CONTEMPORARY MORAL CONTROVERSIES IN TECHNOLOGY

EDITED BY

A. PABLO IANNONE

Contemporary Moral Controversies in Technology

Edited by
A. PABLO IANNONE

New York • Oxford
OXFORD UNIVERSITY PRESS
1987

Oxford University Press

Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Petaling Jaya Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland

and associated companies in
Beirut Berlin Ibadan Nicosia

Published by Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

Oxford is a registered trademark of Oxford University Press

Library of Congress Cataloging-in-Publication Data
Contemporary moral controversies in technology.
Bibliography: p.
I. Technology—Moral and ethical aspects. I. Iannone, A. Pablo.
BJ59.C63 1987 174 86-5382
ISBN 0-19-504124-0 (alk. paper)
ISBN 0-19-504125-9 (pbk. : alk. paper)

1 2 3 4 5 6 7 8 9

Printed in the United States of America
on acid-free paper

To my father, Nicolás Emilio Iannone,
and the memory of my mother, Marcelina Díaz de Iannone

Whatever be the detail with which you cram your student, the chance of his meeting in after-life exactly that detail is almost infinitesimal; and if he does meet it, he will probably have forgotten what you taught him about it. The really useful training yields a comprehension of a few general principles with a thorough grounding in the way they apply to a variety of concrete details . . . . When I speak of principles I am hardly ever thinking of verbal formulations. A principle which has thoroughly soaked into you is rather a mental habit than a formal statement. It becomes the way in which the mind reacts to the appropriate stimulus in the form of illustrative circumstances. Nobody goes about with his knowledge clearly and consciously before him. Mental cultivation is nothing else than the satisfactory way in which the mind will function when it is poked into activity.

ALFRED NORTH WHITEHEAD
The Aims of Education and Other Essays

Preface

Of one thing we may be sure. If inquiries are to have any substantial basis, if they are not to be wholly up in the air, the theorist must take his departure from the problems that men actually meet in their own conduct. He may define and refine these; he may divide and systematize; he may abstract the problems from their concrete contexts in individual lives; he may classify them when he has thus detached them; but if he gets away from them he is talking about something his own brain has invented, not about moral realities. On the other hand, the perplexities and uncertainties of direct and personal behavior invite a more abstract and systematic impersonal treatment than that which they receive in the exigencies of their occurrence..

John Dewey and James H. Tufts, *Ethics*

This book has been written in the spirit of the above remarks. It is designed to present a number of contemporary moral controversies in technology, as reflected in various scientific and technological publications, together with discussions in moral theory—ethical theory, moral philosophy, ethics as a branch of inquiry, reflection on morality—that should serve as a background helpful in dealing with these controversies. This background is not meant to offer general statements from which to crank out particular moral injunctions about this or that controversy. The discussions in moral theory are meant, rather, to encourage the application of general statements in moral theory to particular moral controversies in technology so as to help the reader develop skills in reasoning and evaluating both the controversies covered here and others that might arise in the future.

This book is divided into six interconnected parts. The first presents discussions of current technological developments, the conflicting concerns they prompt, and the ethical inquiry occasioned by these conflicts. Part II discusses controversies in technology assessment concerning the role of risk-cost-benefit analysis and that of other methods, as well as the status of technology assessment itself. Part III deals with controversies in technology management about, for example, information technology, gene-splicing, energy, and space technology. Part IV concerns controversies in technology research and development. These range from the issue of freedom of information versus national security to university–corporate research agreements. The fifth part consists of selections on various aspects of the controversies about technology transfer at both the national and international levels. And Part VI presents controversies about approaches to technology policy making.

