

Euler, Leonhard

Correspondence of Leonhard Euler with Daniel, Johann II and Johann III Bernoulli. Correspondence of Johann Albrecht Euler with Daniel Bernoulli. Correspondence of Daniel Bernoulli with officials of the Petersburg Academy of Sciences (selection) and Nicolaus Fuss. Part I. Edited by Emil A. Fellmann and Gleb K. Mikhajlov. With the collaboration of Andreas Kleinert, Martin Mattmüller, Uta Monecke and Andreas Verdun. (Leonhard Euler Briefwechsel mit Daniel, Johann II und Johann III Bernoulli. Briefwechsel Johann Albrecht Eulers mit Daniel Bernoulli. Briefwechsel Daniel Bernoullis mit Amtsträgern der Petersburger Akademie der Wissenschaften (Auswahl) und mit Niklaus Fuss. Teil I.) (German)

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Leonhardi Euleri Opera Omnia. Series Quarta A: Commercium Epistolicum 3, pt. 1. Basel: Birkhäuser/Springer (ISBN 978-3-319-32396-1/hbk; 978-3-319-33989-4/set). xi, 1-595. (2016).

This first volume of the correspondence between Leonhard Euler and Daniel, James II, and James III Bernoulli also contains five letters of Daniel Bernoulli to his nephew James III. Additionally, the correspondence of John Albrecht Euler, Leonhard Euler's first child, with Daniel Bernoulli has been included. In Appendix VII.3, not only a selection from the correspondence of Daniel Bernoulli and Leonhard Euler with office-bearers of the Academy St. Petersburg, but also the extant part of the correspondence of Daniel Bernoulli with Euler's last assistance Nicolas Fuss is given.

After an introduction with detailed information on editorial issues like the structure of the volume, the reproduction of letters, and informations containing the apparatus and registers there follows a general introduction. Here, a biography of Daniel Bernoulli can be found and the publication history of the correspondence between Euler and Daniel Bernoulli is described.

In Chapter III, the introduction to the correspondence between Euler and Daniel Bernoulli is the main issue. The chapter starts with an essay concerning the relationship between Daniel Bernoulli and Leonhard Euler. This essay is followed by a thorough introduction to the correspondence where the treasure trove of the correspondence opens up. A few letters are concerned with what was called algebra in the 18th century. Here, special cases of "infinite equations" are discussed and iterative methods designed by Bernoulli to numerically solve equations by means of successive approximations. Number theory is also mentioned only briefly in the correspondence. The theory of infinite series is treated in 16 letters. Euler finds (Letter 2) the general rule

$$\left(\frac{1+\sqrt{5}}{2}\right)^2 + \left(\frac{1-\sqrt{5}}{2}\right)^2$$

describing the general term of the famous Fibonacci series 1, 3, 4, 7, 11, 18, ... which was rediscovered by Binet only in 1813. In Letters 21, 30, 31, and 34, the special zeta function is analysed. These discussions correspond to the famous Basel problems, of course. Further problems of series expansions are discussed in the correspondence which later reappear in Euler's *Introductio*. Further letters are concerned with differential and integral calculus, complex functions, differential equations, and variational calculus. Chapter III also contains letters on rational mechanics, fluid dynamics, astronomy, geophysics, physics, and the theory of ships. This introduction to the correspondence has a high value on its own but is indispensable to categorize the letters following in Chapter IV.

In Chapter IV, we find the correspondence of Euler with Daniel, James II, and James III Bernoulli. There are 64 letters from the period of 1726–1743. I won't go into details here since this would go beyond the scope of a review.

The present volume is an indispensable tool for historians of science as well as a document in the cultural and social history of the 18th century. Letters written in Latin, French, or an old form of German, are translated into modern German. The correspondence is continued in the second part of Volume III, see [Zbl 1360.01049].

Reviewer: [Thomas Sonar \(Braunschweig\)](#)

MSC:

- 01A75 Collected or selected works
- 01A70 Biographies, obituaries, personalia, bibliographies
- 01A50 Mathematics in the 18th century
- 00B60 Collections of reprinted articles

Cited in 1 Review

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Biographic references:

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