## *The Science and Humanism of Stephen Jay Gould*

**By Richard York and Brett Clark**
**New York: Monthly Review Press, 2010.**
**ISBN: 978-1583672167**

*Reviewed by Stefano B. Longo, University of Illinois, Springfield*

Undoubtedly, Stephen Jay Gould is one of the great thinkers of the Twentieth Century. Gould was a leading figure in the fields of evolutionary biology and paleontology, and made important theoretical and empirical contributions to those fields over his accomplished career. *The Science and Humanism of Stephen Jay Gould*, by sociologists Richard York and Brett Clark, broadly examines the philosophical underpinnings of Gould's work, and its application for understanding the interweaving relations among and between natural and social systems. This book provides a concise, yet remarkably thorough, survey of key aspects of Gould's powerful worldview and philosophy, applying a rich overarching analysis of a scientific perspective that reveals numerous insights into the complexity of nature and, compellingly, society. It explores the larger themes that run through Gould's work, including historical change and contingency, as well as the structural and multilevel character of his analysis. In addition, the book examines Gould's long running critique of biological determinism and his efforts towards developing a humanistic component for understanding the interrelationship between nature and the human condition.

York and Clark insightfully connect the power of Gould's scientific contributions with the potential that is immanent within his materialist science and historical perspective. As a historian of science himself, Gould understood the sociological realities of scientific study, including the relevance of historical context and social settings in the production of scientific knowledge. Thus, York and Clark describe how the Gouldian worldview developed a reflexive analysis that is relevant to numerous endeavors. Indeed, Gould embraced the value of knowledge acquisition that is, and could be, produced outside the traditional purview of the natural or physical sciences in a manner that is seldom seen by practicing scientists.

Gould recognized that academic openness and knowledge integration are essential components for the potential of the scientific enterprise to contribute to the welfare of the human condition. Thus, he developed a holistic research program, and was not afraid to move from his home in the natural sciences to find connections and relationships in all forms of knowledge, including the social sciences, the humanities, and, of course, everyday life. Gould was also committed to the life of a public intellectual, as he was able to expand from academic science into mainstream writing. He recognized that it was necessary to reach others outside of the small group of colleagues or academics that engage in scientific research about the complexity of nature, and educate on its relevance to a broader audience.

The authors assert that an essential feature of Gould's perspective was his commitment to a radical tradition within the natural sciences, drawing on the logic of a dialectical analysis. Consistent with his holistic approach to knowledge acquisition, Gould contributed to a scientific analysis that acknowledged the interpenetration of parts and wholes and systemic properties, including those emanating from the social and historical environment. As a result, his work eloquently critiqued the commonly held assumptions associated with functionalism and determinism that have often plagued both the natural and social sciences.

While Gould rejected the direct application of biological theory to social phenomenon or biological explanations for social behaviors and human nature, the Gouldian worldview provides an analytical framework for scholarship that transcends common disciplinary constraints. In his work, Gould insisted that the human condition was not simply an inevitable result of biological forces, such as evolution for example. On the contrary, he maintained that humans have the biological potential and flexibility to produce a diversity of individual behaviors and social arrangements, as is visible in the variability of cultural forms societies have taken throughout history. Thus, ethical decisions about the form and character of social organization must be made with a different set of standards than those offered in the physical and natural sciences and therefore unavoidably enter into the realm of humanism. That is to say, science can and does inform us about material conditions, but not what we should do about them.

Gould's reflexive approach reveals the fundamental nature of practicing science as a social act, thus illuminating the many biases that become entrenched in its development, interpretation, and application. For instance, embarking on a thorough historical analysis of the scientific studies of intelligence ranking and IQ, Gould debunked biologically deterministic theories of innate, immutable, and quantifiable human intelligence. Drawing on Gould's work, the authors highlight that science does not occur in a social vacuum and that research programs, studies, questions, and interpretation of data are enmeshed in a historical setting that, at minimum, sways the process toward some inferences and conclusions and not others. Thus, science is not a neutral or socially unhindered process.

