

Kevin C. Elliott. *A Tapestry of Values: An Introduction to Values in Science*. Oxford University Press 2017. 224 pp. \$105.00 USD (Hardcover ISBN 9780190260804); \$34.95 USD (Paperback ISBN 9780190260811).

There is a complex story to tell by philosophers about the relation between science, its public estimation, and values. Nonetheless, the complexity of the issue is often drained by the back-and-forth movement between two extremes, namely wholesale social engagement and a value-free neutral approach. Kevin C. Elliott's *A Tapestry of Values: An Introduction to Values in Science* promises a balanced approach to these problems concerning science and values, and he has succeeded on many fronts.

Many people, especially scientists, think that science aims at tracking the truth and only the truth, the objective structures and facts of the world, thus gaining knowledge about the environment that surrounds us. In this process of knowledge-production, values do not have to play any role (except if we think that 'truth' in itself is also one of the values). In fact, if you let your personal values influence your decisions, then nothing comes but despair and the expression of unscientific ideology. This seems to be quite a harsh form of fact-fetishism, sticking to an old conception of science, detaching it from its social and political context. But there is another extreme view, which claims that science should be pursued as a socially and politically engaged activity. The core of this view is that regardless of what you think about the role and nature of values in science, they are there always, and you cannot ignore them. Furthermore, there are no objective facts, only value-laden conceptions and interpretations.

Elliott apparently sympathizes with this latter view, though in a less militant way, and by giving some weight to facts and knowledge regardless of their value-context, he argues that values indeed influence our decisions, even if we do not know about them or simply try to ignore them. The philosophically most interesting question for him is what to do with the fact that values play such an important role both in our lives and in our scientific activities.

The book has a very helpful structure: all eight chapters are focused on a specific question. In Chapter 2, Elliott deals with the question of how our values (either of scientists or of the public) influence the deliberation-processes when we choose the subjects of our studies. The author observes the golden mean and does not argue that we should suppress any subjects or research fields if our values do not conform to the values attached to that field, but we can rationally discuss our priorities if we make ordered lists of potential topics within a limited range of funding and time.

Our values also influence how we study a chosen topic (Chapter 3). An interesting example is the growing international problem of starvation. If the amount of food produced and the amount of people in need of that food is not balanced, then we have to make a decision about how we want to help those people. One possibility is that we produce seemingly cheaper genetically modified food (either a special form of rice, crop or whatever) thus generating the required amount of nutriment for less-developed and suffering regions. The other option discussed in the chapter is that we look for alternative, locally structured and ecologically more sustainable 'green' ways of producing that type of food that meets all the requirements of the given environment without extra synthetic and genetic additions. Both ways seem to have very similar short-term results, but they might have different long-term promises; and if you consider the cultural factors too (critics of genetically modified 'golden rice' argue 'that this crop is culturally problematic because most people in Asia strongly prefer white rice' (44), the whole issue might become even more complex.

Values also influence our conceptions and expectations of science (Chapter 4). We sometimes reject certain models, theories and views simply by claiming that they do not meet the required scientific standards. What those standards and aims are (simplicity, predictive force, practicability, and precision) are subject to value-decisions. Chapter 5 addresses the question ‘what if we are uncertain?’—that is, how can we make decisions, how can we choose between competing claims, if we do not have the required information, and what should be the required amount of data to make a scientifically informed decision? But even if we make decisions after all – as we obviously do – utilizing one or several of our values, the task still remains that scientists shall communicate their results and inquiries to the broader public (Chapter 6). The problem here seems to be that if you are uncertain about something (e.g., the effects of a certain drug on health, the environmental influence of various chemicals, or the exact impact of global warming), you still have to communicate your scientific results and the vocabulary and discourse you choose to do so reflects your own values.

In Chapter 7, Elliott shows us one way of dealing with these issues: he describes the recent challenges put forward by non-professional but concerned groups of citizens, who have tried to influence scientific subjects, methods, and decisions by getting involved in them. We see here various attempts (related to AIDS research, placebo, and pollution debates) that have had a huge impact on scientific research.

All these chapters are structured very effectively: they start with a story of a famous or notorious scholar who was entangled in a value-related debate, thus exemplifying the book’s basic line about the role of values in science. From this particular example, the author develops further case studies that are united by focused questions. After these, Elliott explicates his own stance on how to deal with values in these contexts, often by enumerating and answering various objections. In the more complex sections, we also get various tables showing a quick and comprehensive view of the options we have to face in this field. Perfectly done.

Elliott does not always make explicit all the decisions and values we could or should follow. If one opens this book in search of definite answers to specific questions about particular scientific projects, one might end up disappointed. The author claims that we should take a step back, and settle the question of the role of values in science from a meta-perspective. As I said above, many people think that values are there, whether we take notice of them or not (of course, the book offers more detailed arguments for this view, though appreciably that is its starting point). But, and this is Elliott’s main claim, this does not make science a mere ideological playground of politically biased scholars pursuing their own values. Rather, we should talk about these values, and by talking about all the questions that are raised in the book, we might get a clearer picture of what we actually do, why are we doing these things, and which subconscious (value-)influences could be examined a bit more. As Elliott claims (173), ‘[i]n many cases, the choice is not whether to incorporate values in science or to remain neutral; rather, the choice is whether to make value-laden choices transparently or whether to do so without recognizing their significance.’

The author also considers the objection that he has chosen ‘examples from complex and socially significant areas of science like human biology, medicine, risk assessment, climate change, anthropology, agriculture, and toxicology’ (174). While the value-ladenness of our decisions in these fields seems obvious, physics, mathematics, astronomy or some abstract parts of chemistry and linguistics stay on the other end of the line. While Elliott has a good answer for this, and his task was not to show how theoretical physics is entangled with values, it is still an important objection. Until we show by detailed inquiries that all the things that Elliott tells us about these sciences are true of the other sciences as well, one might always hope to fall back on the icy slopes of abstract equations, thus pursuing the value-free illusion.

Nevertheless, *A Tapestry of Values* is a perfect textbook for everyone with its final discussion questions for each of the chapters and with its useful index. You can (and should) either teach or learn from it; either introduce someone to the significance of values in science, or re-structure your own opinioned arguments as to why there should (not) be values in the scientific practice of serious scholars. Despite the unicorn on the cover, you will find real issues inside.

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