

Book Review

Philip Kitcher and Gillian Barker, *Philosophy of Science: A New Introduction*, Oxford: Oxford University Press, 2014, pp. 192

Philip Kitcher's and Gillian Barker's *Philosophy of Science: A New Introduction* is the recent contribution to textbooks in Philosophy of Science. This accessible introduction is intended not only for philosophy students but also for students and interested professionals from related fields, such as science and technology studies, humanities or social sciences. Aside from professionals the book is useful and informative for every reader interested in the subject assuming she has at least minimal knowledge on the subject. Since both authors work extensively on topics that broaden the traditional discussions in philosophy of science with accounts from social epistemology, sociobiology, sociology of science, political philosophy and ethical theory, *Philosophy of Science: A New Introduction* seems as a natural summary (extension) of their previous work. Although discussions in philosophy of science address these issues for more than a decade and have moved further from the debates that dominated the twentieth century, the book represents a novel attempt to incorporate contemporary philosophical accounts of science in a fruitful introduction. Authors reconsider the core questions in philosophy of science by taking into account debates about climate changes, the role of values in scientific practice, science policies, feminist and ecological critique, the interdisciplinarity and diversity of science considering the changes that occurred in the scientific practice and sciences themselves.

The book is structured around six chapters and can be divided into two parts. The first three chapters focus on content of the sciences while the last three consider the contexts in which scientific work is done. Chapter 1 gives a good overview of the connection between science and philosophy introducing the relevant questions through climate change debates and disputes concerning racial differences. The examples force us to ask philosophical questions. What is the evidence and what does it entitle people to believe? Who has the authority to make scientific judgments? How should we decide about future science policies? Questions like these lead to more general concerns about whether *natural sciences are the uniquely best sources of human knowledge, setting standards that ought to be achieved in all fields of inquiry* (p. 3). A brief history of science gives us further insight into how philosophers and scientist addressed these ques-

tions through notions of causality or development of new quantitative experimental methods that established professional science. At the end of the chapter authors introduce three *images of science* that dominated historical, sociological and philosophical conceptions of science. The most enduring is the traditional *image* that views *science as a reliable means for accumulating useful knowledge* with observation as the main scientific method.

Therefore, the following chapter describes the analytic project in philosophy of science. Authors introduce the problem of demarcating science which resulted in attempts to reduce science to analytical truths with respect to scientific explanation, confirmation and structure of scientific theories. In a critical discussion about historical attempts to discover the scientific method through contexts of discovery and justification, Kitcher and Barker provide a few interesting examples from scientific practice such as *The Discovery of Insulin*, *The Biology of Race* or *Philosophical Sources for the Analytic Project*. Apart from displaying a brief historical overview it seems that the intent of the chapter is framing the problem of viewing science as a value free-zone and demonstrating the limitations of such an approach to the scientific practice.

This line of criticism extends to the third chapter where authors explore questions that were neglected in the analytical debates about science, namely the diversity of the sciences. Through various theories integrated under the *ideal of unified science* such as naturalism and reductionism Kitcher and Barker present the most prominent attempts to define scientific methodology. As in previous chapter authors insist on the modest form of methodological naturalism emphasizing the importance of looking into the scientific practice and argue for pluralistic approach to the scientific methodology.

The remaining three chapters form the core of the textbook and its primary intention which is to introduce philosophical picture of science as a social enterprise. In order to do that, authors start with notions of success, truth and progress within historical reference to Kuhn's revolutionary account of science. The main epistemological and methodological problems – theory leadness of observation and incommensurability thesis, illustrated with two famous examples *Tycho and Kepler Observe the Dawn* and *The Devonian Compromise* – display relativistic concerns about scientific progress. In order to preserve pluralistic view of scientific knowledge against the *authoritative perspective* authors accept the *natural reasonableness thesis: in different areas and in different places, people are equipped with the same cognitive faculties, and those faculties are put to work in similar ways* (p. 91). Since this does not solve the problem of relativism about scientific progress authors defend a special kind of pluralism which is compatible with realism. They suggest two ways of dealing with this problem, first, *divorcing the idea of progress from claims about truth* and second, abandoning the thesis that there is *a view from outside in which we can compare the world and our representations of it*. According to the first idea we should recognize the fact that people from different societies have different problems, depending on significance they pose for a particular culture, which they try to resolve by developing theories or models that differ from the ones accepted in our society, since we are

focused on different problems. Therefore, scientific activity is determined by its pragmatic purposes leaving relativistic worries about scientific truth outside the debate. The second line of reasoning is also concerned with purposes of scientific activity and the main suggestion is that instead of looking from the outside *we can observe one another*. In this way Barker and Kitcher preserved both realism with the attractive but problematic thesis of *natural reasonableness* suggesting that, when it comes to success, our ordinary considerations provide enough evidence that our representations of the independent world are accurate, and that scientific progress consists in getting closer and closer to a true account of the parts of the world we consider important.

