

MR0997512 (90i:01013) 01A50

Knobloch, Eberhard (D-TUB)

Leonhard Eulers mathematische Notizbücher. (German. English summary)

[[**Leonhard Euler's mathematical notebooks**]]

Ann. of Sci. **46** (1989), no. 3, 277–302.

Euler compiled during his life twelve notebooks in some 3000 folio pages on various topics in pure and applied mathematics. The original notes are in the archive of the Soviet Academy of Sciences in Leningrad. In the first decades of this century they were transferred to the Euler project in Basel, photocopied, and eventually returned to Leningrad in 1949. The notebooks were catalogued by G. Eneström[Jber. Deutsch. Math.-Verein. **22** (1913), 191–205], where they were designated E H1 to E H9 (“E” standing for Euler and “H” for Handschriften). To these were added subsequently the handwritten documents E H11, E H12 and E H13, making twelve notebooks in all. They were described by G. K. Mikhaïlov[in *Sammelband der zu Ehren des 250. Geburtstages Leonhard Eulers*, 256–279, see especially pp. 269–274, Akademie-Verlag, Berlin, 1959; MR0130150]. Truesdell made use of the notebooks in writing his authoritative history [*The rational mechanics of flexible or elastic bodies, 1638–1788*, in *Euler opera omnia, Ser. 2, Vol. II, Part 2*, see p. 142, no. 1, Füssli, Zurich, 1960; MR0131341]. The notebooks remain today unpublished.

The article under review provides a survey of the entire contents of the notebooks. The latter are designated according to the catalogue of the Leningrad archive, where they are numbered from 129 to 140. We are given under each topic heading a sketch of the results discussed by Euler with reference to notebook number and pages. The topics are number theory, algebra and the theory of equations, probability and combinatorics, series and continued fractions, differential and integral calculus, differential equations, geometry, differential geometry, variational calculus; friction, mechanics of mass-points and rigid bodies, mechanics of flexible and elastic bodies, mechanics of fluids and gases, theory of machines and ship design; astronomy and geodesy; physics; geography, medicine and chemistry; philosophy and philology; and miscellaneous. The article's coverage of pure mathematics is more detailed than that of applied subjects. The article concludes with a comprehensive subject index of references.

The article gives a good overall impression of Euler's extensive mathematical researches. The author does not try to date the notebooks, or to situate the material in the context of Euler's published work. The subject index will undoubtedly prove most useful to historians when the notebooks are finally published. Oddly, no reference is made to the sources listed in the opening paragraph of this review, whose existence was known to the reviewer from Truesdell's book.

Craig G. Fraser