

## Contents

HEERING, PETER; OSEWOLD, DANIEL	Preface	7
STUEWER, ROGER H.	Introduction	9
ALLCHIN, DOUGLAS	Teaching Science Lawlessly	13
BABB, JEFF; CURRIE, JAMES	The Brachistochrone and Related Curves: Implications for Teaching the History of Calculus	33
CAVICCHI, ELIZABETH	Mirrors, swinging weights, light bulbs...: Simple experiments and history help a class become a scientific community	47
HEERING, PETER	Educating and Entertaining: Using Enlightenment Experiments for Teacher Training	65
KLASSEN, STEPHEN	Pedagogical Renewal of the Millikan Oil Drop Experiment	83
KOKKOTAS, PANAGIOTIS	Teaching Physics to in-service primary school teachers in the context of the History of Science: the case of the fall of bodies	97
LAUGINIE, PIERRE	Weighing the Earth, weighing the Worlds: From Cavendish to modern undergraduate demonstrations	119
LIU, SHU-CHIU	Alternative perspectives and conceptual change: integrating pre-scientific knowledge into teaching-learning sequences in school science	149

McMILLAN, BARBARA A.	Learning about Light in Grade 4: What Happened to the Illuminating Stories from The History of Science and Technology?	163
METZ, DON	William Wales and the 1769 Transit of Venus: Puzzle Solving and the Determination of the Astronomical Unit	203
RIESS, FALK	Short history of the use of historical experiments in German physics lessons	219
RUDGE, DAVID W.	History of Science in the Service of Middle School Science Teacher Preparation	227
SICHAU, CHRISTIAN	Beyond the Textbook: Formative Traditions, Objects, and the Science Museum of the Future	243
STINNER, ARTHUR	From Theory to Practice: Placing contextual science in the classroom	265
TEICHMANN, JÜRGEN	From Babylon to the Big Bang – Are there Revolutions in Astronomy?	277
WANG, YOUJUN	Do mathematics by hands: two cases from ancient Chinese mathematics	291
WOLFSCHMIDT, GUDRUN	Understanding the Earth and the Cosmos Magnetism in Cultural History, Geophysics and Astronomy: Three Examples for Contextual Teaching	303
ZEMPLÉN, GÁBOR Á.	The nature of science in the classroom – sociology to the rescue?	319
	About the Authors	339