

*The Writer's
Library*

SCIENCE
AND
SOCIETY



The
HarperCollins Editors
with
Josephine Koster Tarvers

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The Writer's Library

Science and
Society



The HarperCollins Editors

with

Josephine Koster Tarvers



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Science and Society

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Preface



The Series

As editors, we see dozens of proposals for new readers every year. Each proposal is unique because it represents the thinking of an instructor at a different school, with different ideas about how to teach freshman composition. And every year, we publish several new readers based on those differing ideas, hoping composition programs will be able to adapt their own theories about teaching writing to the strategies advocated in our books. Unfortunately, if the teaching strategy of a given composition program does not closely match the available texts, the inevitable result is compromise.

The Writer's Library represents a revolutionary change from that type of thinking. Rather than choosing a text which forces them to adapt to its style of teaching, programs using *The Writer's Library* adapt *the text* to suit *their needs*. *The Writer's Library* is unique among readers for freshman composition because it is a flexible series of books, rather than a single, restrictive text. By using only the volumes they need, instructors can gain flexibility and save their students money—each volume of *The Writer's Library* is less than one-third the price of the average freshman composition reader.

Each volume of *The Writer's Library* covers a single theme, and is divided into chapters—sub-themes and issues that interest students. Each chapter has an introduction which contextualizes and demonstrates the relationships between readings. Each reading

includes an introduction with a brief author biography, and suggestions for discussion and writing. An instructor's manual with suggested teaching strategies and suggested responses to discussion and writing questions is available.

The Writer's Library is flexible enough to be used in almost any composition classroom. Instructors who want to use a rhetoric or a handbook and supplement it with a few readings can choose one volume from the series at minimal additional cost to their students. Instructors who place a strong emphasis on reading can choose the two or three volumes that interest them—saving their students from purchasing lengthy readers and then using less than half of the selections.

This Volume

When we asked writing instructors what subjects we should cover in *The Writer's Library*, *Science and Society* received enthusiastic and widespread support. Instructors felt a text like this would help students realize how important science and technology had become in their lives, and would find discussing the questions raised by such a collection of essays stimulating and challenging.

This volume is organized into chapters that cover many facets of our subject: the definitions of science, “pseudo-scientific” theories, the subjective nature of interpretation, ethics, the health care system in America, and the future of science and technology. Instructors can follow the selections in the order they are presented, skip around in the text, or even alternate the readings in this volume with selections from other volumes in *The Writer's Library*.

Acknowledgements

The production of this series was a team effort, combining the varied talents of publishing professionals and writing instructors. We applied the ideas of dozens of writing instructors to shape the texts, and then worked with Judith Olson-Fallon and Josephine Koster Tarvers, experienced writing instructors both, to create the final product. Along the way, we received assistance from many talented individuals. Mark Gerrard contributed many suggestions while copy editing the final manuscript. Maria Paone was always there with a suggestion or wry remark. Tom Maeglin added input while ob-

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To the Student



Science is a subject that polarizes its audiences: people either seem to love it or hate it. This may have something to do with the way you were taught about science, the people and attitudes with which you grew up, the value placed on science by your community, or a number of other factors. But whether the word “science” conjures up a picture of excitement in the laboratory or of Dr. Jekyll and Mr. Hyde, no one can deny that as we face the twenty-first century, all of us must come to terms with the roles science plays in our lives.

This book can help you do so by offering readings you can think, talk, and write about with your classmates. We begin with basic definitions: at the end of the twentieth century, what *is* science? And by contrast, what is pseudo-science, or not scientific at all? Next, we explore how science is connected to the natural world around us, and how we as a society have forged that connection. Questions of science and society lead us to ethics, the boundaries we place on scientific activity and that science places on itself. Finally, we conclude with two sections that examine the practical aspects of science and society: the costs and benefits of scientific technology, and the ways science may be shaping and changing our futures.

Each essay is accompanied by a brief note providing information about the author and the original context for the work. And each is followed by a group of questions about the work, asking you to think

about not only the reading's content but its rhetorical techniques. Some of these you may answer alone, some you may work out with classmates, and some you may be asked to write about for a grade. Some will ask you to conduct research to gain a more complete picture. Of course, there are many more questions to be asked about each essay than we can accommodate in this framework; we encourage you to explore these other avenues on your own.

The theologian Pierre Teilhard de Chardin, writing of the vast advances in science and technology in our lifetimes, asked, "The future of the earth is in our hands: How shall we decide?" Knowledge, he concluded, is the key. By studying the relations of science and society, we hope you will be able to shape a safer, more profitable future for yourself and the members of your community.

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1 What is Science?



What is science? Chances are, your answer will say that it is something about facts, and definite answers, and men in white coats. It's likely that you will try to cast your answer in terms of things: experiments, chemicals, equations, equipment. There may even be mentions of Dr. Frankenstein or television programs or nerds. Science strikes most readers as a "cut-and-dried" state, not an evolving pursuit.

The essays in this section, by some of our century's finest scientists and writers, seek to dispel those stereotypes. They speak of science as a search, as a continual questioning, as a journey without end. All would agree with Alfred Church Lane's famous dictum that "The larger the area of our (scientific) knowledge, the greater the circumstance of our ignorance." Here, then, are five attempts to lessen that ignorance. Jacob Bronowski describes science as an act of artistic creation; Lewis Thomas casts it as a continual challenge to our assumptions of certainty. Horace Freeland Judson knowingly describes the scientist's obsession with finding new answers, and J. Robert Oppenheimer sees it as the ultimate expression of love. Finally, Albert Einstein, perhaps the greatest scientist in many centuries, shows how science, in even its simplest equations, can be an instrument that leads to beautiful and moral consequences. As you read these essays, ask yourself, "How would I define science? How has my definition been formed? What do I know about it? What have I been missing?"



Jacob Bronowski

The Nature of Scientific Reasoning

The distinguished mathematician and author JACOB BRONOWSKI (pronounced *Bron-OFF-ski*) was born in Poland in 1908. His academic career took him to positions in England, a UN job studying the effects of the atomic bombing of Nagasaki, and to many prestigious academic appointments in the United States before his death in 1974. But to most Americans he is best known as a television personality. His 1973 BBC series *The Ascent of Man* (and the book of the same title) was shown on public television in the US to great popular acclaim; it celebrated the development of humanity's attempts to understand and control nature, from prehistory to the present. John Lenihan wrote of the series, "Bronowski saw science as a part of man's cultural heritage; to him the progress of science was. . . a shifting pattern which could be appreciated only by recognising the interwoven strands of history, art, literature, and philosophy."

Bronowski summed up his chief themes in an interview: "Science and art are wonderfully human because they both call on imagination and they both require enormous dedication and integrity. . . . If you care about art or if you care about science you must have a huge sense of involvement with what is human about those things." This essay first appeared in his book *Science and Human Values* in 1956.

What is the insight in which the scientist tries to see into nature? Can it indeed be called either imaginative or creative? To the literary man the question may seem merely silly. He has been taught that science is a large collection of facts; and if this is true, then the