GALILEO GALILEI

The Essential Galileo

Edited and Translated by Maurice A. Finocchiaro

Hackett Publishing Company, Inc. Indianapolis/Cambridge

Contents

.

Preface and Acknowledgments	vii
Introduction: Galileo's Legacy, Life, and Works	1
Chronology of Galileo's Career and Aftermath	17
Glossary of Terms and Names	26
Annotated Bibliography and Cited Works	37
Chapter 1: The Sidereal Messenger (1610)	45
Chapter 2: From Discourse on Bodies in Water (1612)	85
§2.1 Shape vs. Density in Floating and Sinking	85
Chapter 3:	
From History and Demonstrations Concerning Sunspots (1613)	97
§3.1 Solar Rotation and Indifferent Motion	97
§3.2 Heavenly Changes and Aristotelian Empiricism	99
§3.3 Knowing Properties vs. Knowing Essences	101
Chapter 4:	
Letters on Copernicanism and Scripture (1613-15)	103
§4.1 Letter to Castelli (1613)	103
§4.2 Letter to the Grand Duchess Christina (1615)	109
Chapter 5: Reply to Cardinal Bellarmine (1615)	146
§5.1 Cardinal Bellarmine's Letter to Foscarini	146
§5.2 Galileo's Considerations on the Copernican Opinion,	
Part I	148
§5.3 Galileo's Considerations on the Copernican Opinion,	
Part II	160
§5.4 Galileo's Considerations on the Copernican Opinion, Part III	163
Chapter 6: From the Earlier Trial-Documents (1615–16)	168
§6.1 Lorini's Complaint (7 February 1615)	168
§6.2 Caccini's Deposition (20 March 1615)	170
§6.3 Special Injunction (26 February 1616)	175 176
§6.4 Decree of the Index (5 March 1616) §6.5 Cardinal Bellarmine's Certificate (26 May 1616)	176
yo.5 Caromar Denarinine's Certificate (20 iviay 1010)	170

Contents

Chapter 7: From The Assayer (1623)	179
§7.1 Comets, Tycho, and the Book of Nature in	
Mathematical Language	179
§7.2 Heat, Atoms, and Primary vs. Secondary Qualities	185
Chapter 8: From Dialogue on the Two Chief World Systems (1632)	190
§8.1 Preface: To the Discerning Reader	190
§8.2 Day II: Independent-mindedness and Aristotle's Authority	193
§8.3 Day II: Diurnal Rotation, Simplicity, and Probability	201
§8.4 Day II: The Case against Terrestrial Rotation, and the	
Value of Critical Reasoning	213
§8.5 Day II: Vertical Fall, Conservation of Motion, and the	
Role of Experiments	222
§8.6 Day III: Heliocentrism and the Role of the Telescope	233
§8.7 Day IV: The Cause of the Tides and the Inescapability	
of Error	250
§8.8 Day IV: Ending	267
Chapter 9: From the Later Trial-Documents (1632-33)	272
§9.1 Special Commission's Report on the Dialogue	
(September 1632)	272
§9.2 Galileo's First Deposition (12 April 1633)	276
§9.3 Galileo's Second Deposition (30 April 1633)	282
§9.4 Galileo's Third Deposition (10 May 1633)	284
§9.5 Galileo's Defense (10 May 1633)	285
§9.6 Galileo's Fourth Deposition (21 June 1633)	287
§9.7 Inquisition's Sentence (22 June 1633)	288
§9.8 Galileo's Abjuration (22 June 1633)	293
Chapter 10: From Two New Sciences (1638)	295
§10.1 Day I: The Problem of Scaling	295
§10.2 Day I: Critique of Aristotle's Law of Fall	300
§10.3 Day I: The Pendulum	306
§10.4 Day II: The Mathematics of Strength, Size, and Weight	315
§10.5 Day III: A New Science of Motion	334
§10.6 Day III: Definition of Uniform Acceleration	335
§10.7 Day III: Laws of Falling Bodies	342
§10.8 Day IV: The Parabolic Path of Projectiles	356
• •	
Index	368

Index

vi