

Just a Theory: Exploring the Nature of Science

By Moti Ben-Ari

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It is a regrettable fact that there is a marked decline of interest in learning about science among school students today (in many developed countries, at least). In fact, there appears to be a widespread lack of understanding and appreciation of scientific issues among the general public. One observes a trend of distrust (and even rejection) of science, along with an upsurge of interest in various kinds of pseudo-science: astrology, creationism, faith healing and occultism, for example. This presents us with predicaments on many levels: diminishing recruitment of skilled personnel into scientific and technological professions, and less opportunity for an informed public participation in the societal discourse on issues involving science and technology. This poses a problem for the science education community: how do we (and how should we) present science to students and to the general public?

In this situation, *Just a Theory: Exploring the Nature of Science* from Moti Ben-Ari is a timely and welcome addition to the literature. It presents an extensive general overview of the basic nature of science: how it works, what it claims, what it is (and, equally important, what it is not), and what it does (in contrast to several popular misconceptions of science). The topics covered include some fundamental scientific concepts (such as induction

and deduction, observation and experiment, prediction and retrodiction, explanation and mechanism, and evidence and falsification), science versus pseudo-science, science versus religion, the role of logic and mathematics, the sociology of science, and the postmodernist critique.

For a book of this modest size (some 230 pages), the presentation of the various topics is quite thorough and comprehensive. Some of the points discussed are rather controversial (for instance, the continual confrontation with creationism) and the style of argumentation then becomes a bit polemical. Nevertheless, *Just a Theory* manages to give a reasonably fair exposition of the subject matter, as viewed from the standpoint of science and assessed by scientific criteria.

There is one issue, concerning the philosophy of science, that I would have liked to see receive a more extensive and equitable treatment: namely, the dichotomy of realism versus idealism. Without explicitly stating it, the author comes out strongly on the side of realism but he gives the other side rather short shrift, more or less dismissing it out of hand as 'relativism' and as being 'unscientific'. Now, this topic is central to much of the current debate in the philosophy of science, and I would suggest that it merits a more balanced review than is

given here. This is, however, a minor criticism.

Concerning the book itself: the style of writing is light without loss of precision, often humorous, at times polemical – in short, an enjoyable read. An extra plus is the short biographical sketches of important scientists which appear at the end of each chapter – they add perspective and depth to the discussion. The text should be quite easy to follow for students at university level, and even for students in upper secondary school (with some help from the teacher in parts). I believe that this book would be a very good choice for a course on the nature of science – a topic that, in my view, should be mandatory in the education of science teachers at all levels. In addition, I believe that the teaching of science in secondary school would also be considerably enriched by including a judicious selection of material presented in *Just a Theory*, to help the students acquire some deeper understanding of the basic features of science.

Details

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