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Andrew P. Vayda: Explaining Human Actions and Environmental Changes

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A. Endre Nyerges

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How do we best go about understanding and explaining environmental changes? Do we start with theories and see if the facts fit? Or do we begin with the facts and make the theories fit? If you agree with Sherlock Holmes that "[i]t is a capital mistake to theorize before you have all the evidence. It biases the judgment" (Doyle 1887[1967] p.166), then this book, Andrew "Pete" Vayda's *Explaining Human Actions and Environmental Changes*, is for you. The book is a compilation of ten of Vayda's essays, published originally between 1989 and 2008 and presented here in mostly reverse chronological order, on topics of explanation and "methods of explanation-oriented research" (p.ix). In these essays, Vayda provides an invaluable contribution through his attack on grand theory and advancing an alternative, more down-to-earth approach for explaining environmental change events.

Key to the volume is the opening essay, "Causal Explanation as a Research Goal: Dos and Don'ts," which was originally published as the concluding chapter to the festschrift volume *Against the Grain: the Vayda Tradition in Human Ecology and Ecological Anthropology* (Walters *et al.* 2008). Vayda begins this essay with the questions of "What does it mean to engage in causal explanation and make it a goal of our research? And how should we do [and not do] these things?" (p. 1) and then answers his questions at length. His answers are couched in pragmatic terms and include "1) asking why-questions about events; and 2) answering by imparting *some*—but not [necessarily] 'complete'—information about the causal histories of those events" (p. 44). While incorporating an intriguingly broad definition of what constitutes appropriate causal information, the approach fundamentally requires openness by the investigator to multiple explanations of events and a research strategy of eliminating wrong ones.

Following the work of the nineteenth century American pragmatic philosopher C. S. Peirce, Vayda grounds his argument in the concept of "abduction," or reasoning backward based on creatively generated alternative hypotheses. Like Sherlock Holmes, the investigator avoids theorizing prematurely, or starting with answers, but instead progressively investigates all, or at least multiple plausible, causal histories that could lead to the event in question, thereby starting with questions. Accordingly, Vayda extols T. C. Chamberlin's "Method of Multiple Working Hypotheses" (1890[1965]) and similarly commends practices he finds extant in criminal detection and medical diagnosis "where measures are taken to reduce bias-induced errors or bad explanations" (p. 46).

By contrast, Vayda's most severe "don't" is illustrated by work "in recent environment-related social science—political ecology and spiritual ecology, for example" (p. 45). In these fields, investigators seek explanation first by "deploying theory or generalizations rather than considering and progressively eliminating possible causes" (p. 45) and then assuming that any supporting facts confirm the theory without checking if they equally support alternative views. According to Vayda, such approaches lead not to solutions but rather to confirmation bias. This bias is exemplified in political ecology by the frequent and approving citation of Fairhead and Leach's West African anthropogenic forest islands thesis, but without reference to criticisms of these authors' "selective use of evidence and their failure to consider alternative causal scenarios more congruent with the evidence available" (p. 36). A similar Vayda-

A. E. Nyerges (✉)
Anthropology and Sociology Program, Centre College,
600 W. Walnut St.,
Danville, KY 40422, USA
e-mail: nyerges@centre.edu

highlighted "don't" is explanation by apparent beneficial consequences, so that explanation as chance by-product is ignored as in the celebrated example of Balinese irrigation scheduling. For Vayda, perhaps the best test of a bad explanation is to determine whether it makes the investigator happy through the confirmation of bias. Seemingly, such bad explanations run rampant in the field, and it is time to stop.

In subsequent chapters, Vayda discusses causes of forest fires in Indonesia, criticizing explanations, including his own previous efforts, he now judges to be inadequate to address practical problems of fire management. With coauthors Bradley Walters and Indah Setyawati, he further criticizes the study of indigenous knowledge as overly focused on defining and describing systematic knowledge without examining its practical uses. In a review of *Tropical Deforestation: The Human Dimension*, he attacks the issue-hopping tendencies of anthropologists as instanced by unwarranted claims to "special contributions" they may make in the case of tropical deforestation, promoting instead a "clear-eyed eclecticism" (p. 121). In a review of *Discordant Harmonies*, he sympathetically appraises Daniel Botkin's analysis of inherent change and complex dynamics in ecosystems, but he tempers his approval with criticisms of Botkin's "much simpler view of cause and effect with respect to human actions than with respect to such matters as tree growth and other events and processes in nature" (p. 127).