We have adopted an approach to ethics and technology that, unlike other books on these topics, presents controversies through their discussion in a wide number of scientific and technological, rather than philosophical, publications. They are thus discussed in the language of people involved in technological and scientific activities, and organized according to the categories used by professionals in the fields we discuss. This approach does not place such language and categories beyond critical scrutiny. Indeed, they are worth sub-

jecting to such scrutiny if only because their use may preclude the involvement or understanding of certain constituencies in controversies concerning technology, which would have an effect on whether technology policy making is democratic or not. Accordingly, the language and categories of scientific and technological activities are used here as a way of facilitating the reader's grasp of ongoing moral controversies in technology, not as a way of placing any linguistic use or category beyond critical scrutiny. This contributes to the text the unusual feature of being more easily accessible to those more familiar with the language and categories of scientific and technological activity than with those of philosophy. Philosophical language and categories are introduced in ways that relate them directly to problems raised in the selections, facilitating their understanding.

The selections in this book are recent, most having been published after 1982. Part III, Moral Controversies in Technology Management, has the greatest number of selections, reflecting the much greater number of moral controversies of general concern within this category. However recent, many of the selections deal with controversies that have been developing for more than a decade in the United States and abroad, and that promise to stay with us for quite a while. This is also true of the selections as a whole—they are not about mere fads in technology or matters for discussions in only the United States. Nor is there a slant, pro- or anti-technology. There is no advocacy in this book, though, as a whole, it builds a case for a small set of considerations central for dealing soundly with moral controversies in technology. These are individual and collective consequences, rights, and such pragmatic considerations as the need to do something to resolve the social conflicts partly caused by technology. The relative weight of these considerations depends on the type of case being discussed; this is indicated in the introductory section to each chapter. The introductions provide guidance to the reader and establish the book's basic theoretical framework for discussing what has been said on different sides of the controversies, as well as for better dealing with them. Recurrent references to this framework give unity to the book and should help readers who are seeking basic tools for dealing with a variety of moral controversies in technology.

The selections are not simplistic, opposing pairs; actual controversies are more complex, as reflected by the inclusion of some selections that explicitly oppose each other but, more often, of selections that only implicitly make presuppositions opposite to those made by other selections, or simply indicate ongoing controversies not addressed elsewhere in the book. The ways in which controversies about matters of technology develop are thus reflected; this should be helpful to anyone interested in becoming better able to deal with controversies as they actually are.

A glance at the Contents makes it clear that, while controversies concerning the particular actions of individuals are not entirely disregarded, there is an emphasis on matters of technology policy. This reflects a greater readiness, if not a trend, to emphasize policy matters in the teaching of engineering ethics, technology ethics, and other science and society courses. Interdisciplinary studies on a wide range of technology policy matters, with significant participation by philosophers, began in about the first half of the eighties, leading those interested in engineering and technology ethics to address policy problems in addition to problems of individual choice, as had mostly been the case earlier. This change was evidenced, for example, at the Third National Conference on Engineering Ethics, which took place in 1985, as well as at a variety of professional meetings in the first part of the decade. Thus, this volume reflects its times, without entirely disregarding more traditional controversies about, for example, the effects of given technologies on such things as the safety and autonomy of workers, and the rights and obligations of industrial management and other employees.

This book is designed primarily for introductory and intermediate level ethics courses; Engineering Ethics and Ethics of Technology; applied ethics courses: Environmental Ethics and Medical Ethics; and technology policy and

technology and society courses. It can prove rewarding to those interested in the relationship between applied ethics and ethical theory, in that it provides a wealth of discussions on matters of technology that, singly or jointly, raise and examine significant questions in ethical theory.

This book developed out of my own teaching of various applied ethics courses at the University of Wisconsin–Madison, the University of Texas at Dallas, Iowa State University, the University of Florida, and Central Connecticut State University. It was partly prompted and greatly stimulated by my students' interest in moral problems in technology as well as by their puzzlement about these problems. It also benefited from the many discussions about applied ethics, and about the teaching of applied ethics, that I had with teachers, friends, and colleagues over the past decade. I ought in particular to mention and thank Marcus G. Singer, Jon N. Moline, María C. Lugones, Geoff Bryce, John Jakovina, Margaret Carter, Robert B. Louden, Kurt Baier, Annette Baier, Richard P. Haynes, Robert J. Baum, Thomas W. Simon, Thomas P. Auxter, Susan Levine, David Braybrooke, my colleagues at Central Connecticut State University, and the readers and editors who helped with the final stages of manuscript preparation and book production, especially Marion Osmun, Wendy Warren Keebler, Ann Gorski, Helen Dimoff, and Cynthia A. Read of Oxford University Press. I would also like to mention and thank the Central Connecticut State University Foundation and the Central Connecticut State University School of Arts and Sciences for providing research funds and access to the Yale University libraries' invaluable resources.

