

# CONTENTS

|  |            |
|--|------------|
| <i>A Note on Citations</i>                               | xiii       |
| <i>Acknowledgements</i>                                  | xv         |
| <i>Preface</i>   | xvii       |
| <i>Chronology</i>  | xx         |
| <i>Extracts</i>  | xxxi       |
| <b>Introduction</b>                                      | <b>1</b>   |
| <b>1 Bolzano's Life</b>                                  | <b>5</b>   |
| 1. The Historical Context . . . . .                      | 5          |
| (a) The Restoration of the Sciences in Bohemia . . . . . | 14         |
| (b) The Czech National Revival . . . . .                 | 16         |
| 2. The Young Bolzano . . . . .                           | 21         |
| 3. Præceptor Bohemiæ . . . . .                           | 35         |
| 4. The Mathematician . . . . .                           | 48         |
| 5. Troubles . . . . .                                    | 50         |
| 6. The Hoffmanns . . . . .                               | 64         |
| 7. The Těchobuz Institute for Advanced Study . . . . .   | 68         |
| 8. Last Years: Return to Prague . . . . .                | 77         |
| <b>2 Ethics</b>  | <b>83</b>  |
| 1. The Highest Moral Law . . . . .                       | 85         |
| 2. Duties and Rights . . . . .                           | 95         |
| 3. The Cultivation of Virtue . . . . .                   | 97         |
| 4. The Ethics of Belief . . . . .                        | 99         |
| 5. Conclusion . . . . .                                  | 104        |
| <b>3 Political Philosophy</b>                            | <b>105</b> |
| 1. The Best State . . . . .                              | 110        |
| (a) General Organization, Constitution . . . . .         | 110        |
| (b) Social Institutions . . . . .                        | 114        |
| (c) Economic Institutions . . . . .                      | 117        |
| 2. Principles and Aims of Political Reform . . . . .     | 120        |
| 3. Conclusion . . . . .                                  | 133        |

|          |  |            |
|----------|--|------------|
| <b>4</b> | <b>Philosophy of Religion</b>                                  | <b>139</b> |
| 1.       | Bolzano's Concept of Religion . . . . .                        | 143        |
| 2.       | Figurative or Symbolic Doctrines . . . . .                     | 152        |
| 3.       | Sources of Religious Belief: Natural and Revealed Religion . . | 157        |
| 4.       | The Concept of Revelation . . . . .                            | 158        |
| 5.       | Conclusion . . . . .   | 164        |
| <b>5</b> | <b>Catholicism and the Catholic Church</b>                     | <b>167</b> |
| 1.       | Natural Religion . . . . .                                     | 167        |
| 2.       | Catholicism . . . . .  | 169        |
| 3.       | How is the Content of Catholicism Determined? . . . . .        | 170        |
| 4.       | Revelation and Miracles . . . . .                              | 174        |
| 5.       | Universal Consensus and Revelation . . . . .                   | 177        |
| 6.       | Authority in the Church . . . . .                              | 181        |
| 7.       | Conclusion . . . . .   | 184        |
| <b>6</b> | <b>Logic</b>   | <b>187</b> |
| 1.       | Bolzano's Logical Writings . . . . .                           | 190        |
| 2.       | The Scope of Bolzano's Logic . . . . .                         | 191        |
| 3.       | Logical Objects . . . . .                                      | 193        |
| 4.       | Propositions and Ideas . . . . .                               | 206        |
| 5.       | The Nature of Ideas . . . . .                                  | 210        |
|          | (a) Ideas and their Objects . . . . .                          | 215        |
|          | (b) The Individuation of Ideas . . . . .                       | 217        |
|          | (c) The Logic of Classes . . . . .                             | 219        |
|          | (d) Simple and Complex Ideas . . . . .                         | 221        |
|          | (e) Objectless Ideas . . . . .                                 | 222        |
|          | (f) Intuitions and Concepts . . . . .                          | 224        |
|          | (g) Representing Individuals . . . . .                         | 232        |
|          | (h) Representing Natural Kinds . . . . .                       | 238        |
|          | (i) Conclusion . . . . .                                       | 242        |
| 6.       | Contributions to the Analysis of Propositions . . . . .        | 243        |
|          | (a) On the Form and Content of Propositions . . . . .          | 245        |
|          | (b) The Subject–Predicate Form . . . . .                       | 249        |
|          | (c) Truth . . . . .  | 250        |
|          | (d) Temporal Determinations . . . . .                          | 253        |
|          | (e) Relations . . . . .  | 255        |
|          | (f) Existence and Objectuality . . . . .                       | 259        |
|          | (g) Negation . . . . .   | 261        |

