La Faille, Charles De | Encyclopedia.com

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(*b*. Antwerp. Belgium, 1 March 1597; *d*. Barcelona, Spain, 4 November 1652)

mathematics.

The son of Jean Charles de La Faille, seigneur de Rymenam, and Marie van de Wouwere, Charles de La Faille received his early schooling at the Jesuit College of his native city. On 12 September 1613 he became a novitate of the Jesuit order at Malines for two years. After ward he was sent to Antwerp where he met Gregory of St. Vincent, who was renowned for his work on quadrature of the circle. La Faille was counted among Gregory's disciples, and in 1620 he was sent to France to follow a course of theology at Dôle, and to teach mathematics. After his return to Belgium in 1626, he taught mathematics at the Jesuit College of Louvain for the next two years. In 1629 he was appointed professor at the Imperial College in Madrid; He departed for Spain 23 March 1629. In 1644 Philip IV appointed him preceptor to his son Don Juan of Austria, whom he also accompanied on his expeditions to Naples, Sicily, and Catalonia. He died in Barcelona in 1652, a month after the capture of the town by Don Juan.

La Failled owed his fame as a scholar to his tract *Theoremata de centro gravitatis partium circuli et ellipsis*, published at Antwerp in 1632. In it the center of gravity of a sector of a circle is determined for the first time. In the first nine propositions each is established step by step. His procedure can be rendered as follows: if β is the angle of a given sector of a circle with radius R, and β is a sufficiently small angle of the same sector, the length

can be made artbitrarily small. For his proof, La Faille supposed that there can be constructed on one of the radii a triangle the area of which is equal to that of the sector. Of the next five propositions the first is especially interesting: If there are three lines *AB, AC*, and *AD*, and the straight line *BCD* cuts the lines given in such a way that *BD: BC* = angle *BAD*: angle *CAD*, then *AD < AC < AC < AB*, if *BAD < CAD*. The proof in Clavius (*De sinibus*, prop. 10); it is also to be found in the first book of the *Almagest*.

In the next eight propositions the author proved that the centers of gravity of a sector of a circle, of a regular figure inscribed in it, of a segment of a circle, or of an ellipse lie on the diameter of the figure. These theorems are founded on a postulate from Luca Valerio's *De centro gravitatis solidorum* (1604). In his proofs, La Faille referred to Archimedes' *On the Equilibrium of Planes or Centers of Gravity of Planes* (book I). Propositions 23–31 lead to the proof that the distance between the center of gravity of a sector of a circle and the center of the circle is less than 2/3 R, but the difference between this distance and 2/3 R can be made arbitrarily small by making the angle of the sector sufficiently small. Proposition 32, the main one of the work, can be rendered as follows: If A is the angle of a sector of a circle with radius R, the center of gravity lies on the bisector, and the distance d to the vertex of the angle of the sector is given by

Propositions 33–37 are consequences of 32, and 38–45 are an extension of the results on a sector and segment of an ellipse. La Faille ended his work with four corollaries which revealed his ultimate goal: an examination of the quadrature of the circle.

BIBLIOGRAPHY

According to C. Sommervogel, *Bibliothèque de la Compagnie de Jésus*, III (Brussels—Paris, 1897), cols. 529–530, there are some more works of La Faille in Spanish, but all of them are manuscripts and nothing is known about their contents. Moreover, there exists the correspondence of La Faille with the astronomer M. van Langren covering the period 20 Apr. 1634–25 Sept. 1645.

A very extensive biography was written by H. P. van der Speeten, "Le R. P. Jean Charles della Faille, de la Compagnie de Jésus, Précepteur de Don Juan d'Autriche," in *Collection de Précis Historiques*, **3** (1874), 77–83, 111–117, 132–142, 191–201, 213–219, and 214–246. Some information on his life and work can be found in A. G. Kāstner, "Geschichte der Mathematik," **2** (Göttingen, 1797), 211–215; H. G. Zeuthern, "Geschichte der Mathematik im 16. und 17. Jahrhundert" (Leipzig, 1903), pp. 238–240.

See also H. Bosmans, "Deux lettres inédites de Grégoire de Saint-Vincent publiées avec des notes bibliographiques sur les oeuvres de Grégoire de Saint-Vincent et les manuscrits de della Faille," in *Annales de la Société Scientifique de Bruxelles*, **26** (1901–1902), 22–40; H. Bosmans, "Le traité 'De centro gravitatis' de Jean-Charles della Faille," *ibid*., **38** (1913–1914), 255–

317; H. Bosmas, "Le mathématicien anversois Jean-Charles della Faille de la Compagnie de Jésus," in *Mathésis*, **41** (1927), 5–11; and J. Pelseneer, "Jean Charles de la Faille (Anvers 1597—Barcelona 1652)," in *Isis*, **37** (1947), 73–'74.

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