Through examining the Gouldian approach to science and nature, York and Clark contribute to a tradition of historical and sociological study of science, and present the contextual significance of the scientist's work. The book offers a

great introduction to Gould and his work, and also provides further insight for those already familiar with it. Additionally, this book contributes a unique analytical approach by, for example, putting Gould's work in the context of larger traditions within the social sciences and humanities.

*The Science and Humanism of Stephen Jay Gould* is relevant for practitioners of natural and social sciences, particularly environmental social science, by presenting a theoretical foundation for studying human and non-human systems. The book demonstrates the necessity for active confrontation with reductionist tendencies produced by parochialism and by conventional disciplinary boundaries associated with the modern university system when examining complex systems, and recognizes the many facets of knowledge production that can be enhanced by the Gouldian worldview. York and Clark explore the ties between the scientific and humanistic elements of Gould's scholarship that opened a pathway for the study of nature and society, which acquired and integrated knowledge in a manner that moved beyond the academic lip service often given to interdisciplinary study. Following in Gould's footsteps, York and Clark successfully embark on a true foray into the practice and application of interdisciplinary synthesis.

## *Environment, Development, Agriculture-Integrated Policy through Human Ecology*

**By Bernhard Glaeser**
**London: Routledge Revivals, 2010.**
**ISBN: 1-85728-290-6 HB**
**1-85728-291-4 PB**

*Reviewed by Luc Hens*

Agriculture was recognised as a core issue in sustainable development by the World Commission on Environment and Development (WCED, 1987). The Brundtland report pointed to the unsustainable character of industrialised agriculture and advocated a system with less inputs and a more rational use of the resources. The environmental problems contemporary agriculture causes were further elaborated in Rio's Agenda 21, and implicitly echoed by the Johannesburg Plan of Implementation. Recently more insight in the climate change issues added a new dimension to this discussion. A U.K. report compiled over two years with the assistance of 400 experts in 35 countries, calculates the sustainability of the world's food supply. The authors foresee as a worst case a doubling of the maize world price by 2050. Half of that increase is related to climate effects. For rice the price might increase by 80%, of which 30% is climate change mediated. The report calls for urgent action to aid the nearly 2 billion undernourished people in the world (U.K. Governmental Office for Science, 2011).

While the problem is relatively well established, solutions are less straightforward. This book offers more than awakened thinking on the subject. It focuses on aspects of philosophy and social science in human ecology and includes case examples concerning political implementation. It is structured in four parts.

Part one deals with the theory of human ecology. It points to the interdisciplinary and holistic nature of the human ecological approach and its typical, complex modelling. The latter is of key importance to address the complex problems raised by sustainable agriculture. This section also links sustainable agriculture and such related issues as sustainable housing to the umbrella concept of sustainable development.

Part two moves to questions of human behaviour and action. Environmental ethics is analysed and the author concludes that an (ethical) "shift is required in society as a whole, especially in the domains of science and politics, towards ecological cognition and ecological behaviours (p.74). Further on, the main lines of German environmental policy are described. This is most interesting as e.g. the world wide applied precautionary principle dovetails in this German policy of the 1970s. Nevertheless, the analysis shows an approach that favours reactive and remedial measures over prevention.

Two examples of research work by the author illustrate what is meant by ecologically sustainable development in agriculture: a review of the environmental policy in China since 1949, and a regional case study from the Andaman and Nicobar islands in India. In particular, the latter offers a prospective outlook: it examines opportunities for environmental planning involving local people and their own cultural settings.

Future thinking and action is the subject of the last part of the book. It includes chapters that center the present North-South relations on agriculture and advocate ecological and cultural variety. The last chapter is about the theory of nature — culture paradigm. It presents human ecology as a unifying factor to approach this dichotomy.

Each chapter is structured with an almost dialectical rigor: it starts with a description of the aims, followed by a core text and a conclusion. Also the book as a whole entails all necessary aids for the reader: contents, an introduction, an index, and a wealth of references.

