

# BOOK REVIEW

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## **WHAT SCIENCE IS AND HOW IT REALLY WORKS, BY JAMES C. ZIMRING, MD, PHD**

Readers of TRANSFUSION will certainly recognize the name of Jim Zimring as one of our most acclaimed transfusion medicine researchers, whose publications and presentations are always first-rate and highly stimulating. Although his seminal contributions in immunohematology, alloimmunization, and blood group transfusion biology have made him a prominent leader in our field, he has moved beyond these accomplishments in an attempt to explain the workings of science to lay audiences as well as scientific practitioners in a notable book, *What Science Is and How It Really Works*. The book is based on courses that Dr. Zimring taught at Emory University and the University of Washington. Having read the book, I wish I could have attended the classes, since even though I thought I really understood science and how it works, I learned many lessons about the historical development of the scientific endeavor and implications for current and future discoveries and verifications. I am not embarrassed to say that this book raised new concepts for me, despite my many years of study, and also reinforced messages that I retained from past readings and experiences.

The book is divided into three sections: a first section describing the problems of knowledge and reasoning, a second section mostly on observations in science and how they differ from other forms of reasoning, and a third synthesizing section discussing the implications of science for society and how science can address or fail to address critical societal issues. It is beautifully written, reminding me of some of the philosophic treatises that I read in earlier university settings. It is well referenced to allow the reader to dig deeper if desired. The treatment of these topics is not superficial and will require close attention by both scientific and lay readers, but the rewards for this diligence will be numerous.

Although Zimring has attempted to target the book for two audiences, it may have limited appeal for nonscientists who are not willing to stay focused on his messages. In this era of public distrust of science and the nonsensical spread of misinformation on climate change or medical issues such as the false claims that vaccinations provoked an autism explosion, it might have been intriguing to tackle some of these issues head-on. Zimring probably reasoned that the advocates of these faulty positions were unlikely to read the book to learn the flawed reasoning that led to their erroneous conclusions, but these additions might have comforted and supported some of his dedicated readers.

For readers who consider themselves to be scientifically adroit, I would be surprised if their knowledge base is not expanded by this systematic and comprehensive review. Students will certainly establish a strong foundation for future studies and endeavors, and more experienced scientists will be rewarded by this insightful dissertation.

The TRANSFUSION community is fortunate to have Jim Zimring experimenting, teaching, and moving transfusion medicine forward. His dedication to the education of others in preparing this comprehensive text is a testament to his skills, dedication, and passion for improving knowledge for all. I recommend it to you with great enthusiasm and hope that you will tell others about a wonderfully enriching opportunity to learn about the bases of scientific discovery and its implications for society.

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