

Don Howard   John Stachel  
Editors

# Einstein

## and the History of General Relativity

Based on the  
Proceedings of the 1986 Osgood Hill Conference,  
North Andover, Massachusetts  
8–11 May 1986

Birkhäuser  
Boston · Basel · Berlin

# Contents

Series Preface .....	v
Preface to Volume One .....	vii
Acknowledgments .....	ix
A Note on Sources .....	x
Introduction .....	1
 <i>Einstein's Discovery of the General Theory</i>	
What Was Einstein's Principle of Equivalence? .....	5
JOHN NORTON	
The Rigidly Rotating Disk as the "Missing Link" in the History of General Relativity .....	48
JOHN STACHEL	
Einstein's Search for General Covariance, 1912–1915 .....	63
JOHN STACHEL	
How Einstein Found His Field Equations, 1912–1915 .....	101
JOHN NORTON	
 <i>The Reception and Development of General Relativity</i>	
Max Abraham and the Reception of Relativity in Italy: His 1912 and 1914 Controversies with Einstein .....	160
CARLO CATTANI AND MICHELANGELO DE MARIA	
The 1915 Epistolary Controversy between Einstein and Tullio Levi-Civita .....	175
CARLO CATTANI AND MICHELANGELO DE MARIA	

Hendrik Antoon Lorentz, the Ether, and the General Theory of Relativity .....	201
A.J. KOX	
The Early Interpretation of the Schwarzschild Solution .....	213
JEAN EISENSTAEDT	
The Early History of the “Problem of Motion” in General Relativity ..	234
PETER HAVAS	
The Low Water Mark of General Relativity, 1925–1955 .....	277
JEAN EISENSTAEDT	
The Canonical Formulation of General-Relativistic Theories: The Early Years, 1930–1959 .....	293
PETER G. BERGMANN	
<i>Unified Field Theories</i>	
Einstein, Hilbert, and Weyl: The Genesis of the Geometrical Unified Field Theory Program .....	300
VLADIMIR P. VIZGIN	
Inside the Coconut: The Einstein-Cartan Discussion on Distant Parallelism .....	315
MICHEL BIEZUNSKI	
<i>Cosmology</i>	
The Einstein–de Sitter Controversy of 1916–1917 and the Rise of Relativistic Cosmology .....	325
PIERRE KERSZBERG	
The Expanding Universe: A History of Cosmology from 1917 to 1960 .....	367
GEORGE F.R. ELLIS	
Contributors .....	433
Index .....	435