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Citizen Science: A Study of People, Expertise and Sustainable Development

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social activists often neglect. The writing is clear and well informed. The senior editor is Director of the Center for Urban Research and Learning at Loyola University in Chicago. He includes the World Wide Web address for this and the Policy Action Group composed of Chicago community leaders and university researchers.

This volume accomplishes its goal. There is convincing evidence that university researchers and poor people can collaborate to do research that leads to social change. While there is ample warning that this is not easy to do and several case studies identify stresses in the collaboration, this reviewer wonders if the volume would have been strengthened by the inclusion of failures. Some context for interpreting the 27 cases would have helped also. Each success reported in this volume is noteworthy but there is no sense that these efforts are part of a social movement that will reduce inner-city misery. The cases seem to be impressive but isolated events.

The questions this reviewer has about this volume can be summed up by saying that it has a Pollyannaish quality. The collaborative model proposed in this volume can also be used by the affluent. When outsiders supply the money there is always the possibility that they will overtly or covertly influence the results. These issues are identified in this volume but they are not stressed enough.

This book is highly recommended as a supplemental text in courses in urban research, the community and community organization. The editors and their contributors have identified a series of issues relating to the role of the university that needs to be more widely explored.

Citizen Science: A Study of People, Expertise and Sustainable Development, by Alan Irwin. New York: Routledge, 1995. 216 pp. $59.95.
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If the post-modern society suffers from the risks engendered by a now lost faith in science and technology, then what changes in the practice of science and use of expertise are required for the necessary shift to a potentially "sustainable" society? Alan Irwin's *Citizen Science* provides a thoughtful analysis of this needed transformation. This new science is informed by the contextual knowledge of citizens as they exercise greater control over their lives, health and environment. Rather than supplanting the modernist ideal of universal science, a citizen science would integrate vernacular knowledge and

scientific expertise within flexible and open discourse about the problems confronted by people in real life. This conversation is by nature self-critical and self-aware and reflexive about the uncertainties and limitations confronted in any local application. The result of this dialectic of local and scientific expertise is mutual growth: public empowerment is pushed to incorporate new competencies while science is challenged to stretch toward new areas of discovery.

However, the above conditions are far from the current reality. Thus, much of *Citizen Science* consists of a litany of the sins committed in applying modern science to policy. Using such cases as the conflict over the use of the herbicide 2,4,5-T, the controversy over "mad cow" disease, and the challenge of instituting local policies for industrial disaster response, Irwin illustrates the divergence between the modern "enlightenment" and post-modern "critical" approaches to science. In the modern formulation, science is painted as rational, authoritative, consensual and independent while the publics' distrust of risk policy is explained by their ignorance and emotionalism. From a critical post-modern perspective, in contrast, this distrust reflects the failure of science to address uncertainty, disagreement, and divergence between different disciplines, even concealing these limitations to preserve the appearance of validity and to legitimize policies. Practiced forms of decision making place technical issues, scientific analysis, and expertise at the center of environmental risk issues while reducing the public to the role of ignorant witnesses. The failure of such "top down" decision making is evident, for example, when efforts to inform local people of emergency procedures don't make sense to the targeted population in light of their understanding of risk in the context of local life.

While at times the public is muted by the authority of scientific evidence that contradicts local understandings, in other instances, citizens use their local knowledge to challenge scientific expertise. These instances of "popular epidemiology" are grounded in the actual experience of the respondents and seek to prove that local victims have been harmed rather than discover broadly generalizable and universal findings. Public epidemiology was evidenced, for example, when British farm workers battled against use of the herbicide 2,4,5-T. Abstract expert proclamations about safety contradicted their direct knowledge of the variability and complexity of actual field conditions, operating circumstances, and social factors during the spraying of pesticides. Further armed with their own survey data on health outcomes, the farm workers were in a position to scientifically prove harm. Irwin thus offers a strong application of the Risk Society theory of Beck and Giddens integrated with a sensitivity to the social construction of knowledge. It is unfortunate that Irwin's work was not cross-fertilized by the research of U.S. social scientists on the

social and psychological impacts of contamination. There is much common resonance around themes such as local knowledge and lay epidemiology.

Having offered the promise of Citizen Science as an alternative paradigm for science, Irwin waits to the last chapter to admit "there is no easy synthesis on offer which can replace enlightenment/modernist thinking." The volume is more reactive than proactive. The discussion of building sustainable futures is dominated by tales of failure rather than success, even in examining such important models as that of the European science shops or the Canadian MacKenzie River Pipeline Inquiry. Thus, as attractive as is Irwin's vision, one cannot but be disappointed by the sparse delivery on the promise of *Citizen Science*. Perhaps the paucity of positive and successful models is itself instructive, a challenge to the thesis that is not addressed. Lacking indications of practical success, Irwin is left to cite abstract notions about a "greener science" that asks of any application "which form of science is appropriate and in what relationship to other forms of knowledge." With the public as peer reviewers, this new science would become better able to address the ambiguities of the real world. Irwin's integration thus bridges the post-modernist critique of contamination with the socially transformative steps necessary to reach sustainability. This is a vision that I, for one, share, and, even absent claims for idealized applications and successes, *Citizens Science* correctly charts the direction that field experimentation, innovative practice, and environmental action research should urgently pursue.

The New Language of Qualitative Method, by Jaber F. Gubrium and James A. Holstein. Oxford: Oxford University Press, 1997. 244 pp. ISBN 0-19-509993-1 (cloth), 0-19-509994-X (pbk.)

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The purpose of this book is to analyze the way the language of qualitative method relates to how researchers view and describe social life. The authors, Jaber Gubrium and James Holstein, describe the four most influential approaches to qualitative research in contemporary social science. These four approaches are naturalism, ethnomethodology, emotionalism, and postmodernism. Naturalism is defined as "...a way of knowing that locates meaningful reality in the immediate settings of people's daily affairs (p. 7)." Naturalists seek "...descriptions of people and interaction as they exist and unfold in their native habitats...in order to understand what things mean to them (pp. 6-7)." Ethnomethodologists listen "...to naturally occurring con-