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(*b*. Haarlem, Netherlands, 1633; *d*. 1660 [?])

mathematics.

Van Heuraet entered the University of Leiden in March 1653 as a medical student and studied mathematics under Frans van Schooten. With Christian Huygens and Jan Hudde he formed a trio of highly talented students who, under van Schooten's leadership and in touch with René François de Sluse in Liège, devised methods for tangent determinations and quadratures of algebraic curves. In a letter of December 1657 to van Schooten he reported on his results in connection with the cubic parabola $y^2 = ax^2 (a - x)$ and its generalization in the "pearls" of Sluse, $y^m = kx^n (a - x)^p$.

In 1658 van Heuraet, together with Hudde, was at the Protestant academy of Saumur, where he studied the novel subject of the rectification of curves, inspired by Huygens' discovery in 1657 that the arc length of a parabola can be measured by the quadrature of an equilateral hyperbola (in modern terms, it can be expressed by means of logarithms), reported to van Heuraet by van Schooten in a letter of 28 February 1658, but only in general terms. Van Heuraet then found his own general method of rectification, which he communicated to van Schooten in a letter of 13 January 1659. Van Schooten published this letter in the Latin translation of Descartes's *Géométrie*, then being prepared for publication, under the title "De transmutatione curvarum linearum in rectas," van Heuraet's only published work and the first publication of a general method of rectification, in principle the same as the present . It drew attention for breaking the spell of Aristotle's dictum that curved lines could not in principle be compared with straight ones.

Van Heuraet applied his method especially to the semicubic parabola and the parabola. In a letter of 7 February 1659 to van Schooten he mentioned that he could apply his method to rotation surfaces of quadrics. Huygens and Sluse were delighted but Wallis, in a letter to Huygens (answered 9 June 1659), claimed priority for William Neile, who, he said, rectified the cubic parabola in 1657. This assertion led to the customary priority struggle. Fermat published his general rectification method in 1660—independently, it seems, of van Heuraet.

After a trip to Burgundy and Switzerland, van Heuraet reentered Leiden as a medical student in February 1659. He is mentioned in a letter from Huygens to van Schooten, dated 6 December 1659, as "subtilissimus Heuratus," but after that nothing more is heard of him.

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II. Secondary Literature. A sketch of van Heuraet's life by C. de Waard is in *Nieuw Nederlandsch biographisch woordenboek*, I (Leiden, 1911), 1098–1099. On van Heuraet's rectifications see J. E. Hofmann, "Über die ersten logarithmischen Rektifikationen," in *Deutsche Mathematik*, **6** (1941), 283–304; and M. E. Baron, *The Origins of the Infinitesimal Calculus* (Oxford, 1969), pp. 223–236. On the priority question see C. Huygens, *Horologium oscillatorium* (1673), *Oeuvers completètes*, XVII, 123, and XVIII (1934), 208–210; J. Wallis, *Tractatus duo de cycloide et de cissoide* (Oxford, 1659), *Opera*, I (Oxford, 1695), 551–553; and S. A. Christensen, "The First Determination of the Length of a Curve," in *Bibliotheca mathematica*, n.s. **1** (1887), 76–80. On Fermat's rectification see Michael Mahoney, "Fermat," in *Dictionary of Scientific Biography*, IV (1971), 572–573.

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