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(b. St. Petersburg, Russia [now Leningrad, U.S.S.R.], 12 April 1847;d. St. Petersburg, 19 July 1878)

mathematics.

Zolotarev was the son of a watchmaker. After graduating in 1863 with a silver medal from the Gymnasium, he enrolled at the Faculty of Physics and Mathematics of St. Petersburg, where he attended the lectures of Chebyshev and his student A. N. Korkin. He graduated with the candidate's degree in 1867 and the following year became assistant professor there. In 1869 he defended his master's dissertation, on an indeterminate third-degree equation; his doctoral dissertation (1874) was devoted to the theory of algebraic integers. In 1876 he was appointed professor of mathematics at St. Petersburg and junior assistant of applied mathematics at the St. Petersburg Academy of Sciences.

On two trips abroad Zolotarev attended the lectures of Kummer and Weierstrass, and met with Hermite. He shared his impressions of noted scholars and discussed mathematical problems with Korkin, whose collaborator he subsequently became. Zolotarev died at the age of thirty-one, of blood poisoning, after having fallen under a train.

The most gifted member of the St. Petersburg school of mathematics, Zolotarev produced fundamental works on mathematical analysis and the theory of numbers during his eleven-year career. Independent of Dedekind and Kronecker, he constructed a theory of divisibility for the whole numbers of any field of algebraic numbers, working along the lines developed by Kummer and elaborating the ideas and methods that now comprise the core of local algebra. He operated with the number of the local ring Z_p and its full closure in the field $Q(\theta)$and, in essence, brought under examination the semilocal ring O_p In modern terminology Zolotarev's results consisted in proving that (1) the ring O_p is a finite type of Z_p modulus and (2) O_p is a ring of principal ideals. In his local approach to the concept of a number of the field $Q(\theta)$Zolotarev demonstrated demonstrated that the ring O of the whole numbers in is the intersextion ofa all semilocal rings O_p wiht the aid of a lemma that is the analog of the theory of expansion into Puiseux series.

Zolotarev employed a theory that he had constructed for determining, with a finite number of operations, the possibility of selecting a number, *A*, such that the the second-order elliptical differential where R(*x*) is a fourth degree polynomial with real coefficents, can be integrated in olgarithms. Abel demonstrted that for an affirmative solution it is necessary and sufficient that be expandable into a periodic continous fraction; but because he did not gie an evaluation of the period, his solution was ineffective. Zolotarev provided the required evaluation, applying the equation of the division of elliptic functions.

With Korkin, Zolotarev worked on the problem posed by Hermite of dertermining the minima of positive quadratic forms of *n* variables having real coefficinents; they gave exhaustive solutions for the cases *n*=4 and *n*=5.

Among Zolotarev's other works are an original proof of the law of quadratic reciprocity, based on the group-theoretic lemma that Frobenius had called "the most interesting," as well as solutions of difficult individual questions in the theory of the optimal approximation of functions. Thus, Zolotarev found the nth-degree polynomial, the first coefficient of which is equal to unity and the second coefficient of whcih is fixed, that deviates least from zero.

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II. Secondary Literature. On Zolotarev's life and work, see I. G. Bashmakova, "Obosnovanie teorii delimosti v trudakh E. I. Zolotareva" ("Foundation of Theory of Divisbility in Zolotarev's Works") in *Istori ko-matematicheskie issledovaniya***2** (1949), 231-351; N. G. Chebotarev, "Ob osnovanii teorii idealov po Zolotarevu" ("On the Foundation of the Theory of Ideals According to Zolotarev") in *Uspekhi matematicheskikh nauk*,**2** no. **6** (1947), 52-67; B. N. Delone, *Peterbugskaya shkola teorii chisel* ("The St. Petersubug School of the Theory of Numbers" : Moscow-Leningrad, 1947); R. O. Kuzmin, "Zhizn i nauchnaya deyatelnost Egora Ivanovicha Zolotareva" ("Zolotarev's Life and Scientific Activity") in *Uspekhi matematicheskikh nauk*, **2** no. **6** (1947), 21-51; and E. p. Ozhigova, *Egor Ivanovich Zolotarev* (Moscow-Leningrad, 1966).

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