Machamer, P., Pera, M., Baltas, A. (ed.): **Scientific Controversies**. – Oxford University Press, New York – Oxford 2000. ISBN 0-19-511987-8. 278 pp., USD 32.50.

The development of all scientific disciplines is usually accompanied by scientific controversies. They are resolved not only by obtaining new empirical data, but often also in scientific debates. This book demonstrates these facts in 14 essays written by eminent scientists that teach in Canada, Greece, Israel, Italy, and the U.S.A.

A relatively long Introduction (15 pages) prepared by the Editors brings basic information: that and why controversies in science exist, how are they settled, and when are the results of their solution transformed into general knowledge. In this line experimental science, philosophy, and sociology must work together. Such was also the conclusion of a conference held in Italy in June 1993. Its results lead to writing the reviewed book.

The essays are divided into two parts. The first part contains four essays written from the philosophical point of view: on patterns of scientific controversies, on classifying them, on rhetoric and scientific controversies, and on the cognitive analysis of scientific controversies. The essays also show the structure of scientific controversies.

The second part consists of ten essays dealing with historical and contemporary reflections on controversies in various fields of science. The topics are: the 17th century natural philosophy (concept of the individual and the idea of method); astronomy (dialectics, experiments, and mathematics of Galileo Galilei); physics of motion (Leibnitz, Fabri, Wallis, *et al.* on compounding forces); theories of colours by Hooke and Newton; controversies in the so-called pneumatic chemistry (phlogiston theory) solved by A.L. Lavoisier and Joseph Priestley; formation of physical chemistry, evidence of cannibalism in anthropology, psychiatry, neuroscience, sociobiology, quasars, causality, and geometry. Almost all essays are understandable to readers of other speciality, their reading is a pleasure. The essays are supplemented by numerous explaining notes and by lists of references. Unfortunately, the number of figures is very low even if they would certainly help inexperienced readers. The index contains both names of scientists and the main topics.

From the point of photosynthesis chapter 9 entitled "Scientific dialectics in action: the case of Joseph Priestley" (written by P. Barrotta from Italy) is of special interest. Even if his discovery of photosynthesis is not directly discussed (only by notes such as "the putridium effluvium is in some measure extracted from the air by means of the leaves of plants"), the essay deals with Priestley's studies on "phenomena that corrupt and restore the salubrity of atmospheric air". In these controversies also other scientists well-known from the history of photosynthesis research, such as Hale and Cavendish, took part.

I found also interesting the analysis of empirical data supplemented by citations within five-year periods taken from the Science Citation Index. This analysis forms an appendix to chapter 13 by R. Ruse "The theory of punctuated equilibria".

As a summary I can recommend this book to all those interested in history of science and in science philosophy. And it should certainly be read by students to show them the ways in which the progress in scientific knowledge is made.

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