## Contents

|   |            |
|---|------------|
| (h) Categorical Statement Forms . . . . .   | 265        |
| (i) Disjunctions and Conditionals . . . . .                                       | 267        |
| (j) Purely Conceptual and Intuitional Propositions . . . . .                      | 271        |
| (k) Necessity, Possibility, and Contingency . . . . .                             | 272        |
| (l) Conclusion . . . . .  | 273        |
| 7. Bolzano's Variation Logic . . . . .  | 274        |
| (a) Introduction . . . . .  | 274        |
| (b) Variation, Substitution, and Form . . . . .                                   | 281        |
| (c) Analyticity and Related Notions . . . . .                                     | 295        |
| (d) Consequence and Related Notions . . . . .                                     | 301        |
| 8. Ground–Consequence and the Objective Connection<br>between Truths . . . . .    | 327        |
| 9. Sciences and their Treatises: The Theory of Science Proper . .                 | 331        |
| 10. Conclusion . . . . .  | 334        |
| <br>  |            |
| <b>7 Theory of Knowledge</b>  | <b>337</b> |
| 1. The Elements of Bolzano's Theory of Knowledge . . . . .                        | 342        |
| (a) Subjective Ideas and Judgments . . . . .                                      | 342        |
| (b) Intuitions and Concepts . . . . .   | 346        |
| (c) Individuation; Equal Ideas; Clarity, Distinctness, and<br>Vividness . . . . . | 348        |
| (d) Judgments . . . . .   | 351        |
| (e) Mediated and Immediate Judgments . . . . .                                    | 352        |
| (f) <i>A priori</i> and Empirical Judgments . . . . .                             | 356        |
| 2. Knowledge, Ignorance, Error . . . . .  | 357        |
| 3. Certainty, Probability, and Confidence; Knowledge and<br>Belief . . . . .      | 362        |
| 4. <i>Wissen</i> . . . . .  | 365        |
| 5. Judgments of Experience . . . . .  | 367        |
| 6. Bolzano on Kant . . . . .  | 373        |
| 7. Conclusion . . . . .   | 398        |
| <br>  |            |
| <b>8 Ontology and Metaphysics</b>   | <b>405</b> |
| 1. Objects in General . . . . .   | 407        |
| 2. Attributes . . . . .   | 408        |
| 3. Collections . . . . .  | 416        |
| (a) Origins: Universal Mathematics (1810) . . . . .                               | 417        |
| (b) Bolzano's Later Theory of Collections . . . . .                               | 422        |
| 4. Identity, Equality, Similarity . . . . .                                       | 442        |

|   |            |
|---|------------|
| 5. Bolzano on some Traditional Ontological Theses . . . . .                         | 444        |
| 6. Actual and Non-actual Objects . . . . .  | 449        |
| 7. Substance and Adherence . . . . .  | 450        |
| 8. Time and Space . . . . .   | 458        |
| 9. From Metaphysics to Physics: Bolzano's Atoms and<br>Leibniz's Monads . . . . .   | 470        |
| 10. Non-actual Objects . . . . .  | 474        |
| 11. Necessity, Possibility, Contingency . . . . .                                   | 475        |
| 12. A Proof of the Existence of God . . . . .                                       | 495        |
| 13. The World . . . . .   | 497        |
| <b>9 Mathematics</b>  | <b>502</b> |
| 1. On Mathematical Method . . . . .   | 503        |
| (a) The Ancient Ideal . . . . .   | 503        |
| (b) Bolzano's Position . . . . .  | 507        |
| (c) Definitions and Explications . . . . .  | 509        |
| (d) Proofs, Objective and Subjective . . . . .                                      | 510        |
| (e) Foundations and Foundational Research . . . . .                                 | 513        |
| 2. Adventures in the Infinite: A Sample of Bolzano's<br>Mathematical Work . . . . . | 515        |
| (a) Infinite Series . . . . .   | 515        |
| (b) Bolzano's Analysis of Continuity . . . . .                                      | 520        |
| (c) <i>Paradoxes of the Infinite</i> . . . . .                                      | 533        |
| 3. Conclusion . . . . .   | 540        |
| <b>10 Aesthetics, the Science of Beauty</b>   | <b>544</b> |
| 1. Introduction . . . . .   | 544        |
| 2. Works on Aesthetics . . . . .  | 548        |
| 3. On Laughter . . . . .  | 549        |
| 4. The Concept of Aesthetics . . . . .  | 551        |
| 5. The Concept of the Beautiful . . . . .   | 552        |
| (a) Conceptual Analysis . . . . .   | 552        |
| (b) The Beautiful . . . . .   | 556        |
| (c) Other Definitions . . . . .   | 570        |
| 6. On the Classification of the Fine Arts . . . . .                                 | 578        |
| (a) The Division of the Arts . . . . .  | 580        |
| (b) Arts of Pure Thought . . . . .  | 581        |
| (c) Arts of the External Senses: the Tonal Arts . . . . .                           | 584        |
| (d) The Visual Arts . . . . .   | 586        |
| (e) Panorama of the Fine Arts . . . . .   | 589        |

*Contents*

7. The Reception of Bolzano's Aesthetics . . . . . 590  
8. Critical Remarks and Conclusion . . . . . 591

*Afterword* . . . . . 595  
*Bibliography* . . . . . 599  
*Index of Persons* . . . . . 647  
*Index of Subjects* . . . . . 653