Professor Bernhard Glaeser is a sociologist and human ecologist, trained as an economist and philosopher. He has an impressive publication record on a variety of issues in human

ecology, the environmental — social interface and international development. With this re-issued edition, Routledge, in its new series "Revivals," acknowledges Glaeser's contribution to interdisciplinary approaches in the social sciences. He delivers a most stimulating piece of socially relevant theory driven research for a number of reasons:

- The book provides an in-depth approach of selected core elements in human ecology.
- It applies the human ecological approach to the issue of sustainable agriculture, in practice.
- It extends its conclusions towards policy formulation.
- It entails sections of environmental philosophy and ethics that are exquisite

As a re-issued edition, the book also entails weaknesses. The literature list only includes references from the last century. Also, more recent aspects of the sustainable agriculture discussion are missing.

Over all, this book is a masterpiece in the human ecology library. It is a must for students, trainers and researchers in faculties of sociology, agriculture and environmental sciences. It explicitly addresses policy makers and their advisers. But above all, it stimulates creative thinking about the interface of one of the most important overlays of sustainable development: environment, development, and agriculture.

## *Tackling Wicked Problems: Through the Trans-disciplinary Imagination*

Winner of the 2011 Gerard L. Young Book Award in Human Ecology

**Edited by Valerie A. Brown, John A. Harris, and Jacqueline Y. Russell**
**London: Earthscan Publications Ltd., 2010.**
**ISBN: 978-1-84407-925-4**

*Reviewed by Thomas J. Burns, University of Oklahoma*

In the initial chapter of this volume (p. 4), Brown, Deane, Harris and Russell define *Wicked Problems* as: "...complex issue[s] that defy complete definition, for which there can be no final solution, since any resolution generates further issues...they resist all the usual attempts to resolve them..." Wicked problems tend not to fall into neatly defined categories. They are best approached in ways that cross traditional disciplinary boundaries.

Persistent Organic Pollutants (POPs), such as polychlorinated biphenyls, are an exemplar of the sort of wicked problems the authors have in mind. Epidemiologists have linked POPs with a number of serious problems, including certain auto-immune diseases and cancer. While banning them would seem like a straightforward and responsible social decision, their use continues.

Why? Polluting industries pay salaries and taxes and have input into the political process. Scientists find it difficult to get funding for the sort of transdisciplinary research needed to spell out the linkages more precisely, and public health officials have shied away from giving warnings, not wanting to cause "panic" (p. 7).

In thinking through the issues concerning wicked problems, the authors build on prior work of Rittel and Webber (1973). They also acknowledge the intellectual and practical inspiration of C. Wright Mills's (1959/1970) *The Sociological Imagination*, particularly in tapping the power of the imagination, and the connections between and among different world views that trans-disciplinary work offers. Mills also grasped the importance of bringing together the intellectual and the personal, and we see a number of instances throughout this volume written in that spirit.

In articulating a philosophical framework, contributions by Russell and by Smithson acknowledge the uncertainty of knowledge. Ignorance, or what is *not* known, plays a major role in the political process, for example. The chapter by Brown contextualizes this by pointing out some of the epistemological difficulties faced in contemporary society, with its rapid rates of change stemming from technological and other innovations. The chapter by Lawrence makes a case for addressing many of these complexities through interdisciplinary approaches.

The focus of the book then turns to a number of practical concerns. There are sections on Community-Based, Organizational, Individual-Focused, and Holistic Inquiry. Each of these can be framed in terms articulated in the earlier theoretical section, but with particular attention to methodological issues.

Although the authors hail from different disciplines, there is a remarkable consistency of form throughout the book. The essays in this middle part of the book each start with the author(s) framing a particular wicked problem. The article's focus then turns to different worldviews that are particularly relevant to inquiry. It is notable here that authors strive to give at least two world views that are significantly different in some way. They then adduce sources of relevant data. Working through the problem in this way sets up a dialectical approach, and the authors attempt to reach a synthesis and give a collective learning application.

Each of the essays makes a contribution. As there are about two dozen such essays, I necessarily mention only some of them in this review.

A wicked problem faced by communities is how to work with experts in long term governance, balancing their sometimes important contributions with more grass-roots commu-

nity involvement. Hendricks addresses this with a number of concrete suggestions for broadening public discourse and ensuring adequate representation of affected groups and people.

