

Science and Ethics

In *Science and Ethics*, Bernard Rollin historically and conceptually examines the ideology that denies the relevance of ethics to science. Providing an introduction to basic ethical concepts, he discusses a variety of ethical issues that are relevant to science and how they are ignored, to the detriment of both science and society. These issues include research on human subjects, animal research, genetic engineering, biotechnology, cloning, xenotransplantation, and stem cell research. Rollin also explores the ideological agnosticism that scientists have displayed regarding subjective experience in humans and animals and its pernicious effect on pain management. Finally, he articulates the implications of the ideological denial of ethics for the practice of science itself in terms of fraud, plagiarism, and data falsification. In engaging prose and with philosophical sophistication, Rollin cogently argues in favor of making education in ethics part and parcel of scientific training.

Bernard E. Rollin is University Distinguished Professor of Philosophy, Biomedical Sciences, and Animal Sciences and University Bioethicist at Colorado State University in Fort Collins. He is the author of fourteen books, including *The Frankenstein Syndrome: Ethical and Social Issues in the Genetic Engineering of Animals* and *The Unheeded Cry: Animal Consciousness, Animal Pain and Science*.

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To Linda and Mike

Contents

<i>Acknowledgments</i>	page ix
<i>Preface</i>	xi
1. The Waxing and Waning of Faith in Science	1
2. Scientific Ideology and “Value Free” Science	11
3. What Is Ethics?	31
4. Ethics and Research on Human Beings	66
5. Animal Research	99
6. Biotechnology and Ethics I: Is Genetic Engineering Intrinsically Wrong?	129
7. Biotechnology and Ethics II: Rampaging Monsters and Suffering Animals	155
8. Biotechnology and Ethics III: Cloning, Xenotransplantation, and Stem Cells	185
9. Pain and Ethics	215
10. Ethics in Science	247
<i>Bibliography</i>	275
<i>Index</i>	283

Acknowledgments

To my science colleagues at Colorado State University, with thanks for your friendship and collegiality, when lesser people, with lesser vision, might well have responded to my work with anger and enmity. My debt to you is incalculable. You eloquently taught me that Plato is right; thought is dialogue, people in lively discussion, not Rodin's isolated Cartesian.

Preface

In a sense, my whole career can be viewed as an attempt to articulate the legitimate role of ethics in science, on both a theoretical and a practical level. With my appointment to the Colorado State University College of Veterinary Medicine as the person charged with developing and teaching the field of veterinary medical ethics and, shortly thereafter, serving as an “ombudsman for animals” charged with achieving consensus on animal use issues in science came a unique opportunity for testing theory in practice and for almost daily interaction with scientists on ethical issues. This activity in turn meshed well with my working with colleagues in the 1970s to write legislation protecting laboratory animals, in a real way articulating the emerging social ethic for animal treatment in a manner that would benefit animals without harming research and, ideally, *improving* it by underscoring the control of hitherto ignored deforming variables resulting from uncontrolled pain and distress in animal subjects.

Ever since I was a biology student in the 1960s, I had also chafed under science teaching that ignored ethical and conceptual issues raised by biological science. Funding from the National Science Foundation in the mid-1970s allowed me, together with molecular botanist Murray Nabors, to develop a year-long, five-credit honors biology course in which ethics and philosophy were taught as part and parcel of biology. We team-taught the course for twenty-five years and were gratified when many of our students went on to become researchers, physicians, veterinarians, professors, government officials, and scientists,

and would unfailingly return to thank us for the “multidimensional” view of biomedicine we had instilled.

Some ten years ago, I was asked to develop a Science and Ethics course for Ph.D. candidates in the sciences, as required by the National Institutes of Health for people receiving training grants. The course has been quite successful, albeit causing tension between my desire to keep it small yet to accommodate increasing numbers of interested science students from many fields. Interestingly enough, I found that today’s students are far less willing than was my generation to accept the ideology that science was “ethics-free” and “value-free” and are much further along in this area than I was.

I also began to believe that creating ethically sophisticated scientists was a necessary condition for continued social acceptance of and support for science, a point I develop in my discussion of biotechnology.

This book is a confluence of all the aforementioned vectors. If it does not stimulate student reflection on the full range of how ethics is enmeshed in the fabric of science, as well as provoke student interest in applying ethical questioning to their own area of science, I will have failed in what I tried to do. For this reason, my style is sometimes unorthodox, mixing accounts of what I have lived through with accounts of the issues.

I am grateful to my scientist colleagues for their openness and receptivity to my gadfly role. They have treated me as a friend, giving me appointments in two science departments and the opportunity to teach in numerous science programs, and they have encouraged me to share their research and undertake my own in areas ranging from animal cognition to immunological castration of beef cattle. The same is true of my students, who are the future.

I want to thank Linda Rollin for exasperating but trenchant criticism and Michael Rollin for illuminating dialogue over twenty years.