

THINKING TOWARD A FUTURE

by *Mary Gerhart*

Abstract. Ian Barbour's *Ethics in an Age of Technology* provides an indispensable overview of the field of ethics and technology—an overview that gives balanced views informed by science, philosophy, and religion and that provides encyclopedic coverage of a variety of issues and methods typical to them. Barbour makes communication possible between two fields often at odds in our culture. Part 2 of the book relates the values introduced in Part 1 to three specific areas of technology: agriculture, energy, and computers. The book pays superficial attention to gender issues. Its focus is on planet Earth; the universe and models of the future are only implicit.

Keywords: ethics; future; technology; universe.

In response to Part 2, "Critical Technologies: Agriculture, Energy, Computers," of Ian Barbour's *Ethics In an Age of Technology*, let me begin by stating what I take to be its major value. My colleague Allan M. Russell (a physicist) and I have taught a bidisciplinary course in science and religion frequently since the late 1970s and we are always looking for suitable textbooks. Last year we used Barbour's previous volume, *Religion in an Age of Science* (1990), and for the first time were able to provide the students with that indispensable tool, an overview of the field—a systematic understanding of the various attempts to relate science and religion during the past century. A different course might use *Ethics in an Age of Technology* in the same way; it provides a similar overview of the field of ethics and technology, offering balanced presentations of different positions informed by science, philosophy, and religion, unencumbered—except for indications of which positions the author prefers—by advocacy of any particular approach.

Having acknowledged my colleague's and my immense debt to Ian

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[*Zygon*, vol. 31, no. 1 (March 1996).]

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Barbour, I want to reflect on the kind of discourse presented by the book under the rubric of “thinking toward the future.” By considering problems I have encountered with the book, I wish to anticipate some of those other readers may find. Some of these problems may be avoided by the reader’s being forewarned and having a strategy before reading a book.

If overviews of academic fields are so indispensable, why are Barbour’s volumes difficult to read? The difficulty is neither a Kafkaesque withholding of information—Barbour presents ample information—nor a failure of organization. Indeed, his strategy for covering the range of what can be thought about these complex issues is superb. Having introduced three understandings of technology (technology qua liberator, qua threat, and qua instrument of power), Barbour presents various definitions—launched from the perspectives of science, philosophy, and religion—of human and environmental values. Next come applications (ways of relating) these values to selected technologies (agriculture, energy, computers). Finally come anticipated (and more problematic) applications of the same values to problems on the horizon of the future.

Why, then, do both scholars and students find *Religion in an Age of Science* and *Ethics in an Age of Technology* difficult to read? What are the special difficulties of appropriating the second part of the latter volume for one’s own? Does the text simply require rereading, or do other factors contribute to its reticence? Why is it so difficult to retain what one reads?

I find the best way to talk about the difficulty is in terms of genre. The book is neither the study of science—of the struggle, that is, among various hypotheses for understanding what appears, the rush of intellectual *ec-stasis* when a breakthrough is finally achieved. Nor is it the study of religion—the struggle to discern various probabilities of what is the case, the modulated joy at carving out against all odds a coherent view of phenomena in relation to all that is. Barbour offers, in the transition between parts 1 and 2 of *Ethics in an Age of Technology*, glimpses of the risks of scientific and religious reflection, but the overall picture that emerges from the book is almost exclusively of the *products* of science and religion: their *activities* remain in the background.

When claims are enigmatic, controversial, provocative, or incomplete the reader’s task is straightforward. In the second section of volume 2, however, the rhetorical force of argument is located less in the claims themselves than in the accumulation of detail regarding the three selected “critical technologies” of contemporary life: agriculture, energy, and computers. The value of this

approach—however it may tax the reader’s patience—is that it provides encyclopedic coverage of a variety of issues and an overview of the major approaches to them.

The result of reading *Religion in an Age of Science* is not that one learns either science or religion; neither does one learn ethics or technology from *Ethics in an Age of Technology*. Either one knows these fields and is introduced to a plethora of test cases in which ethical theory and theological reflection can be applied, or one does not know these fields and is introduced to ethical and theological conclusions that have been debated elsewhere. What, then, does one learn? The materials Barbour covers are the products of debates that have taken place between these two fields, the remnants of which are present in the form of summaries of the work of particular theorists. But he provides little instruction in the practice of bidisciplinary inquiry and research in science and religion; if one is already schooled in either science or religion, what one learns from Barbour will facilitate interdisciplinary discourse but not necessarily bidisciplinary production.

Is it likely that *Ethics in an Age of Technology* will draw the reader into the heuristic of doing science, philosophy, and religion? Only shadows of the risk entailed in doing science or doing religion appear, looming in the contrast between Barbour’s careful qualifications when presenting cases involving conflicting data and his stark position statements as to what course of action should be pursued when faced with conflicting interests. What we see in this contrast is a failure, not of nerve but of genre—a situation in which the genre in which the author writes obscures the simultaneously precarious and necessary ventures we call science and religion. Indeed, we must ask further how the reader can distinguish religion in this text from ideology. What saves the treatment of religion in the book from being only ideology—which I would define as belief statements deduced from charter statements of a given affiliation or tradition—is Barbour’s recognition of the fallibility of the interpretation of both charter statements and affiliations: in Barbour’s view both belief statements and affiliations are always more or less in need of correction. This realization is crucial in a time when self-certainty with respect to advocacy positions has escalated in our country to the point where some consider it acceptable to murder someone who holds an advocacy position different from one’s own.

But what is the need for *interdisciplinary* discourse between technology and ethics? It is with this question that the merits of the book become clear. Perhaps nowhere else in our culture are different languages so inveterately at odds than in technology and ethics. The need for communication between the two fields is sure to increase

with increases in population and the possible development of global economies. What Barbour offers is an initial possibility of communication between two groups of people who, it can be said, do not speak the same language.