Parissi examines how knowledge is accumulated in an organizational context, re-considering norms of Truth in scientific inquiry. Dovers looks at interdisciplinary and institutional issues. Since wicked problems typically involve different scales and subsets of expert knowledge, how can and should researchers proceed, when each has a unique frame of reference and comes from a particular organizational culture?

In the section on Individual-Focused Inquiry, Grootjans juxtaposes an ideal-typical European worldview, where health centrally involves physical well-being, with an Aboriginal worldview that constructs health more in relational terms between people and the natural environment. He makes a case that collective solutions are best approached through moving away from narrow commitment to one particular 'right' answer.

In the section on Holistic Inquiry, Arabena thinks through a variety of worldviews and ways of knowing. Rather than a forced universalism, Arabena (p. 266) advocates a move to "Universe-referent citizenship," in which "[The] importance of achieving ecological sustainability for human health and survival should be a universal objective."

The book then turns to questions of the future. An essay by Dyball asks how principles might best be translated, first into meaningful research, and ultimately into action. He calls for Human Ecology to continue to develop its agenda (pp. 276 ff.). Brown then concludes with questions about whether there can be a community of inquiry and practice to address wicked problems and, if so, what sorts of realistic steps are necessary.

*Tackling Wicked Problems*, or several of the articles within it that focus on a particular problem, would be appropriate for an advanced undergraduate course or graduate seminar in human ecology. This volume is a strong example of the very sort of trans-disciplinary work it is advocating. It deserves a wide reading and serious consideration.

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Rittel, H., and M. Webber. 1973. Dilemmas in a General Theory of Planning. *Policy Sciences*, 4:155-169. {reprinted in N. Cross (ed.), *Developments on Design Methodology*, pp. 135-144. Chichester: Wiley.

## *Current trends in Human Ecology*

Winner of the 2011 Gerard L. Young Book Award in Human Ecology

**Edited by Priscila Lopes and Alpina Begossi**
**Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2009**
**ISBN: 978-1-4438-0340-3**

*Reviewed by Brandon Pearson, University of Oklahoma.*

*Current trends in Human Ecology* is a thorough and engaging compilation of works across many areas of ecological interests. This piece is geared with multi-disciplinary cooperation in mind and provides a cross fertilization of ideas for the reader. Touching on topics as diverse as fishing estuaries in Brazil and the role of climate change in altering indigenous culture, the piece elucidates the connection between humanity and nature in fascinating and sometimes startling ways.

Alpina Begossi and Priscila Lopes set us on a journey across our world, in which the multitude of anthropogenic changes in the natural environment is brought into discussion. The book has a bottom-up rather than top down feel. Much of the work focuses on conditions on the ground for indigenous people or people living on subsistence farming. This grounds the book in lifestyles more closely linked to the natural environment than many of us are familiar with. Deference for the local ecological knowledge of people who are marginalized by modern society is intertwined throughout the work.

The scope of the readings will present an opportunity for readers to further educate themselves on environmental issues with which they may not be familiar. Chapters on the role of traditional agricultural practices in deforestation and ethnobotanical knowledge of Caicaras in their fishing practices draws a picture of the delicate and changing balance in which humankind exists with the natural world. Other chapters describe the influence of human culture on our perceptions and beliefs about the environment, and how that informs humanity's relationship to nature. We are also presented with a critique of our hubris in relying on technology and modernity to solve our ecological problems, while we forget or deride older ways of being and doing that indigenous people have practiced for time beyond measure. Finally, we have a call to learn and work collaboratively with others across different fields. For those of us more application minded, this chapter sets forth models and strategies for educating ourselves and informing and interacting with others collaboratively.

All in all, this book is a must read for those engaged in ecological issues who wish to step out of their comfort zone. The interdisciplinary nature of this work lends itself to scholars who may be seeking to bridge the gap between disciplines. *Current Trends in Human Ecology* is an informative and thought provoking piece for any ecologically minded individual who wants to raise their own awareness.