Leonhard Euler and the Bernoullis Mathematicians from Basel

M.B.W. Tent



Contents

	Preface	xi
	Acknowledgements	xv
	Figure Credits	xix
1	The Bernoullis as Huguenots	1
2	The Bernoulli Family in Frankfurt and Then Basel	7
3	Jacob Makes His First Steps in the Study of	
	Mathematics	13
4	His Little Brother Johann "Helps" Jacob	
	with Mathematics	21
5	Having Completed His Studies in Philosophy and	
	Theology, Jacob Moves On	27
6	Jacob Travels to Geneva and Meets Elizabeth	
	Waldkirch and Her Family	33
7	Jacob Teaches Elizabeth Waldkirch to	
	Read and Write Numbers and Words	39
8	Sundials, and Tutoring in France	47
9	Jacob Meets with Mathematicians in Paris	53
10	Jacob Travels to Holland and England	61
11	Jacob Settles into Life in Basel to	
	Lecture and Learn	65

viii	Contents	
12	Leibniz's Calculus vs. Newton's Fluxions	77
13	Johann Bernoulli Grows Up	87
14	Two Curves Studied by the Bernoullis:	
	The Isochrone and the Catenary	97
15	More Mathematical Challenges	
	from the Bernoullis	103
16	Jacob Bernoulli's Mathematics	109
17	Johann Bernoulli Returns to Basel with His Family	117
18	Johann Bernoulli's Son Daniel Grows Up	123
19	Daniel Bernoulli, the Paris Prize,	
	and the Longitude Problem	129
20	Leonhard Euler	133
21	Leonhard Euler's Early Education	139
22	Leonhard Euler Goes to the Latin School	
	in Basel and Then on to the University	143
23	Daniel and Nicolaus Bernoulli Receive a Call to	
	the Academy at St. Petersburg	149
	The Academy of Sciences at St. Petersburg	157
25	Euler Begins His Career and Moves to	
	St. Petersburg	161
26	Daniel Bernoulli and Leonhard Euler:	
	An Active Scientific Partnership	169
	The St. Petersburg Paradox	177
	Euler's Early Work in St. Petersburg	181
29	Daniel Returns to Basel, and Leonhard Euler	
	Becomes Professor of Mathematics	
	at St. Petersburg	191
30	Daniel Bernoulli: A Famous Scholar	201

	Contents	ix
31	Leonhard Euler: Admired Professor	
	at St. Petersburg	207
32	Euler Becomes Blind in His Right Eye	215
33	St. Petersburg Loses Euler to Frederick	
	the Great of Prussia	219
34	The Eulers Arrive at the Court of Frederick	
	the Great in Berlin	225
35	Euler's Scientific Work in Berlin	237
36	Euler's Work in Number Theory	245
37	Magic Squares	251
38	Catherine the Great Invites Euler to	
	Return to St. Petersburg	255
39	The Basel Clan	263
	Index	269