

*The uses of experiment. Studies in the natural sciences.* Ed. by David Gooding, Trevor Pinch, Simon Schaffer. Cambridge [etc.], Cambridge University Press, 1989. XVII, 481 S. £ 45.- (hard covers); £ 17.50 (paperback); \$ 80.-/\$ 29.95. ISBN 0-521-33185-4; 0-521-33768-2.

This highly recommendable collection contains 14 original papers, mostly written by *historians* of science who have specialized in the study of experiments and their context and renewed the interest in this otherwise neglected, or at least underemphasized, field. Let me mention only Peter Galison<sup>1</sup>, David Gooding<sup>2</sup> and Simon Schaffer<sup>3</sup>, who focus here on bubble-chambers, magnetic fields and optical prisms respectively. From them, we learn "how problematic observation-experimentation processes are and how intricate are their linkages to theory" (p. 300). The exciting interplay between theory and experiment is beautifully expressed in a nutshell by an Einstein-aphorism:

"A theory is something nobody believes except the person proposing the theory, whereas an experiment is something everybody believes except the person doing the experiment".

*Sociologists* have also shown interest, in recent years, in the social interaction between experimenters during the construction and later evaluation of experiments<sup>4</sup>. Andy Pickering here ponders about the possible means of realism in the context of experimental practice, then nicely illustrates the importance and the interplay of material procedures and instrumental and phenomenal models during the production of experimental facts in Morpurgo's search for free fractionally charged quarks<sup>5</sup>.

While formerly *philosophers* have often tended to confine the role of experiments to the narrow-minded functions that were designated to them in their normative reconstructions of science, the philosophers of science contributing to this volume try to fit their models of science to detailed case histories of scientific practice (compare e. g. Th. Nickles' paper).

The wealth of *topics* touched upon ranges from missible testing (MacKenzie) to an analysis of Galilei's experimental discourse (Naylor), from an analysis of Britain's science policy in the case of CERN (Krige) to Secord's report of the experiments of an outsider in Victorian England. The authors' care for historical accuracy and the detailed inclusion of the many facettes of experimentation (diachronic evolution, technological and theoretical context, social background and connections of the experimenters, etc.) have naturally led to the correction and re-evaluation of many stories of 'science folklore'.

A good introduction by the editors helps the reader to follow the red line through all these essays, and a select bibliography of studies about experiments encourages further reading and more research, for which this collection serves as an excellent starting point. Klaus Hentschel

- 1 see his: *How experiments end*, Chicago, 1987.
- 2 e. g. his *Faraday rediscovered*, London, 1985.
- 3 compare his: *Leviathan and the air pump*, Princeton, 1985.
- 4 i. c. Trevor Pinch's *Sociology of solar neutrino detection*, Dordrecht, 1986. and his papers in *Social Studies of Science*.
- 5 compare his: *Constructing quarks*, Edinburgh and Chicago, 1984.