to contribute, however, the book is almost completely silent. Considering the extensive anthropological literature presenting itself as "human ecology" (cf. the journal *Human Ecology* as well as recent volumes by, e.g., Ingold, Moran, Bennett or Campbell), this is a major omission.

A central theme is the "human-ecological triangle" of Person-Society-Environment which gave the conference its name. According to Steiner, this triangle defines four kinds of relationships which need to be elucidated and which organize the book, namely person-society, person-environment, person-self, and society-environment. He suggests that all but the last of these relationships tend to be autopoietic or "recursive" systems in the sense that entities belonging to different levels of inclusiveness are mutually self-reinforcing. He is thus able to subsume various understandings of these relationships within a new, non-reductionist "evolutionary cosmology" focused on self-organization.

Several contributors note that Giddens' theory of structuration is of crucial significance for an understanding of the recursive nature of the *person-society* relationship. The recursivity of the *person-environment* relationship, on the other hand, can be illuminated from the perspective of Gibson's "ecological psychology" (championed by Carello) complemented with Lang's interpreta-

tion of the human-influenced environment as an "external memory" or "concretization of the mind". Other concepts evoked as relevant to this relationship include Naess's ecophilosophical notion of "identification" (Steiner), Relph's discussion of place-based identity (Weichhart), and Giddens' notion of "locale" (Lawrence), all of which represent a struggle to overcome the gulf between objectivism and hermeneutics (Werlen). Lang notes that "if space is a term of physical science, place is a psychological or sociological term," and Reichert in an intriguingly postmodern contribution seems to suggest a dissolution of the Cartesian subject-object distinction.

In order to conceptualize the *person-self* relationship, Steiner again resorts to Giddens, suggesting that the different levels of the psyche recursively connected to each other correspond to his three categories "discursive consciousness", "practical consciousness", and the "unconscious". The first of these categories correspond to the explicit dimension of human life, the latter two to the implicit and embedded. Steiner's model is thus able to accommodate psychoanalytic theory, whose recognition of the dominance of reflexive self-objectification (as in Jung's concept of *persona*) could well be integrated with a sociological theory of modernity, on the one hand, and a critique of Cartesian epistemology, on the other. Lawrence joins the tradition of Weber, Mumford, Ellul and others in criticizing modernity's suppression of "tacit regulatory knowledge" in favour of explicit regulation, but the editors add that modern lifestyles increasingly alienated from "environment-related practical consciousness" will also tend to be reproduced through tacit, routinized agency. "If practical consciousness is the source of environmentally responsible action on the one hand," they note, "it becomes an obstacle to it on the other."

The *society-environment* relationship, finally, seems to receive the least attention. To Steiner, the "intransigent self-dynamic" and ensuring dominance of the "economic component" of society suggests a state of "collective insanity", yet (or for this very reason) the economists appear to be the last people to whom he would turn for solutions. The only economist in the conference,

Pillet argues for a classification of "externalities" corresponding to the concerns of welfare economics, environmental economics and ecological economics, respectively. His highly formalized argument is framed by rather skeptical comments from some of the other contributors (Steiner, Huppenbauer), and it does indeed underline the alienation and reductionism (what Ehrlich has called "crackpot rigour") of economic discourse in comparison with humanistic and sociological understandings of the environmental crisis. In contrast to the biologist Boyden, who modestly concedes that "biohistorians" discussing modern "technometabolism" will need to collaborate with those "who are familiar with how the abstract cultural aspects of society operate", Pillet demonstrates the familiar insensitivity of most economists to the cultural and epistemological foundations of their discourse. Bahrenberg and Dutkowski pertinently refer to Luhmann's theory of "ecological communication" to explain why "the economic subsystem can deal with problems only if they have been transformed into the language of prices".

Whether passing as "environmental economics" or "ecological economics", attempts to put price tags on "environmental services" remain utterly misguided. Money and prices are relationships of exchange between human beings, not between humans and nature. Industry is feasible precisely because prices are *not* proportional to the energy content of the materials exchanged. Pillet's question, "How much do energy externalities contribute to an economic outcome?", is thus naive in the extreme. Pillet's (and Odum's) food chain metaphor for industrial production processes, which suggests that "declining energy through the system is accompanied by increasing quality", is difficult to reconcile with the global accumulation of garbage. Whereas Odum's concept of "eMergy" suggests that the dissipation of energy in economic processes corresponds to an increase in quality ("transformity") which in turn correlates with price (and thus would serve to legitimate industrialism), the concept of "eXergy" might instead help us focus on the inescapable fact that energy (eXergy) content and price are *inversely* related. The more eXergy

that has been dissipated in the production process (i.e., the less that remains in the processed substances), the higher the price (i.e., the more resources can be procured in the next round of "production"). the sociological implication of this arrangement is another "recursive" system, the blind logic of which is to reward an accelerating dissipation of energy.

The notion of a "correct market price" thus conceals a continuing exchange of *intact* resources for "products" representing resources already spent. This is the very condition of technoeconomic growth and the source of mounting global, center-periphery inequities. The inequitable economic world order, I regret to add, is a human-ecological problem on which this book is deplorably and incomprehensibly silent. If one of its objectives is to articulate human ecology to a "consistent social theory" (Söderström), this theory seems to be founded on a conception of "society" limited to the industrial segments of the world system and oblivious of the peripheral sectors which remain a necessary condition for their existence.

Considering the very wide range of topics it subsumes, the book nevertheless presents a remarkably consistent case for an emergent, human-ecological paradigm which elegantly integrates questions of epistemology and identity with more tangible issues of resource use and ecological degradation. Consistent with its focus on the conditions of human consciousness is also its "ecoregional" vision of a sustainable, future world in which the present, functional fragmentation of society (as analyzed by Luhmann) has given way to a differentiation of regional, holistic, and more self-sufficient entities (Bahrenberg and Dutkowski). Any policy designed to re-empower local populations to develop their own strategies for sustainable reproduction would need to find a way of somehow "immunizing" basis subsistence activities against the discursive dominance (and the more tangible vicissitudes) of the world market. Perhaps, in the long run, the only logical solution may be to distinguish, by means of special-purpose currencies, two completely separate spheres of exchange, one devoted to basic local reproduction (e.g., subsistence, shelter) and the

other to continued global integration (e.g., telecommunications, medical research). In fundamentally reorganizing the *conditions* for economic rationality (e.g., the determination of optimal energy inputs in agriculture), it would profoundly transform global patterns of resource management. Perhaps even more central to the issues addressed in this book, it would encourage a revitalization of local social life, a "re-embedding" in the tacit meanings of place-based identity, and a sense of ontological security that would free us to transcend the Cartesian alienation which seems to be at the root of so many of our problems.

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Functions of nature

Functions of Nature: Evaluation of Nature in Environmental Planning, Management and Decision Making. Rudolph S. de Groot. Wolters-Noordhoff, Amsterdam, 1992. 315 pp. ISBN 90-01-35594-3.

Decision-makers are constantly calling for better practical "tools" to help them identify economically and ecologically sound projects. Such tools must be scientifically defensible and reproducible within a consistent framework, yet flexible enough to apply to a broad range of situations. Perhaps most important, they should be accessible to analysts from many disciplines without necessarily requiring years of study and specialized training. *Functions of Nature* introduces such a tool in a carefully thought-out and tested guide and checklist of 37 "environmental func-