CONTENTS

A Personal Note to the Reader xv

BOOK ONE: TIME

PART I: THE HEAVENLY EMPIRE

- 1. The Temptations of the Moon 4
- 2. The Week: Gateway to Science 12
 - 3. God and the Astrologers 19

PART II: FROM SUN TIME TO CLOCK TIME

- 4. Measuring the Dark Hours 26
- 5. The Rise of the Equal Hour 36
 - 6. Making Time Portable 46

PART III: THE MISSIONARY CLOCK

- 7. Open Sesame to China 56
 - 8. Mother of Machines 64
- 9. Why It Happened in the West 72

BOOK TWO: THE EARTH AND THE SEAS

PART IV: THE GEOGRAPHY OF THE IMAGINATION

10. The Awe of Mountains 82

II. Charting Heaven and Hell 86

12. The Appeal of Symmetry 92

13. The Prison of Christian Dogma 100

14. A Flat Earth Returns 107

PART V: PATHS TO THE EAST

15. Pilgrims and Crusaders 116

16. How the Mongols Opened the Way 124

17. Missionary Diplomats 128

18. The Discovery of Asia 134

19. The Land Curtain Comes Down 139

PART VI: DOUBLING THE WORLD

20. Ptolemy Revived and Revised 146
21. Portuguese Sea Pioneers 156
22. Beyond the Threatening Cape 165
23. To India and Back 172
24. Why Not the Arabs? 178
25. The Chinese Reach Out 186
26. An Empire without Wants 195

PART VII: THE AMERICAN SURPRISE

27. The Wandering Vikings 204
28. Dead End in Vinland 209
29. The Power of the Winds 217
30. "The Enterprise of the Indies" 224
31. Fair Winds, Soft Words, and Luck 231
32. Paradise Found and Lost 235
33. Naming the Unknown 244

PART VIII: SEA PATHS TO EVERYWHERE

34. A World of Oceans 256
35. The Reign of Secrecy 267
36. Knowledge Becomes Merchandise 271
37. The Ardors of Negative Discovery 278

BOOK THREE: NATURE

PART IX: SEEING THE INVISIBLE

38. Into "the Mists of Paradox" 294

39. The Witness of the Naked Eye 305

40. A Vision Troubled and Surprised 312

41. Caught in the Cross Fire 322

42. New Worlds Within 327

43. Galileo in China 332

PART X: INSIDE OURSELVES

44. A Mad Prophet Points the Way 338

45. The Tyranny of Galen 344

46. From Animals to Man 351

47. Unseen Currents Within 361

48. From Qualities to Quantities 368

49. "The Microscope of Nature" 376

PART XI: SCIENCE GOES PUBLIC

50. A Parliament of Scientists 386

51. From Experience to Experiment 394

52. "God Said, Let Newton Be!" 401

53. Priority Becomes the Prize 408

PART XII: CATALOGUING THE WHOLE CREATION

54. Learning to Look 420

55. The Invention of Species 429

56. Specimen Hunting 436

57. Stretching the Past 446

58. In Search of the Missing Link 457

59. Paths to Evolution 464

BOOK FOUR: SOCIETY

PART XIII: WIDENING THE COMMUNITIES OF KNOWLEDGE

60. The Lost Arts of Memory 480

61. Empire of the Learned 489

62. The Duplicating Impulse 498

63. "The Art of Artificial Writing" 510

64. Communities of the Vernacular 517

65. Transforming the Book 524

66. Books Go Public 533

67. The Island of Islam 539

68. Toward a World Literature 547

PART XIV: OPENING THE PAST

69. The Birth of History 558

70. Christianity Gives Direction 566

71. Revising the Record 574

72. Explorers among the Ruins 581

73. "To Wake the Dead" 588

74. Latitudes of Time 596

75. The Discovery of Prehistory 603

76. Hidden Dimensions: History as Therapy 613

PART XV: SURVEYING THE PRESENT

77. "All Mankind Is One" 626

78. The Shock of the Primitive 636

79. A Science of Culture 646

80. An Expanding Universe of Wealth 652

81. Learning from Numbers 667

82. The Infinite and the Infinitesimal 675

Some Reference Notes 685
Acknowledgments 715

Index 719