

# Table of Contents

<b>Acknowledgements</b> .....	7
<b>Chapter 1</b>	
<b>Introduction</b> .....	9
1.1 About Darwin’s “Dangerous Idea” .....	10
1.2 Overview of the Book .....	13
1.3 What Is Biological Knowledge? .....	16
1.4 Darwin’s Tea Party Website .....	19
1.5 Questions to Introduction .....	19
<b>Chapter 2</b>	
<b>Background and History (2.5 mya – 1859)</b> .....	21
2.1 Prehistoric Biological Knowledge in the Paleolithic Era .....	22
2.2 Biological Knowledge in the Neolithic Era: The Agricultural (or Neolithic) Revolution.....	41
2.3 Biological Knowledge and Ancient Civilizations .....	57
2.4 Ancient Greek Civilization .....	61
2.5 Religion, Science and Philosophy in The Middle Ages .....	85
2.6 The Modern Period and the Birth of Science (1450-1650) ..	97
2.7 Study Questions to the Modern Period and the Scientific Revolution.....	112
<b>Chapter 3</b>	
<b>Darwin and Evolutionary Theory (1859-1885)</b> .....	113
3.1 Introduction .....	114
3.2 Natural Selection.....	118
3.3 Deep Time .....	124
3.4 Some Common Problems in Understanding Evolution by Natural Selection .....	126
3.5 Arguments for Evolution.....	131
3.6 Summary of Chapter 3 .....	150
3.7 Biological Evolution Puzzle .....	151
3.8 Study and Discussion Questions to Chapter 3.....	152

<b>Chapter 4</b>	
<b>Evolution and Society 1:</b>	
<b>Evolution and Religion (1859-1925) .....</b>	<b>155</b>
4.1 Introduction .....	156
4.2 A Tale of Two Theologies: Literal & Figurative Approaches to Understanding the Bible .....	157
4.3 The Scopes “Monkey” Trial and Fundamentalist Christianity in the USA.....	159
4.4 Evolution and Non-Fundamentalist Christianity .....	162
4.5 Teaching of Evolution and Islam: A Brief Sketch .....	166
4.6 Summary of Chapter 4 .....	169
4.7 Study and Discussion Questions to Chapter 4.....	170
<b>Chapter 5</b>	
<b>Evolution and Society 2:</b>	
<b>Evolution and Politics (1859–1914) .....</b>	<b>173</b>
5.1 Introduction .....	174
5.2 Historical Context (1): The Industrial Revolution in Britain.....	175
5.3 Historical Context (2): Imperialism .....	177
5.4 Ideology and Power .....	180
5.5 The Political Philosophy of Liberalism .....	181
5.6 Economic Liberalism or Classical Economics.....	183
5.7 Social Darwinism: Justifying Inequality .....	186
5.8 Social Darwinism and Outbreak of World War I.....	196
5.9 Fighting to Change the System: Evolutionary and Revolutionary Socialism.....	197
5.10 Summary of Chapter 5 .....	200
5.11 Evolution and Society Puzzle .....	203
5.12 Study and Discussion Questions to Chapter 5.....	204

<b>Chapter 6</b>	
<b>The Development of Genetics (1885–1945)</b>	<b>207</b>
6.1 Introduction	208
6.2 Pre-Mendelian Theories of Heredity	208
6.3 Mendel’s Theory of Heredity	214
6.4 The Evolutionary-Genetic Synthesis (1930s)	223
6.5 Conclusion to Chapter 6	225
6.6 Genetics Puzzle	226
6.7 Questions to Chapter 6	227
<b>Chapter 7</b>	
<b>Eugenics (1885–1945)</b>	<b>229</b>
7.1 What Is Eugenics?	230
7.2 Eugenics and Social Darwinism	232
7.3 Eugenics and Genetics	234
7.4 Eugenics and Biological Determinism	236
7.5 Eugenics in Britain	238
7.6 Eugenics in the United States	239
7.7 Eugenics in Canada	248
7.8 Eugenics in Nazi Germany	253
7.9 Conclusion to Chapter 7	259
7.10 Eugenics Puzzle	262
7.11 Study and Discussion Questions to Chapter 7	263
<b>Chapter 8</b>	
<b>Nature &amp; Nurture:</b>	
<b>Triumph of the Nurture Assumption (1945–1975)</b>	<b>265</b>
8.1 Introduction	266
8.2 Historical/Ideological Context	267
8.3 The Development of the Welfare State: Britain	269
8.4 The Development of the Welfare State: USA	270
8.5 The Development of the Welfare State: Canada	272
8.6 Decolonization	274
8.7 Triumph of the Nurture Assumption	275
8.8 The Scientific Consensus	275
8.9 Nature vs. Nurture Puzzle	278
8.10 Study Questions to Chapter 8	279

<b>Chapter 9</b>	
<b>The Biological Revolution (1953 – present)</b>	<b>281</b>
9.1 Introduction	282
9.2 Background: Discovering the Structure and Function of DNA (1940–1953)	283
9.3 Protein Synthesis	286
9.4 Genetic Errors	287
9.5 Reading the Genetic Code: Gene Mapping and Sequencing (1976–1999)	289
9.6 Altering the Genetic Code: Bacteria and Viruses as Genetic Engineering Tools	291
9.7 CRISPR-Cas9	294
9.8 Cloning: Fact and Fiction	295
9.9 Some Current Applications of Genetic Engineering	298
9.10 Conclusion to Chapter 9	306
9.11 Questions to Chapter 9	310
<b>Chapter 10</b>	
<b>Humanity 2.0? Shaping the Biological Future of Humanity</b>	<b>311</b>
10.1 Introduction: Search for Knowledge and Quest for Power	312
10.2 Sociobiology and the “New Synthesis”	314
10.3 Evolutionary Psychology, Richard Dawkins and Selfish Genes	319
10.4 <i>The Bell Curve</i> Controversy and Sequel	323
10.5 Assessment: From Nurture Back to Nature Again?	325
10.6 Humanity 2.0: On Becoming “Post-Human”	327
10.7 Humanity 2.0 Puzzle	332
10.8 Questions to Chapter 10	333
<b>Chapter 11</b>	
<b>Conclusion: Narrative Summary and the Road Ahead</b>	<b>335</b>
11.1 Summary of the Narrative of this Book	336
11.2 The Road Ahead: You Decide!	339
<b>Bibliography</b>	<b>341</b>