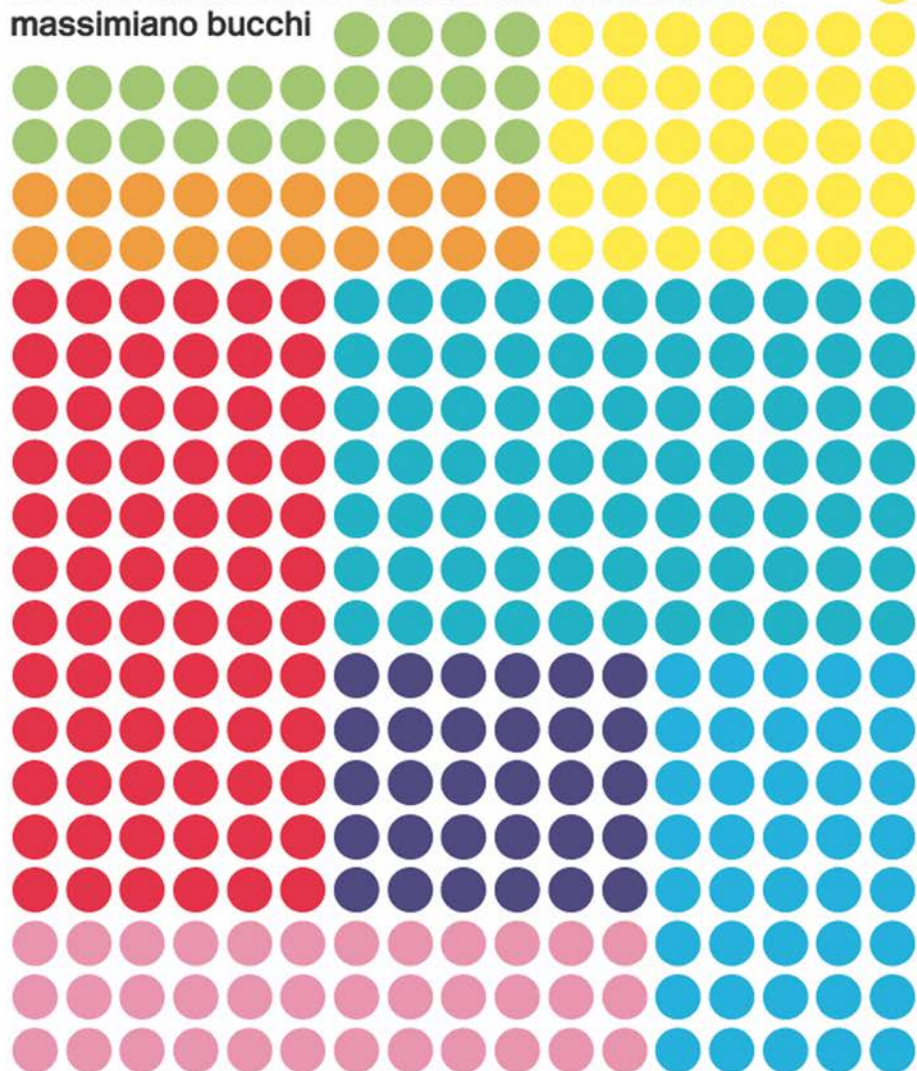


science in society

an introduction to social studies of science

massimiano buchi



Science in Society

The world around us has been shaped by science and man's relationship to it and, in recent years, sociologists have been increasingly preoccupied with the latter. In *Science in Society*, Massimiano Bucchi provides a brief and approachable introduction to this sociological issue.

Without assuming any scientific background, Bucchi provides clear summaries of all the major theoretical positions within the sociology of science, using many fascinating examples to illustrate them. Theories covered include Thomas Kuhn's theory of scientific change, the sociology of scientific knowledge, actor-network theory, and the social construction of technology. The second half of the book goes on to look at some recent public controversies over the role of science in the modern world, including:

- the Sokal affair, otherwise known as the 'science wars';
- debates over public understanding of science, such as global warming and genetically modified food;
- the implications of the human genome project.

This highly readable text will be essential reading for all students studying the sociology of science.

Massimiano Bucchi teaches Sociology of Science in the Faculty of Sociology at the University of Trento, Italy.

Science in Society

An introduction to social studies
of science

Massimiano Bucchi

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Bohr: Why were so many of [theoretical physicists] Jews? Because theoretical physics . . . was always regarded in Germany as inferior to experimental physics, and the theoretical chairs and lectureships were the only ones the Jews could get.

Margrethe: Physics, yes? Physics.

Bohr: This is physics.

Margrethe: It's also politics.

Heisenberg: The two are sometimes painfully difficult to keep apart.
(Michael Frayn, *Copenhagen*)

The world can come to an end, the phoenix can rise from its ashes, the Colosseum can catch fire . . . but Standard Transformer Oil B, 11-Extra, is what it is and remains what it is.

