

Routledge Guides to the Great Books

The Routledge Guidebook to Galileo's *Dialogue*

Maurice A. Finocchiaro

CONTENTS

Acknowledgments	x
Series Editor's Preface	xiii
Author's Preface	xiv
Abbreviations	xvii

PART I

Preliminaries To Reading The <i>Dialogue</i>	1
1 General Relevance	3
2 Intellectual Background	11
2.1 <i>Cosmology</i>	12
2.2 <i>Physics</i>	19
2.3 <i>Astronomy</i>	22
3 Historical Context	31
3.1 <i>Copernicus's Innovation</i>	31
3.2 <i>Copernican Controversy</i>	34
3.3 <i>Galileo's Pursuit of a Copernican Research Program</i>	38

3.4	<i>Theological Controversy and Condemnation of Copernicanism</i>	41
3.5	<i>Trial and Condemnation of Galileo</i>	44
PART II		
	Main Argument In The <i>Dialogue</i>	51
4	Day I: Similarity of Earth and Heaven	53
	IA1. <i>Perfection and three-dimensionality of the world (DML 9–15)</i>	54
	IA2. <i>Aristotle's doctrine of two natural motions (DML 15–20)</i>	55
	IA3. <i>A more coherent concept of natural motion (DML 20–36)</i>	56
	IA4. <i>Geocentric argument from natural motion (DML 36–43)</i>	59
	IA5. <i>Contrariety and change (DML 43–53)</i>	63
	IA6. <i>Observation of heavenly changes (DML 53–66)</i>	69
	IA7. <i>Teleology and anthropocentrism (DML 67–71)</i>	73
	IB1. <i>Similarities between earth and moon (DML 71–82)</i>	77
	IB2. <i>Roughness of the lunar surface (DML 82–100)</i>	78
	IB3. <i>Moon's secondary light (DML 100–113)</i>	82
	IB4. <i>Differences between earth and moon (DML 113–21)</i>	86
5	Day II: Earth's Daily Axial Rotation	90
	IIA. <i>Simplicity arguments for terrestrial rotation (DML 123–55)</i>	90
	IIB1. <i>Geostatic argument from violent motion (DML 155–58)</i>	95
	IIB2. <i>Two-motions argument (DML 158–61)</i>	97
	IIB3. <i>Vertical fall (DML 161–64)</i>	100
	IIB4. <i>Ship's mast experiment (DML 164–79)</i>	105
	IIB5. <i>Conservation and composition of motion (DML 179–95)</i>	109

IIB6.	<i>East-west gunshots (DML 195–98)</i>	112
IIB7.	<i>Vertical gunshots (DML 198–206)</i>	117
IIB8.	<i>North-south gunshots (DML 206–8)</i>	121
IIB9.	<i>Point-blank gunshots (DML 208–12)</i>	124
IIB10.	<i>Flight of birds (DML 212–18)</i>	128
IIB11.	<i>Extruding power of whirling (DML 218–53)</i>	130
IIC1.	<i>Falling to earth from the moon (DML 253–71)</i>	139
IIC2.	<i>Inexplicability of terrestrial rotation (DML 271–86)</i>	145
IIC3.	<i>Deception of the senses (DML 287–98)</i>	149
IIC4.	<i>Multiple natural motions (DML 298–306)</i>	153
IIC5.	<i>Luminosity and mobility (DML 307–19)</i>	159
6	Day III: Earth's Annual Heliocentric Revolution	165
IIIA.	<i>Evidence from the 1572 nova (DML 321–70)</i>	165
IIIB1.	<i>Mars, Venus, and moon (DML 381–95)</i>	167
IIIC1.	<i>Heliocentrism of planetary revolutions (DML 370–80)</i>	173
IIIC2.	<i>Retrograde planetary motions (DML 396–400)</i>	177
IIIC3.	<i>Paths of sunspots (DML 400–414)</i>	181
IIIB2.	<i>Distances and sizes of stars (DML 414–32)</i>	194
IIIB3.	<i>Apparent positions and magnitudes of stars (DML 432–61)</i>	201
IIIB4.	<i>Magnets and multiple natural motions (DML 461–81)</i>	209
7	Day IV: Geokinetic Explanation of Tides	215
IVA.	<i>Clarification of project and criticism of alternatives (DML 483–92, 535–39)</i>	215
IVB.	<i>Explaining the diurnal period of tides (DML 492–506)</i>	219

IVC. <i>Air movements and trade winds (DML 506–16)</i>	227
IVD. <i>Monthly and annual periods of tides (DML 516–35)</i>	232
PART III	
Special Aspects Of The <i>Dialogue</i>	241
8 Science: Robust Confirmation of Earth's Motion	243
8.1 <i>Scientists' Judgments</i>	243
8.2 <i>Three-fold Scientific Achievement</i>	245
8.3 <i>Critical Examination and Interdisciplinary Synthesis</i>	249
9 Methodology: Critical Reasoning and Balanced Judgment	259
9.1 <i>Rationality and Critical Reasoning</i>	259
9.2 <i>Authority and Independent-mindedness</i>	264
9.3 <i>Sensory Observation and Theoretical Reason</i>	268
9.4 <i>Mathematical Truths and Physical Reality</i>	274
10 Rhetoric: Persuasion and Eloquence	281
10.1 <i>Three Senses of Rhetoric</i>	282
10.2 <i>"Mere" Rhetoric</i>	285
10.3 <i>Rhetoric of Anti-rhetoric</i>	289
10.4 <i>Eloquent Expression</i>	291
10.5 <i>Rhetorical Communication vs. Methodological Reflection</i>	295
10.6 <i>Persuasive Argumentation vs. Critical Reasoning</i>	299
PART IV	
Conclusion	303
11 Historical Aftermath and Enduring Legacy	305
11.1 <i>Historical Repercussions</i>	305
11.2 <i>From Copernicus to Darwin, Freud, and Beyond</i>	310

11.3 <i>Science vs. Religion?</i>	311
11.4 <i>Einstein and Scientific Method</i>	314
11.5 <i>Galilean Approach to the Galileo Affair</i>	316
Appendix: Table of Cross-References among Editions	328
Selected Bibliography	336
Index	344