What I owe my wife Mary Kay Garrow for her encouragement and help I cannot possibly repay. I thank her and appreciate the many ways in which she contributed to my thinking through and preparing this book.

New Britain, Conn.
April 1986

A.P.I.

Note to the Reader

This book is designed primarily to be used in courses; but it should also be of help to anyone who wants to do independent reading on contemporary moral controversies in technology. This note is addressed especially to such readers.

There is a General Introduction to the book, as well as an introduction to each part. Both aim to guide the reader in critically and fruitfully thinking about the moral problems raised by the selections in the parts. They do not attempt to provide solutions but, rather, the critical prompting and some basic elements for better dealing with the problems raised. This is done by presenting conflicting claims about the technological issues addressed in the readings, by formulating questions that serve to pose moral problems about these technological matters, and by recurrently pointing to a small set of considerations central for soundly dealing with moral controversies in technology. These include both individual and collective consequences, rights, and pragmatic considerations such as the existence of controversey and even confrontation regarding a variety of technology matters, and the necessity that something be done about this situation. These considerations constitute a basic framework for soundly dealing with moral controversies in technology. It should not, however, be mistaken for a general basis for cranking out injunctions about particular controversies. Rather, it is meant to help the reader develop his or her reasoning and value-appraising skills by encouraging critical discussions of a variety of moral controversies in technology presented in the book. Thus, readers may be helped in developing habits of mind that will enable them to deal better, not only with these moral controversies in technology, but with other such controversies they might face in the future.

Accordingly, I suggest a reading of the General Introduction before reading any section in the rest of the book, and likewise a reading of a part's introduction before reading any section in that part. There is no specific order in which the parts should be read, nor is it necessary to read the whole book in order to understand each section. Greater understanding, however, will be gained from reading the whole book because the parts are interrelated. Further, the order in which the parts are arranged may prove more fruitful than others. The book is organized, first, to provide an understanding of technology ethics and its motivation; then, with this understanding, to address matters of scope and method in technology ethics; next, against this general background, to address moral controversies in special areas of concern; and finally, to synthesize all these factors and address some aspects of a problem that underlies the discussions throughout the book: whether democratic policy making and modern technology are, ultimately, incompatible and what ought to be done about their tensions. An outline of the discussions in the book is then presented.

In reading any of the sections in this book, it is most useful—indeed, it is essential—to read actively, that is, with questions in mind, rather than letting the words pass before one's eyes. Some basic questions one might ask are: What does the author maintain in this selection? What reasons does the author state in support of this position? Are they good reasons? What common opinions go against what the author maintains? Are there any plausible reasons behind those common opin-

ions? Are these reasons better than those the author offers in support of what he or she maintains? Are there even better reasons for still another opinion, which goes against both the common opinions and that of the author? If so, what is *this* opinion and what are the reasons that support it? And, in any case, to what problems are these various conflicting opinions relevant, and what is the significance of these problems?

These questions may seem dizzying to the novice. This is, however, no reason to be discouraged. When moral matters are concerned, thinking well, like singing well, is not something that most of us humans can readily do. To develop the ability to think well about moral matters takes a great deal of practice and reflection. This book is meant to provide conditions conducive to such practice and reflection.

