

CONTENTS

	<i>Preface</i>	ix
	Introduction	1
CHAPTER 1	Leonhard Euler and His Three “Great” Friends	10
CHAPTER 2	What Is a Polyhedron?	27
CHAPTER 3	The Five Perfect Bodies	31
CHAPTER 4	The Pythagorean Brotherhood and Plato’s Atomic Theory	36
CHAPTER 5	Euclid and His <i>Elements</i>	44
CHAPTER 6	Kepler’s Polyhedral Universe	51
CHAPTER 7	Euler’s Gem	63
CHAPTER 8	Platonic Solids, Golf Balls, Fullerenes, and Geodesic Domes	75
CHAPTER 9	Scooped by Descartes?	81
CHAPTER 10	Legendre Gets It Right	87
CHAPTER 11	A Stroll through Königsberg	100
CHAPTER 12	Cauchy’s Flattened Polyhedra	112
CHAPTER 13	Planar Graphs, Geoboards, and Brussels Sprouts	119

CHAPTER 14	It's a Colorful World	130
CHAPTER 15	New Problems and New Proofs	145
CHAPTER 16	Rubber Sheets, Hollow Doughnuts, and Crazy Bottles	156
CHAPTER 17	Are They the Same, or Are They Different?	173
CHAPTER 18	A Knotty Problem	186
CHAPTER 19	Combing the Hair on a Coconut	202
CHAPTER 20	When Topology Controls Geometry	219
CHAPTER 21	The Topology of Curvy Surfaces	231
CHAPTER 22	Navigating in n Dimensions	241
CHAPTER 23	Henri Poincaré and the Ascendance of Topology	253
EPILOGUE	The Million-Dollar Question	265
	<i>Acknowledgments</i>	271
	<i>Appendix A Build Your Own Polyhedra and Surfaces</i>	273
	<i>Appendix B Recommended Readings</i>	283
	<i>Notes</i>	287
	<i>References</i>	295
	<i>Illustration Credits</i>	309
	<i>Index</i>	311