## **Euler and Modern Science**

## Edited by

## N. N. Bogolyubov, G. K. Mikhaĭlov, and A. P. Yushkevich

Translated from Russian by

Robert Burns



Published and Distributed by

The Mathematical Association of America

## Contents



Introduction	ix
Translator's Note	xi
From the Editors	1
Opening Speech of the Symposium "Modern Developments of Euler's Ideas" October 24, 1983, A. P. Aleksandrov	3
Leonhard Euler: his life and work, A. P. Yushkevich	7
Leonhard Euler, active and honored member of the Petersburg Academy of Sciences, Yu. Kh. Kopelevich	39
The part played by the Petersburg Academy of Sciences (the Academy of Sciences of the USSR) in the publication of Euler's collected works, E. P. Ozhigova	53
Leonhard Euler and the Berlin Academy of Sciences, K. Grau	75
Was Leonhard Euler driven from Berlin by J. H. Lambert?, KR. Biermann	87
Euler's Mathematical Notebooks, E. Knobloch	97
On Euler's Surviving Manuscripts and Notebooks, G. P. Matvievskaya	119
The Manuscript Materials of Euler on Number Theory, G. P. Matvievskaya and E. P. Ozhigova	127
Euler's Contribution to Algebra, I. G. Bashmakova	137
Diophantine Equations in Euler's Works, T. A. Lavrinenko	153
The Foundations of Mechanics and Hydrodynamics in Euler's Works, G. K. Mikhaĭlov and L. I. Sedov	167
Leonhard Euler and the Variational Principles of Mechanics, V. V. Rumyantsev	183
Leonhard Euler and the Mechanics of Elastic Systems,  N. V. Banichuk and A. Yu. Ishlinskiĭ	213
Euler's Research in Mechanics during the First Petersburg Period,  N. N. Polyakhov	237

The Significance of Euler's Research in Ballistics, A. P. Mandryka24
Euler and the Development of Astronomy in Russia,  V. K. Abalakin and E. A. Grebenikov
Euler and the Evolution of Celestial Mechanics,  N. I. Nevskaya and K. V. Kholshevnikov
New Evidence Concerning Euler's Development as an Astronomer and Historian of Science, N. I. Nevskaya
Leonhard Euler in Correspondence with Clairaut, d'Alembert, and Lagrange, A. P. Yushkevich and R. Taton
Letters to a German Princess and Euler's Physics, A. T. Grigor'ian and V. S. Kirsanov
Euler and I. P. Kulibin, N. M. Raskin
Euler and the History of a Certain Musical-Mathematical Idea, E. V. Gertsman 33:
Euler's Music-Theoretical Manuscripts and the Formation of his  Conception of the Theory of Music, S. S. Tserlyuk-Askadskaya
An Unknown Portrait of Euler by J. F. A. Darbès, G. B. Andreeva and M. P. Vikturina
Eulogy in Memory of Leonhard Euler, Nikolaĭ Fuss
Leonhard Euler's Family and Descendants, I. R. Gekker and A. A. Euler
Index