

Contents

Part I Introduction

1	Felix Klein—Mathematician, Academic Organizer, Educational Reformer	5
	Renate Tobies	
2	What Is or What Might Be the Legacy of Felix Klein?	23
	Hans-Georg Weigand	

Part II Functional Thinking

3	Functional Thinking: The History of a Didactical Principle	35
	Katja Krüger	
4	Teachers' Meanings for Function and Function Notation in South Korea and the United States	55
	Patrick W. Thompson and Fabio Milner	
5	Is the Real Number Line Something to Be Built, or Occupied?	67
	Hyman Bass	
6	Coherence and Fidelity of the Function Concept in School Mathematics	79
	William McCallum	

Part III Intuitive Thinking and Visualization

7	Aspects of “Anschauung” in the Work of Felix Klein	93
	Martin Mattheis	
8	Introducing History of Mathematics Education Through Its Actors: Peter Treutlein’s Intuitive Geometry	107
	Ysette Weiss	

- 9 The Road of the German Book *Praktische Analysis* into Japanese Secondary School Mathematics Textbooks (1943–1944): An Influence of the Felix Klein Movement on the Far East** 117
Masami Isoda
- 10 Felix Klein's Mathematical Heritage Seen Through 3D Models** 131
Stefan Halverscheid and Oliver Labs
- 11 The Modernity of the *Meraner Lehrplan* for Teaching Geometry Today in Grades 10–11: Exploiting the Power of Dynamic Geometry Systems** 153
Maria Flavia Mammana

Part IV Elementary Mathematics from a Higher Standpoint—Conception, Realization, and Impact on Teacher Education

- 12 Klein's Conception of 'Elementary Mathematics from a Higher Standpoint'** 169
Gert Schubring
- 13 Precision Mathematics and Approximation Mathematics: The Conceptual and Educational Role of Their Comparison** 181
Marta Menghini
- 14 Examples of Klein's Practice *Elementary Mathematics from a Higher Standpoint: Volume I*** 203
Henrike Allmendinger
- 15 A Double Discontinuity and a Triple Approach: Felix Klein's Perspective on Mathematics Teacher Education** 215
Jeremy Kilpatrick