This approach to scientific *practice gives basis for developing an image of science as a social endeavor*. The argument is developed from the critical challenges from feminist, cultural and ecological critique which all have in common the problem of insufficient diversity within scientific practice. Whether we are concerned with predominance of particular social or gender group or by cultural and ecological uniqueness of specific parts of the world, there are damaging parts of scientific practice as well as unfair outcomes of a particular research. We can learn about some interesting cases from history of science, such as substantive developments in Primatology or Genome research which occurred when women entered research. Authors examine issues that arise from oversimplification of analytical research which is illustrated with an example from the history of modern Agriculture. The main suggestion is that *recognizing the social environment of researchers should not inspire the conclusion that attention to the evidence is inevitably overwhelmed by baser urges* (p. 125). In somewhat condense passage authors elaborate familiar themes and problems from social philosophy of science like the problem of scientific consensus, cognitive variation, distribution of scientific labor or the reward and recognition system in science. Those familiar with Kitcher's previous work can recognize his contribution in claims that we should abandon the myth of pure science (scientist) and assert that *extra-scientific motivations can promote good community strategies* (p. 128) or that the knowledge we have is dependent on past social decisions. All these claims support the main agenda of the textbook which is to provide a philosophical perspective of science that is not and should not be value-free.

The last chapter focuses on framing the problem of values within philosophy of science debate with respect to contemporary scientific controversies. In order to elaborate their view authors start by stating that the aim of science is to provide us with true answers to significant questions. The view is developed by integrating two traditional answers, first is that scientific research aims at explanation, prediction and control and the second, which states that science aims at truth. The definition according to which *significant truths are those that enhance our understanding or that enable us to predict events or to intervene in nature* (p. 137) opens debate for normative issues about whose

goals ought to be considered in respect to significant questions. Kitcher and Barker want to develop an account of scientific inquiry that goes against reductivist strategies which according to them *neglected the complex causal interconnections*. What they have in mind specifically is the fact that science often excludes certain truths or values and the reason for that is because it excludes *certain kind of people*. From this, authors develop an argument for an account of science that should not try to be value-free and construct basis for their own picture of scientific research which debunks the autonomy of sciences suggesting an ideal of well-ordered science. The first problem addresses the question of determining what kind of autonomy is possible. Specifically the direction of scientific research. When we observe relationship between scientists, larger society and contemporary scientific practice it seems that (whether we are inclined toward governmental or market control view) *today's science is far from autonomous*. Therefore, authors suggest an ideal as an attempt to approach the notion of significance in order to make way for determining the aims of sciences. They suggest Kitcher's concept of well-ordered science. Scientific research must involve a concept of *ideal deliberation* which is defined as *a discussion among representatives of the different predicaments and perspectives found in the inclusive human population (our entire species, past, present and future). Those representatives are required to readjust the wishes with which they come to the discussion, by taking account of the best available information about nature and about the prospects for research of different kinds, and by recognizing the equal worth of their fellow discussants and of their perspectives and preferences. (...) They endeavor to reach consensus on how research should be directed (what it should aim at), how it should be conducted, what standards should be used in adopting potential new items of knowledge, and what uses might be made of the knowledge that research delivers* (p. 151). There are further conditions that have to be met in order to achieve well-ordered science which introduces democratic values and procedures in scientific practice. The concept is of course an ideal to which we should strive since alternatives are, according to Kitcher and Barker, far from acceptable and sketched by examples like *Climate Change Controversies* or *Disease Research and Global Health*. The examples are simple illustrations of not only what happens in contemporary science when we depart from the proposed ideal but also of how complicated and interdisciplinary are today's research and science policies. Therefore, in a field that is rapidly evolving Kitcher and Barker suggest we keep up. Image of philosophy of science developed in the textbook frames familiar problems in more expansive way taking into account current scientific practice and controversies. From that point we can move beyond traditional debates in an effort to develop epistemological and metaphysical accounts of science that is not value-free. Furthermore, authors suggest that scientific research should aim toward an ideal of a well-ordered practice which is defined as a social endeavor.

It is important to mention that every chapter in the book contains an extensive further reading lists and numerous illustrative examples from science which portrait very well some of the problems the book addresses. However, it is not always clear who are the intended readers since some parts of the book clearly demand background knowledge rendering the book a bit ambiguous for uninformed reader but there are also parts of the text where claims are put forward in somewhat condense and theoretically oversimplified manner. For example, one entire chapter is concentrated on Kuhn's revolutionary account of science. Parts of his theory as its critics are elaborated in detail as is the case with the analytic project in philosophy of science. Both are of course important and necessary for introducing the picture of science as a social endeavor. However, authors completely neglected philosophers like R. Merton, R. Hull, H. Longino, L. Laudan or I. Lakatos. If the book was intended for students then sometimes it lacks clarity and completeness in sketching historical and theoretical background of a particular problem. However, for the ones teaching philosophy of science it can provide a useful overview of the current state of the field and of contemporary scientific practice with some new perspectives on philosophy of science debates. Therefore, the textbook reaches its agenda in providing a more expansive and novel approach to teaching philosophy of science. Regardless of a few shortcomings, *Philosophy of Science: A New Introduction* is a valuable contribution to textbooks in philosophy of science. It frames the most important problems in philosophy of science in contemporary context taking into account real scientific practice. Aside from that, it introduces many issues that are open for debate and contemplation which makes it both instructive and useful for students and professionals in the field.

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