The essay "Against Political Ecology," published in 1999, is Vayda and Walters' breakout piece attacking the a priori assumptions of political ecologists and advancing their alternative "evenmental or event ecology" (p. 129). While finding value in paying some "more attention to political influences" (p. 130), they skeptically evaluate the political ecologists' insistence on prioritizing such influence, regarding this approach as "a prescription for question-begging research" (pp. 130–131). Even further, they view much of political ecology as indistinguishable from political anthropology or political science, or at most constituting a "natural resource politics" bereft of actual ecology and therefore a misnomer and "in violation of truth in labeling" (131). Political studies of contested resources or environmental movements are not equivalent to studies of environmental change, and, for the latter, Vayda and Walters propose event ecology as a way of doing research guided by open questions rather than closed theory. Vayda also addresses the concept of event ecology in the opening essay, in which he explicitly abjures designating a new field with a new name. In a footnote, he distinguishes between event ecology as the effort to explain environmental changes and "event social science" as the effort to explain human actions and separate from event ecology "even if environmental causes of the actions were or could be found," as for example in his previous work on warfare (p. 12, fn. 13).

After a lengthy book review critiquing some unwarranted claims in human behavioral ecology, readers reach an intriguing if short and seemingly unfinished chapter on "Concepts of Process in Social Science Explanations" coauthored with Bonnie McCay and Cristina Eghenter. Here, the authors critique the reification of process or the tendency of social scientists to "make processes themselves the objects of explanation" (p. 191). They assert the importance of understanding change from the perspective of examining linked events and actions, and they contrast their views to Braudel's apparent relegation of the event (*événement, l'histoire événementiel*) to a level of "transitory significance" (p. 191) in relation to the longer terms and larger dimensions of *conjuncture* and *longue durée* (see Balée 2006: 80–81). The chapter touches on the crucial topic of human agency, but it focuses primarily on the problem of investigators starting with the actions of actors and then slipping insensibly into the interactions of processes or forces acting autonomously (p. 196). As they state "obviating the reification problem requires more than lip service to causal mechanisms linking actions or events. Evidence and arguments must be produced" (p. 197) to avoid assuming that one or a few events constitute a process or, worse, "that processes have causal force in their own right" (p. 203). An example of what the authors have in mind is provided by Bonnie McCay's admission that, in her well-known work on people ecology in Newfoundland fisheries management, she inadvertently reified "the concept of response process [thereby showing] that even when human agency is acknowledged, processes may be reified" (p. 194).

The next chapter, "Explaining Why Marings Fought: Different Questions, Different Answers," adds to our understanding of human agency as individual actions distinct from processes. The section lugubriously entitled "Recantation" (pp. 210–213), provides further instances of self-critique and abjuring past positions, a rhetorical strategy that will henceforth surely earn the label of "Vayda event." Here, Vayda reviews his dispute with C. R. Hallpike over the question of what causes Maring warfare and concludes that the same question can lead to "different correct answers" (p. 205) in the hands of different investigators. More importantly, efforts at causal explanation may run afoul of problems of variability in human behavior, an error for which Hallpike once called Vayda to task for not following his "own good advice" (p. 213). At the least, we learn, investigators should strenuously avoid the teleological fallacy of assuming that specific outcomes inevitably reveal causes.

Vayda ends his compilation with a review of *The Anthropology of War*, and in his final paragraph criticizes

the book for its typographical errors. As a parting shot the point is well-taken, but, nevertheless, Vayda lessens his volume's otherwise very great value by omitting a concluding chapter tying together and finishing off the disparate ends of his argument. Vayda is strongest in his unremitting critique of political ecology and other anthropological instances of the "ruling theory" (Chamberlin 1890 [1965]) and in his advocacy of the pragmatic approach of investigating multiple plausible causal histories. At its best, his work is reminiscent of Boas' (1920 [2008]) attack on the unilineal evolutionists, and we can only hope that it may have some of the same benefits for our discipline, and none of the detriments. Other than the prescription of being deliberately open-minded, however, readers are left with some uncertainty as to what can constitute evidence, or causal information. Finally, the book makes several references to human agency, although usually in the context of discussing problems of reification of process (pp. 193–195) and other "don'ts" (p. 211). It seems curious, therefore, that Vayda does not specifically expand on his event social science beyond segregating it as "studies with human actions as the basic explananda" (p. 12, fn. 13). Yet the mundane actions of individuals engaged in resource exploitation, often for culturally identified purposes and in the context of sometimes constraining or conflicting social arrangements, must consistently be included among the most plausible causes of environmental changes. It is in the direction of better understanding human agency and variations in human actions, alongside investigation of biophysical factors, that some of the more fruitful future work may lie.

In sum, Vayda's significant critique of political ecology and exposure of confirmation bias, the reification of process, the marginalization of events and actions, and other ills clears the way for the proposal of an explicitly event-based causal approach for understanding environmental changes. This important book should be required reading not only for human ecologists and ecological anthropologists, but also for all other social scientists concerned with environmental change. It will make exceptional and stimulating reading for students in graduate and advanced undergraduate courses addressing environmental issues and provide an excellent springboard for new research and understanding.

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