

Mydorge, Claude | Encyclopedia.com

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(b. Paris, France, 1585; d. Paris, July 1647)

mathematics, physics.

Mydorge belonged to one of France's richest and most illustrious families. His father, Jean Mydorge, *seigneur* of Maillarde, was *conseiller* at the Parlement of Paris and judge of the Grande Chambre; his mother's maiden name was Lamoignon. He decided to pursue a legal career and was, first, *conseiller* at the Châtelet, then treasurer of the *généralité* of Amiens. In 1613 he married the sister of M. de la Haye, the French ambassador at Constantinople. His duties as treasurer left him sufficient time to devote himself to his passion, mathematics.

About 1625 Mydorge met Descartes and became one of his most faithful friends. In 1627, to aid Descartes in his search for an explanation of vision. Mydorge had parabolic, hyperbolic, oval, and elliptic lenses made for him. He also determined and drew their shapes with great precision. He subsequently had many lenses and burning glasses made. It was said that altogether he spent more than 100,000 écus for this purpose.

After a thorough study of Descartes's *Dioptrique*. Mydorge at first criticized the book on various points but later completely adopted his friend's theories. Fermat, however, in 1638, wrote to Mersenne to refute the *Dioptrique*. On 1 March 1638 (see *Oeuvres de Descartes*, C. Adam and P. Tannery, eds., II, *Correspondance*, 15–23) Descartes sent a long letter to Mydorge—he knew that the latter had openly taken his side in the dispute—in which he provided him with the seven documents relating to the case and asked him to be judge and intermediary. He also asked Mydorge to make a copy of the letter and send the original to Fermat's friends Étienne Pascal and Roberval. (It should be noted that Fermat's correspondence indicates that Pascal and Roberval were in no way his friends.) Through the good offices of Mydorge and Mersenne, Descartes and Fermat were reconciled.

Mydorge was held in high regard by other famous contemporaries; for instance, on 2 March 1633 Peiresc wrote from Aix to Gassendi, who was then at Digne: "If you have any special observations by M. Mydorge, you would do me a great favor by communicating them to me"(see Galileo Galilei, *Opere* [Edizione nazionale], XVIII [Florence, 1966], 430).

Mydorge's work in geometry was directed to the study of conic sections. In 1631 he published a two-volume work on the subject, which was enlarged to four volumes in 1639. The four volumes were reprinted several times under the title *De sectionibus conicis*. A further portion of the work, in manuscript, is lost. It seems that two English friends of the Mydorge family, [William Cavendish](#), duke of Newcastle, and Thomas Wriothesley, earl of Southampton, took it to England, where apparently it disappeared.

In his study of conic sections Mydorge continued the work of Apollonius, whose methods of proof he refined and simplified. Among the ways of describing an ellipse, for example, two from volume II may be cited. According to the first definition, an ellipse is the geometric locus of a point of a straight line the extremities of which move along two fixed straight lines. (This definition had already been demonstrated by Stevin, who attributed it to Ubaldi; actually, it goes back to antiquity, as Proclus indicates in his commentaries on Euclid.) According to the second definition, the ellipse can be deduced from a circle by extending all its ordinates in a constant relationship. In the same book Mydorge asserts that if from a given point in the plane of a conic section radii to the points of the curve are drawn and extended in a given relationship, then their extremities will be on a new conic section similar to the first. This statement constitutes the beginnings of an extremely fruitful method of deforming figures; it was successfully used by La Hire and Newton, and later by Poncelet and, especially, by Chasles, who named it *déformation homographique*.

Mydorge posed and solved the following problem in volume III: "On a given cone place a given conic section"—a problem that Apollonius had solved only for a right cone. Mydorge was also interested in geometric methods used in approximate construction, such as that of the regular heptagon. Another problem that Mydorge solved by approximation—although he did not clearly indicate his method—was that of transforming a square into an equivalent regular polygon possessing an arbitrary number of sides.

Mydorge's works on conic sections contain hundreds of problems published for the first time, as well as a multitude of ingenious and original methods that later geometers frequently used, usually without citing their source. The collection of Mydorge's manuscripts held by the Académie des Sciences contains more than 1,000 geometric problems. Finally, it should be noted that the term "parameter" of a conic section was introduced by Mydorge.

A friend of Descartes and an eminent geometer, Mydorge was also well versed in optics. He possessed a lively curiosity and was open to all the new ideas of his age. Like Fermat, he belonged to that elite group of seventeenth-century scientists who pursued science as amateurs but nevertheless made contributions of the greatest importance to one or more fields of knowledge.

BIBLIOGRAPHY

I. Original Works. Mydorge's first major writing, *Examen du livre des Récréations mathématiques* (Paris, 1630; repr. 1643), with notes by D. Henrion, is a commentary on *Récréations mathématiques* (Pont-à-Mousson, 1624), published under the pseudonym H. Van Etten (actually Leurechon).

The second was *Prodromi catoptrorum et dioptrorum, sive conicorum operis ... libri duo* (Paris, 1631), enlarged to *Conicorum operis ... libri quattuor* (Paris, 1639, 1641, 1660), also issued as *De sectionibus conicis, libri quattuor* (Paris, 1644), which Mersenne inserted in his *Universae geometriae, mixtaeque mathematicae synopsis ...* (Paris, 1644).

A selection of the geometry problems preserved in Paris was published by C. Henry in *Bullettino di bibliografia e di storia delle scienze matematiche e fisiche*, **14** and **16**. Mydorge's son assembled three short treatises from his father's MSS—*De la lumière*, *De l'ombre*, and *De la sciottérique*—but all trace of them has been lost.

II. Secondary Literature. See the following, listed chronologically: C. G. Jöcher, *Allgemeines Gelehrten-Lexicon*, III (Leipzig, 1751), 787; *Biographie universelle*, XXIX (Paris, 1860), 666; *La grande encyclopédie*, XXIV (Paris, 1899), 657; M. Chasles, *Aperçu historique sur l'origine et le développement des méthodes en géométrie* (Paris, 1889), 88–89; and M. Cantor, *Vorlesungen über Geschichte der Mathematik*, II (Leipzig, 1913), 673–674, 768–769.

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