Contents

CONTEMPORARY MORAL CONTROVERSIES IN TECHNOLOGY

1
General Introduction

SENSES OF THE TERM "ETHICS"

In 1974, *Business and Society Review* asked the presidents of 500 of the largest companies in the United States to respond to a number of moral questions about hypothetical cases. One of the questions was posed in the following way:

> A worker in an airplane manufacturing firm's design department is convinced that the latch mechanism on a plane's cargo door is not sufficiently secure and that the door has to be re-designed in order to ensure against the possibility of a crash. He goes to his supervisor with his information and is told that the Federal Aviation Administration has given the legitimate approvals and that he should not "rock the boat." He goes to the president of the firm and gets the same answer.
>
> Would that worker be justified in taking this information to the news media?[1]

Out of the fifty-one questionnaires sent back to the journal, two had no answer to the question, thirty-five had affirmative answers, and fourteen had negative answers. This disagreement between the respondents indicates a number of things concerning ethics. It indicates, in the first place, that whether the worker's taking information to the media is justified cannot be established simply by consulting the opinions of particular business executives. One can, no doubt, by means of this poll, establish that some business executives' beliefs about the justifiability of the action differ from those of other business executives. This, however, simply establishes the fact that the personal ethics—the morals—of business executives vary, which does not settle the question of what action is right, but does provide a good example of one of the ways the term "ethics" is used: the *personal* sense, in which ethics is a particular individual's beliefs and presuppositions about right and wrong, good and bad, justified and unjustified. This is something a particular person *has*. In the above case, the personal ethics of some business executives include the belief that it would be unjustified for the worker to go to the media. They presumably also presuppose that some considerations, maybe loyalty to one's employer or the financial interest of the airplane manufacturer, take precedence over the risk to the public under the circumstances.

In an attempt to resolve the question of whether it would be right for the worker to go to the media about the plane's latch mechanism, one might consider appealing to an industrial business code. Existing codes, however, provide little or no guidance on the subject, and whatever guidance they may provide is open to the criticism of disagreeing workers, industrial business executives, and members of the public. A group's code of conduct—its mores—does not by itself settle the question of what

actions are justified. Any such code, however, constitutes an example of ethics in the *social* sense of the term. In this sense, ethics is a particular group's beliefs and presuppositions about right and wrong, good and bad, justified and unjustified. Ethics in the social sense, accordingly, is something a group—not merely a particular individual—*has,* in that the group has explicitly, however partially, formulated it or predominantly holds it.

When the beliefs and presuppositions constituting a person's or group's ethics are in conflict with those of others, giving rise to disagreements between individuals, groups, or between groups and some of their members, the question of who is right characteristically arises. Indeed, when the disagreements concern matters of technology, they are often sharp, issuing in controversies and even confrontation, and creating an urgency in establishing who is right as well as in acting on the problem of resolving such sharp disagreements. When people engage in critical inquiry about such matters of disagreement, they *do* ethics, rather than simply have ethics, as in the above-described personal and social senses of "ethics." In this latter sense, in which people do, rather than simply have, ethics, ethics is an activity, not simply a set of beliefs and presuppositions. The activity is not identical with, but *about* beliefs and presuppositions, and is often prompted by conflicts among them. Thus ethics becomes a branch of inquiry—moral philosophy, ethical theory, moral theory, or a reflection on morality. It is a critical study with the goal of soundly dealing with problems of right and wrong, good and bad, justified and unjustified that arise in people's lives.[2] When the inquiry seeks to deal effectively with problems concerning matters of technology, it is sometimes called "technology ethics," or "ethics of technology." This book is about technology ethics and is intended to provide introductory guidance in the subject.

KINDS OF ETHICAL PROBLEMS

The latch mechanism case presented above raised the question of whether the worker would be doing the right thing in taking his information to the media. Such a situation involves the rightness or wrongness of a particular individual's action under specified circumstances. It poses an ethical—a moral—problem that is behavioral, in that it concerns an action or piece of conduct. *Behavioral* ethical problems, dealing with the rightness or wrongness of actions, occur quite frequently.

In discussing the rightness or wrongness of the worker's taking the information about the latch mechanism to the media, the question might arise as to whether the worker would be fired as a result of such an action, and whether this would not make the action wrong if the worker has dependents and is their only support. This question is still raised in discussing behavioral ethical problems; but it leads to raising an ethical problem of a different kind, formulated by the question, Ought there to be any protection for workers who publicize information about faulty products manufactured by their employers? The focus of this question is not an action but a policy. The problem it poses is not of behavioral, but of *institutional* ethics. This addresses ques-