

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	vii
------------------	-----

PROLOGUE	ix
----------	----

PART I. INTRODUCTION

CHAPTER 1: Mathematics and Culture	3
------------------------------------	---

An introduction to Oswald Spengler's pioneering work on "numbers and culture" in *The Decline of the West*. This is the source of a "weak" sociology of mathematical traditions, and a "strong" sociology of mathematics as a social world (mathematics as social relations and worldview). The "weak" perspective guides the discussion in Part II, the "strong" perspective guides the discussion in Part III.

CHAPTER 2: Mathematics from the Ground Up	10
---	----

The social activities of everyday life in ancient societies give rise to arithmetic and geometry, the classical forms of mathematical work.

PART II. MATHEMATICAL TRADITIONS

CHAPTER 3: The Mathematics of Survival in China	23
---	----

From the legend of Yü the Great and the Lo River tortoise to the "golden age" in T'ang.

CHAPTER 4: Mathematics in Context: The Arabic-Islamic Golden Age	35
--	----

A "golden age of mathematics" (700–1400 in the Arabic-Islamic world) is sketched with an emphasis on historical conditions and cultural settings.

CHAPTER 5: Indian Mathematics: A History of Episodes	47
--	----

Sociological highlights from the history of Indian mathematics.

CHAPTER 6: Mathematics and Renaissance in Japan	55
---	----

The seventeenth century "renaissance" makes Japan a center of oriental mathematical work; the mathematical revolution ends abruptly with the consolidation of power by the Tokugawa shoguns.

CHAPTER 7: Conflict, Social Change, and Mathematics in Europe	61
"Scandals" are shown to reflect transitions to new conditions of competition and conflict: the cases of Cardan and Tartaglia (1540s), Newton and Leibniz (1670–1730), and Cauchy, Abel, and Galois (1826–1832) represent key transitional scandals from the "robber baron" era. The Cantor-Kronecker case (late nineteenth century) represents a transition from the robber baron era to the era of "saintly politicians" who emphasize the <i>collective</i> side of science in an era of competition between "schools" of mathematics. The group of mathematicians known as Bourbaki is a key example.	
APPENDIX 1: African Mathematics and the Problem of Ethnoscience	89
APPENDIX 2: On Modes of Thought	91
APPENDIX 3: Mathematics and God	94
PART III: MATH WORLDS	
CHAPTER 8: Mathematics as Representation	99
Survey of a wide range of issues, examples, and conjectures in the sociology of mathematics that bear on the problem of representation.	
CHAPTER 9: Foundations of the Sociology of Pure Mathematics	129
The sociological conditions behind experiencing and labeling mental states and products as "pure".	
CHAPTER 10: The Social Relations of Pure Mathematics	149
Includes a sociological reading of Boole's "laws of thought" and of Kleene's "metamathematics".	
BIBLIOGRAPHIC EPILOGUE	177
NOTES TO CHAPTER 7	179
BIBLIOGRAPHY	181
NAME INDEX	189
SUBJECT INDEX	195



<http://www.springer.com/978-0-7923-1765-4>

Mathematics in Society and History

Sociological Inquiries

Restivo, S.

1992, XVI, 202 p., Hardcover

ISBN: 978-0-7923-1765-4