(Carlo Emilio Gadda, *That Awful Mess on Via Merulana*)

Introduction

Science is increasingly at the centre of public debate. The role of the scientific enterprise, its responsibilities, its relationships with the social, political, religious and economic institutions, and the legal and administrative measures required to regulate scientific discoveries and technological innovations: all these are issues that appear with ever greater prominence and urgency on the political and public agenda.

Not only does the sociology of science play a marginal role in the debate on these matters, but when it is called upon to testify, it is treated in overly simplistic terms. ‘Relativism’, ‘constructivism’ and ‘anti-scientism’ are the pejorative epithets most frequently used to dismiss an entire sector of inquiry – or conversely to elevate it to the status of an ideological challenge against research in its entirety or, in the most extreme cases, against the capacity of human beings to understand the reality that surrounds them.

It is not the intention – even less the presumption – of this book to conduct an apologia for the sociology of science or to rehabilitate it in the eyes of scientists and commentators. Its much more modest aim is to describe some of the main contributions that have distinguished the discipline over the past fifty-odd years. Its purpose is to show, as far as possible, that sociology of science has developed into a broad and diversified area of research, with a wealth of empirical studies, and an abundance of internal debates often conducted in no less lively polemic with the outside.

Dismissing the discipline out of hand – in the manner of those commentators who spring to the attack whenever they hear ‘sociology’ coupled with ‘science’ – does not, I submit, have much more sense than attributing a single, monolithic position to the whole of the philosophy of science and ‘accepting’ or ‘rejecting’ it on that basis alone, thereby ignoring the substantial differences among Nagel, Popper and

2 *Introduction*

Feyerabend. The reader may be surprised to learn that, for instance, the sociology of science does not coincide with the notorious ‘strong programme’; that sociologists themselves are deeply divided on themes like relativism or constructivism; or that the statement ‘nature does not exist, everything is constructed by society’ would only be endorsed by a tiny number of scholars working in the discipline. Or again that many of the theses of the contemporary sociology of science were first put forward – and often in even more radical form – by a medical doctor in the first half of the last century (Fleck, 1935).

Of course, the book can only provide a partial survey of its subject matter, one restricted to the themes or approaches most distinctive of the discipline. It omits, for instance, systematic analysis of research policies. This area of inquiry has now acquired the size and status of a sector in itself, yet the sociology of science’s contribution to it has often been only marginal compared to that by other disciplines.

Compared to a more rigidly chronological treatment, or one proceeding author by author, the advantage of the theme-based organization used by the book is that it shows how sociologists of science have developed their discipline in close dialogue with scholars working in other fields: primarily historians and philosophers of science, but also anthropologists, economists, political scientists, engineers and natural scientists. Indeed, there are and have been numerous university departments and journals operating under the generic denomination of ‘Science Studies’ or ‘Science and Technology Studies’ (frequently abbreviated to STS), most notably the celebrated Science Studies Unit of Edinburgh.

Also deliberately excluded from the book are certain ‘classical’ authors on the sociology of knowledge, such as Durkheim, Marx and Mannheim, even though they are often cited by sociologists of science and used as authoritative points of reference.¹

A final caveat. Works of a theoretical-general nature are the exception in the general panorama of STS – especially since the 1970s. Rather, empirical case studies, often minutely documented, are the rule. The book makes brief mention of some of these case studies, but obviously without claiming to do justice to their complexity, since this would often require extensive preliminary description of the scientific matters treated. My advice is that the reader should use these citations to decide the cases of greatest interest and as a stimulus to read the work mentioned in its entirety. In all cases I have cited the text in which the subject is treated most briefly and accessibly. A list of suggested readings and interesting websites is included for each chapter.

I wish to thank Mario Diani, Silvia Fargion, Massimo Mazzotti, Federico Neresini, Giuseppe Pellegrini and James Wiley for their encouragement and their long conversations with me about this book; Adrian Belton for his patient work of translation and revision; David Bloor, Susan Howard, Donald MacKenzie, Bruce Lewenstein and Renato Mazzolini for their careful reading of previous drafts of the manuscript and their valuable suggestions. I am indebted to the late David Edge and the secretary of the Science Studies Unit, Carol Tansley, for their helpfulness during my sojourn at the University of Edinburgh. Some of the topics dealt with by the book were presented and discussed during seminars held at the University of Trento and the *Collegium Helveticum* of the Polytechnic of Zurich; I thank all those present for their patience and comments, Helga Nowotny in particular. Finally, I am grateful to the late Robert K. Merton and Harriet Zuckerman for discussing some of the book's themes with me.

Massimiano Bucchi
October 2003

Note

- 1 For a brief selection of studies in this regard see Nowotny and Taschwer (1996).

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