

Schroeter, Heinrich Eduard | Encyclopedia.com

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(*b.* Königsberg, Germany [now Kaliningrad, R.S.F.S.R.], 8 January 1829; *d.* Breslau, Germany [now Wrocław, Poland], 3 January 1892)

mathematics.

The son of a merchant, Schroeter attended the Altstädtische Gymnasium of his native city. In the summer of 1848 he began to study mathematics and physics at the university of Königsberg, and after his military service he continued his studies at Berlin for two years. He earned the doctorate at Königsberg in 1854 and qualified as lecturer in the fall of 1855 at the University of Breslau, where he became extraordinary professor in 1858 and full professor in 1861. He taught at Breslau until his death but was severely handicapped by paralysis during the final years of his life.

As a student at Königsberg, Schroeter attended the mathematics lectures of Friedrich Richelot, a follower of Jacobi. At Berlin his most important teachers were Dirichlet and [Jakob Steiner](#). The influence of Steiner's ideas, on Synthetic geometry in particular, was so strong that Schroeter later devoted almost all his research to this branch of mathematics. For his doctoral dissertation (under Richelot) and *Habilitationsschrift*, however, he chose topics from the theory of elliptic functions. Schroeter became more widely known through his association with Steiner—specifically, by editing the second part of Steiner's lectures on synthetic geometry.

The publication of Steiner's lectures ended with this second part, but Schroeter's extensive book of 1880 on the theory of second-order surfaces and third-order space curves can be considered a continuation of Steiner's work. Among the topics Schroeter treated were many metric properties of quadrics and cubic space curves; for unlike Staudt, for example, he did not confine himself to pure projective geometry. Schroeter pursued Steiner's fundamental aim of generating more complicated geometric elements from simpler ones (for instance, generating conic sections from the intersections of corresponding straight lines of projectively related pencils). Schroeter's name has been given to the generation of a third-degree plan curve c starting from six points of the plane, given that c should pass through six points of the plane and that further points are to be obtained using only a ruler; and to two generations of a third-degree surface when only one point and four straight lines in P_3 are given.

In 1888 Schroeter published a book in which he applied his approach to third-order plane curves. His last separately printed publication (1890) was devoted to fourth-order space curves of the first species, that is, to total intersections of two quadrics. Examining this topic from the viewpoint of synthetic geometry, Schroeter obtained many results on these curves, which are closely related to plane cubics. In his last years he studied various plane and spatial configurations, employing—as in all his writings—a purely elementary approach. In his view, all multidimensional considerations were not elementary, as were all those that were later designated by [Felix Klein](#) as belonging to higher geometry.

Schroeter's most important student in synthetic geometry was Rudolf Sturm.

BIBLIOGRAPHY

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