

Arie Rip, *Nanotechnology and Its Governance*

London: Routledge, 2019. Pp. 158. ISBN 978-1-1386-1053-8. £130.00 (hardback).

Massimiliano Simons

Maastricht University

Arie Rip is a well-established name within science and technology studies (STS). Starting as a chemist, he was drawn into philosophy and later sociology, mainly due to the student protests in the 1960s. His early work focused on the societal responsibility of chemists, though soon enough his work turned towards broader issues. In recent decades, Rip has dedicated considerable attention to new and emerging sciences and technologies, in particular nanotechnology. This book forms a collection of essays drawn from that latter interest.

The book is relatively short. A brief introduction precedes seven chapters, consisting of earlier published material. The chapters share a common theme: an attempt to study and map the way nanoscientific practices are organized and organize themselves. Together these chapters provide a set of valuable lessons. Nanotechnology was the original 'technoscience', referring to new and emerging technologies and sciences, soon followed by synthetic biology and, more recently, by artificial intelligence. Hence the book provides numerous helpful insights for those who are not interested in nanotechnology per se, but are engaging with other emerging disciplines. For instance, Rip introduces the notion of 'nanophobia-phobia' (p. 57), referring to the fear of nanoscientists that the public will fear their applications (whereas, in reality, this is often not the case). This is a common theme for most technosciences and has, for instance, been taken up by Claire Marris to discuss 'synbiophobia-phobia' in the case of synthetic biologists. The common background is the trauma around the history of genetically modified organisms (GMOs).

This example illustrates a second common theme throughout the chapters, which Rip captures through the notion of 'governance', but can perhaps be more correctly labelled as an attempt to map nanotechnology's 'economy of promises', as Richard Jones once labelled it. Many of the chapters delve into how expectations and promises, but also fears, are constructed by the scientists, citizens, policy makers and even STS scholars involved. Chapter 2, for instance, delves into the cases of 'nanotechnology' and 'sustainability research' as umbrella terms to organize and manage scientific research. Similarly, Chapter 3 maps the 'waiting games' around emerging nanotechnologies: due to the big, but abstract, promises linked to the field, actors are often hesitant to invest themselves in concrete attempts to realize these promises, and instead wait it out. Chapter 4, which I consider the best in the book, maps 'folk theories' of nanotechnologists: the way nanotechnologists themselves think about the futures of nanotechnology. It is here that the notion of nanophobia-phobia pops up, next to others such as the 'wow-yuck pattern' or the 'hype cycle'. Rip's goal is not to criticize these folk theories, but rather to map them and to highlight how these simplified schemes help nanoscientists to orient themselves in the field.

Throughout the book we find the expected STS questions about social influence, politics, hype and reality, and so on. But Rip's interest is first and foremost to understand how the actors involved understand and govern these issues themselves. The goal is not so much to create an STS-informed blueprint of how nanotechnology should be governed, but rather to provide a map of the 'de facto governance' (Chapter 7) of nanotechnology. Rip describes himself as an anthropologist among nanoscientists (p. 3). Drawing on the work of Raghuram Garud and David Ahlstrom, for instance, Rip maps these folk theories in terms of 'enactors' and 'comparative selectors' (p. 68): it is

because scientists want to enact the visions they find important that they often fall back on folk theories such as technological determinism, seeing any disagreement as an unfortunate obstacle. In contrast, policy makers and publics, but also STS scholars, tend to be comparative selectors: they see the option presented precisely as one option among others to choose from. The art of scientific governance is to help these two perspectives meet in productive cycles.

Another common theme throughout the book is Rip's claim that the governance of science is shifting towards a more reflexive mode, in the manner of Ulrich Beck's notion of reflexive modernization. Scientists are more aware of and more willing to talk about their societal responsibilities. This is not a question of individual preferences, but of institutional shifts. Through labels such as ELSA (ethical, legal and social aspects), 'responsible development' and, more recently, RRI (responsible research and innovation), reflection on the societal impact of science has become more common. Nanotechnology is a clear example of this, according to Rip, and, at the end of Chapter 6, he speculates whether the field might not exemplify a shift in the division of moral labour: whereas reflections about the social impact of science were traditionally situated outside the role of scientists, recent institutional shifts have made them a more intrinsic part of it (p. 107).

The book is an attempt to give an overview of Rip's work on nanotechnology, and it succeeds to a great extent. But, as stated, the book is a collection of earlier published material. All of these publications are relatively old, the newest being published in 2014, and vary in length (with the shortest only seven pages). Most papers are collaborations, with only two singled-authored. The editorial process has changed little in these chapters, though it would have been easy to create clearer connections and cross-references between them. Most of the work to create coherence falls on the short introduction, which therefore underdelivers. In it, Rip mainly introduces a set of concepts that are left unexplained, such as governance, macro-anthropology, mediators and even the concept of nanotechnology itself. Moreover, the order of the chapters is not always clear and some of the later chapters provide the reader with information that could have been helpful earlier. On several occasions, Rip also uses complex drawings to illustrate some conceptual points, though they typically remain elusive and unhelpful (e.g. pp. 78–9). But regardless of these minor issues, this book does provide the reader with a remarkable set of insights in the governance of nanotechnology, crucial to any student of contemporary emerging sciences and technologies.

doi:10.1017/S0007087423000523

Simon Jarrett, *Those They Called Idiots: The Idea of the Disabled Mind from 1700 to the Present Day*

London: Reaktion Books, 2020. Pp. 352. ISBN 978-1-78914-301-0. £25.00 (hardback).

Svein Atle Skålevåg

Universitetet i Bergen

Simon Jarrett has written a history about the ideas of idiocy and adjacent concepts, in which he demonstrates that the idiot can be seen as a crucial figure in the history of