

## Feature Book Review

### In the Name of the Scientist

**Review of: *Everyday Practice of Science: Where Intuition and Passion Meet Objectivity and Logic*, by Fredrick Grinnell; 2009; 230 pp; Oxford University Press (Oxford, UK); ISBN-13: 978-0-19-506457-5**

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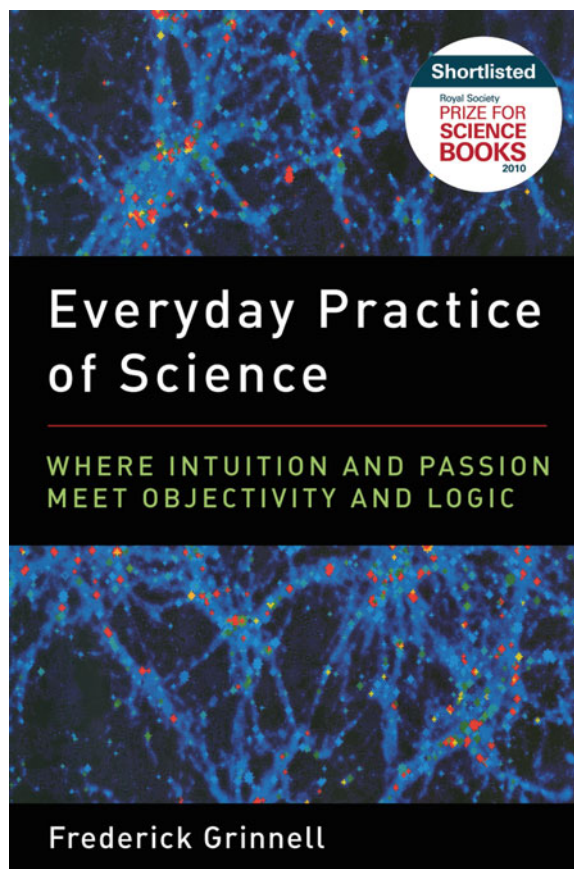
#### INTRODUCTION

The way science is done or everyday practice of science is a major theme of Fred Grinnell's most recent work. The author presents a critique of the linear model of science followed by many scientists and its failure to represent how scientists really work. It is not a surprising observation to most of us. What is surprising about this book is the way it provides various avenues to engage in productive discussions about doing research. It is not a perfect book, but it manages to be provocative and an easy read with only six chapters in fewer than 200 pages. The book is divided into two sections: "Science" and "Science and Society." Grinnell presents a candid account of the scientific process to make it relevant to those outside academic science. He also provides a fairly accurate view of scientists and how they work.

#### THE PRACTICE OF SCIENCE

In chapter 1, "Practicing Science," Grinnell highlights what he calls the two conversations of science by illustrating the interaction of two processes: the circle of discovery and the circle of credibility (p. 5, Figure 1.1). He is quick to point out that researchers interact with a small part of the world, limiting those interactions to making observations and doing experiments. The interactions within the research community are primarily collaborative and competitive in nature. As Grinnell progresses in his discussion of these interactions, he reveals some of the uncertainties and conflicts that emerge during the practice of science. Chapter 2, "Discovery: Learn-

ing New Things about the World," deals with the nonsystematic, nonlinear nature of the scientific process. For instance, Grinnell points out that scientific papers rarely describe scientific failure and rarely communicate to students the notion that "10 research notebooks' worth of experiments might be required to publish a 10-page research paper" (p. 21). This is an interesting assertion that indicates to the nonscientist reader the level of compression that goes on when myriad observations, deductions, and analyses are meshed into a



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coherent scientific paper. Another interesting idea presented in this chapter deals with the type of question(s) a research group decides to answer. Very often, Grinnell adds, “resource limitations . . . prevent new initiatives from starting even if they would be worthwhile to carry out. Investing in one project almost always means that something else will not be accomplished” (p. 35). This statement is important, as it calls to the attention of future researchers the various factors that control the nature of everyday practice of science. Chapter 3, “Credibility: Validating Discovery Claims,” makes a case for the uncertainty that surrounds achieving credibility. Grinnell shows in Figure 3.1 (p. 64) his version of the credibility process, which involves a rather complex web of researchers interacting with one another, editors and reviewers, and even the public. It seems as if credibility does not necessarily come right away, and a scientist must use her or his intuition and a large dose of optimism in attempting to achieve credibility. Research grants are shown as a major determinant of the credibility process (p. 79, Figure 3.2), provided the research proposal aligns with the priorities of the funding agency (pp. 80–81).

### SCIENCE, SOCIETY, ETHICS, AND RELIGION

The second part of the book presents some interesting notions about research ethics and misconduct with which every graduate student should become familiar. Grinnell provides some interesting notions about the influence interest groups (p. 103) and grant reviewers may have on the integrity of the everyday practice of science. A particular example is the issue of intellectual property (pp. 122–126), which gives an aura of business to the research university. Grinnell takes a neutral posture on these issues, and the reader is allowed to make her/his own inferences about the long-term effects on the integrity of the scientific process. Chapter 5, “Informed Consent and Risk: The Intersection of Human Research and Genetics,” deals with various issues, such as principles of human research ethics, ethical challenges, and genetics research and vulnerability. This particular chapter should be most useful to students and teachers discussing recent examples of clinical trials. Chapter 6, “Faith: More Than One Way to Practice the World,” makes an intersection between science and religion. Grinnell claims that “science and religion represent distinct human attitudes toward experience

based on different types of faith” (p. 161). He compares both categories, and tries to dissect the complementarity between those two. I found this chapter to be the least effective. For instance, when he argues that religion “requires a different kind of faith than science but in no way gives up the demand for reason” (p. 169), he does not provide a convincing argument about the reasoning involved in faith. His suggestion that religion is the source of our values, working in a complementary way with science (p. 181, Figure 6.1), is an extremely controversial assumption with which many of the scientists mentioned in the book may disagree. He concludes the book by saying: “Perhaps solving global problems will require the scientific *and* religious attitudes—both types of faith—rather than one or the other” (p. 185). Perhaps not.

### CONCLUDING REMARKS

This book is an interesting addition to other books detailing the realities of science practice. The book appears to be aimed at a broad audience, which may include teachers, students, and those interested in science. However, I am not sure whether the book would be appealing to those outside the scientific community. In addition, many of the research examples are in biology, which may preclude some nonbiologists becoming as engaged as I did. I especially enjoyed those sections dealing with the process of inquiry, which may benefit those of us who are in the classroom presenting scientific ideas and literature. However, I would have liked to read about Grinnell’s take on other forms of inquiry, such as those in the humanities and social sciences. Moreover, although Grinnell deftly presents the role of the scientist in the complex world of laboratory research, the additional role of the scientist as a citizen is not well developed. Instead, he chose to veer toward the notion of science and religion. The word *passion* is mentioned in the subtitle, but there is very little of it in the book. Perhaps in the near future Grinnell will treat us with an account of the scientist as a socially responsible individual, which leads me to my last remark. This book is a clear testament that we need more books that address issues of how to educate future scientists. While practicing science is most fascinating, understanding different types of inquiry, as well as the process of engaging in productive discussions with our students and colleagues, could make the everyday practice of science more passionate than it already is.