

Chapter 4 moves the discussion to contemporary issues in self-organization theory, and does it well. Few contemporary thinkers on the subject are omitted in the references provided.

Chapter 5 begins the center of Adams's work, which is the study of culture in relationship to physical dynamics. Chapters 6 and 7 explore the human use and structuring of energy flows and the manner in which this coevolutionary process brings the thermodynamic concept of *power* into the socioeconomic sphere. With the human subsumption of energy flows necessarily come *hierarchies* for their utilization. Hierarchy theory flows naturally from Adams's work, in a top-down way. Social structures are not "built up"; rather, they differentiate under energy flows. Always in sociobiology we are presented with a picture of big things (phenotypes, value systems, religions) being built from little things (molecules, genes) through a combination of serendipity and natural selection. Adams inverts that picture: history and biology are *both* accountable to thermodynamic flows. This book is therefore a welcomed complement to sociobiological insights.

Beginning with Chapter 8, Adams gets down to specifics about how the energetics of natural selection translate into the empirical realities of socioeconomic evolution. Civilization is a "trigger" for releasing thermodynamic flows, and the innovations of civilization are selected accordingly. The "trigger" concept is a kinetic one, tying what we do as a species to what is thermodynamically favorable. That theme is developed in the remainder of the book, with many historical examples.

This is a carefully done piece of work, and loaded with empirical data. Adams takes little for granted of his readership, except for a healthy interest in the way the world works and the way in which we participate in that working. Appendices are provided as necessary. For a pleasing change, they are done at the conclusions of the chapters themselves so that one doesn't have to flip pages to connect the themes.

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Der Dialog zwischen Theologie und Naturwissenschaft. Ein bibliographischer Bericht.
(*The Dialogue Between Theology and Natural Science: A Bibliographical Report*).
Forschungen und Berichte der Evangelischen Studiengemeinschaft.
Band 41. Edited by Jürgen Hübner. München: Chr. Kaiser Verlag, 1987.
xii + 523 pages. DM 69.00.

The topic of science-and-religion does not fit into ordinary bibliographical classifications. Bibliographies in this field are rare but useful. The German one reviewed here was produced by persons related to the Forschungsstätte der Evangelischen Studiengemeinschaft (FEST), a research institute of the German Protestant churches. The bibliography covers over one thousand books on the relationship between theology and science that have been published since 1945, especially German books from the period 1965 through 1985.

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Brief, informative summaries are given for each book. Thus, the bibliography gives an overview of developments in this field during the past four decades.

The entries are organized systematically into sections on physics, information science, biology, medicine, psychoanalysis, anthropology, futurology, ecology (mostly ecological ethics), theory of natural science, complete world-views, and a section with materials for educational (and similar) purposes. The systematic part is preceded by a very comprehensive section that includes books on the history of the dialogue and programmatic contributions by German Catholics and Protestants as well as a selection of contributions in Dutch, French and English. Some titles of journals and names of organizations are also incorporated. *Zygon* is worth half a page. *Zygon's* program, for example, is sketched thus: The dominant tendency is to point to a close and positive relation between natural science and religion, or theology, and to present a holistic and evolutionary representation of God and nature. Dualism is often rejected, as is the model of a conflict between science and Christian faith, and the model of absence of a relation (p. 154, reviewer's translation).

Each section has an introduction that sets forth the major issues, sketches very briefly the development of the discussion, and gives a selection of major titles. These introductions can be helpful for educational purposes.

The book is especially valuable as an introduction to the German discussions. The contrast with the American and English discussions is described by Sigurd Daecke in his introduction to the English section. The continental European discussion tends more towards dualism, separation, and methodology. There is a strong bias against natural theology, monism, and pantheism. The English and American approach is, with exceptions of course, characterized by the theme of the relatedness, or even unity, of God and nature.

The bibliography is a rich and balanced one, which will be a very useful resource for teachers preparing course material on the dialogue between theology and science. It would have been even more useful if it had indices by institution, journal, and subject, in addition to an index by personal names. A separate list of relevant journals would have made access to journal articles—which are not included—somewhat easier.

The bibliography will be less useful for scholars engaged in research on the relation between theology and science. Most of the books included give only second-hand knowledge of the relevant fields involved in the dialogue, such as philosophy of science, philosophy of religion, the individual sciences, and the different theological approaches. Because new contributions to the dialogue should be based on sound knowledge of the fields involved, and reading previous contributions to the dialogue is insufficient for gaining this knowledge, the bibliography can serve only to identify the important issues and the progress that has been made in resolving them, and to identify starting points for further study and discussion.

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