Another way of highlighting the kind of contribution made by Barbour is to ask, does it provoke Aha! responses such as one experiences when one encounters a new idea? In response to part 2, "Critical Technologies," I think the reader is more likely to say occasionally, "I didn't realize that" or "Those are interesting statistics—I wonder what database was used."

I also am somewhat uneasy with the shortcomings of the gender analysis applied in the book. The issue of gender is not explicitly addressed in the sections on agriculture or energy. There are minor slips in linguistic sensitivity that an editor might have eliminated: for example, the reference only to landlords on pages 95 and 96. Lest our lack of imagination yield to the gender bias in this traditional language, think of the stories or small-town newspaper accounts of women who successfully managed farms, those portrayed, for example, in *Gone with the Wind* or *Out of Africa*. The section on computers is more gender-conscious: the author notices that data entry, one of the more repetitious, boring, and low-level jobs in the computer industry, is done primarily by women. He suggests remedies both long-term (elimination of bias) and short-term (women's computer literacy groups and support networks). These are, of course, useful suggestions. Efforts to build community constitute one good starting point for redress of injustice based on bias, but more attention to how the short-term solution connects with the long-term goal would be welcome, as would the inclusion of more revolutionary solutions—those brought about by new insight and more daring strategies. It would be unfortunate if, lacking examples of how institutions were "turned around" or significantly changed, the suggestions for eliminating bias were perceived as unrealizable.

Many readers will recognize the Kantian influence in the reliance, perhaps overreliance, of Part 2 of *Ethics in an Age of Technology* on practical reason. But the theoretical transition from *Religion in an Age of Science* may be what is most likely to be overlooked in these two volumes. What is the theoretical dimension in the move from science and religion to ethics and technology? Which of the methods described in volume 1 for the relation between science and religion are applicable to Barbour's own project? On this point, the transition statement at the end of Part 1 of the second volume is helpful:

Any move from ethics to *policy applications* must be made with great tentativeness. As the U.S. Catholic bishops indicated in their study of nuclear weapons, even those who agree on general principles may disagree on specific policy recommendations, which require difficult judgments of the probable consequences of alternative options. Moreover, in the context of politics pragmatic considerations arise concerning effective strategies, the formation of coalitions, and realistic judgments as to prospects for public support. In some cases the initial task may be one of education or protest aimed at modifying public attitudes. In addition, each of us must make personal decisions about the life-styles we will adopt and about the kinds of technology we will seek at home or at work. This rather abstract [treatment of issues] will only be helpful if it illuminates particular social and individual decisions about technology in the real world. (Barbour 1993, 81–82)

This statement provides a crucial context for Barbour's technique as a whole: namely, that of working simultaneously on two levels. On the ethical level he correlates the best conclusions from the areas of science, philosophy, and religion in terms of what has been said about human and environmental values. In relating the values developed in Part 1 to specific areas of technology in Part 2, he often begins by citing statistical information to establish a sense of the magnitude of various aspects of issues. The consistency with which he turns to mathematics to illuminate the dimensions of problem reveals one of the unique capabilities of science—its capacity to provide a true probable understanding of the relative magnitude with which particular states of affairs exist in the world.

In Part 2, however, the use of statistics is only partially effective. The discourse moves quickly from one topic to the next, with expectations and statistics juxtaposed to demonstrate counterintuitive states of affairs. One might expect families who own their own farms, for example, to take better long-term care of their land than do corporate farm owners. Studies report, however, that only 41 percent of small landowners, as compared with 51 percent of absentee landlords, use "soil-conserving minimum tillage." But other studies show that erosion is 40 percent higher on rented land than on property cultivated by its owner. The author, as is typical, responds to the conflicting evidence with a statement of belief: "I believe that education for conservation is more likely to be effective with owner-operators who are personally closer to the land. But public policies providing regulations for incentives for conservation are needed because they are effective for both absentee owners and family farmers, and for both large and small land-holders" (Barbour 1993, 96). Perhaps it is not possible—now or ever—to say more. But whereas in his previous books Barbour tackled, at the level of theory, the question of how much one could or couldn't legitimately claim

in certain kinds of discourse, in this book this question remains unarticulated, again perhaps because of generic constraints.

In a similar vein, one might notice that Barbour's focus is exclusively on planet Earth. At a time when physicists are increasingly concerned with the universe, it is intriguing to speculate how his book might have changed were some glimpses to be had of developments in physics regarding the universe as well. How might the areas of agriculture, energy, and computers be affected by inclusion of recent discussions of, for example, chaos theory or the prospect for colonies in space—the latter especially a topic of ethical and technological interest? Clearly Barbour wants the things he has to say to be influential—to inform people who will change the way things are going to be. But the task of taking into account any models of the future is left to the reader.¹ Perhaps in a future volume, the author of the brilliant book *Myths, Models and Paradigms* (1974) will assist us with this task as well.

Finally, it is somewhat ironic that the book has only a name index. Although the emphasis this creates underlines Barbour's unflinching dedication to persons and the personal, some of the potential of the book may not be realized because a key tool is missing. Some readers would find it helpful, for example, to be able to trace issues across all three critical technologies. The lack of a subject index may mean that the book will not be used as extensively as it could be or inform as many conversations as it should. I would urge that one be added in subsequent printings.

NOTE

1. As an example of what goes into this task, see Drucker (1994), in which the author sees the past epoch—"an economic order in which knowledge, not labor or raw material or capital, is the key resource; a social order in which inequality based on knowledge is a major challenge; and a polity in which government cannot be looked to for solving social and economic problems"—as the basis for a model of the future.

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