

Camus, Charles-Étienne-Louis I

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(b. Crécyen-Brie, France, 25 August 1699; d. Paris, France, 4 May 1768),

mathematics, mechanics, astronomy.

Camus was the son of Marguerite Maillard and Étienne Camus, a surgeon. He early evidenced mathematical and mechanical abilities that induced his parents to send him to the Collège de Navarre. He subsequently continued to study mathematics (with Varignon) and also undertook work in civil and military architecture, mechanics, and astronomy.

In 1727 Camus entered the Academy of Sciences' prize competition for the best manner of masting vessels. His memoir on this subject won half the prize money and was published by the Academy; more important, it was mainly responsible for bringing him election to that body as an assistant mechanician on 13 August 1727.

During the next forty years Camus served the Academy as administrator (he was its director in 1750 and 1761), as frequent commissioner for diverse examinations, and as active scientist. In the last capacity he presented some purely mathematical memoirs, although the greatest number of his contributions dealt with problems of mechanics. These included treatments of toothed wheels and their use in clocks, studies of the raising of water from wells by buckets and pumps, an evaluation of an alleged solution to the problem of perpetual motion, and works on devices and standards of measurement. His most important scientific service was with Maupertuis, Clairaut, and Lemonnier on the Academy's 1736 expedition to Lapland to determine the shape of the earth. He subsequently served with the same people to determine the amplitude of the arc of Picard's earlier measure and, several years later, with Bouguer, Pingré, and Cassini de Thury in closely related operations. He was also involved in Cassini de Thury's famous cartographical venture, which produced the *Carte de la France* published by the Academy in 1744–1787.

In 1730 Camus was named to the Academy of Architecture and became its secretary shortly thereafter. There he gave public lessons to aspiring architects as the Academy's professor of geometry. These lessons later served as the basis of a *Cours de mathématiques* that he drew up for the use of engineering students, a task he assumed in 1748 in conjunction with the creation of the École du Génie at Mézières. A standard examination procedure was also established, and Camus was named the examiner of engineering students.

According to his instructions, Camus's course was to consist of four parts—arithmetic, geometry, mechanics, and hydraulics; the *Cours*, published in three parts from 1749–1751, covered all but the last. (Among the large number of manuscripts left at his death were a work on hydraulics, apparently intended to complete the *Cours*, and a treatise on practical geometry differing from what he had published.) In 1755, when Camus was also named the examiner for artillery schools, this *Cours* became the standard work for artillery students. Its great success was, therefore, due more to Camus's monopoly on examinations than to its intrinsic merit. In point of fact, the *Cours* came under increasing attack in the 1760's as inappropriate for artillery students and too elementary for those at Mézières.

BIBLIOGRAPHY

I. Original Works. Although published separately in 1728, Camus's prize-winning "De la m^oture des vaisseaux" is most conveniently found in *Pièces qui ont remporté les prix de l'Académie royale des sciences*, 11 (Paris, 1732). His subsequent contributions to the *Mémoires de l'Académie royale des sciences* include the mathematical notices "Solution d'un problème de géométrie, proposé par M. Cramer, Professeur de mathématiques à Genève" (1732), 446–451; and "Sur les tangentes des points communs à plusieurs branches d'une meme courbe" (1747), 272–286; the notice on mechanics "Sur la figure des dents des rouës, et des ai les des pignons, pour rendre les horloges plus parfaites" (1733), 117–140; "Sur l'action d'une balle de mousquet, qui perce une pièce de bois d'une épaisseur considerable sans lui communiquer de vitesse sensible" (1738), 147–158; "De la meilleure manière d'employer les séaux pour élever del'eau" (1739), 157–188; "Sur les meilleures proportions des pompes, et des parties qui les composent" (1739), 297–332; "Sur un problème de statique, qui a rapport au mouvement perpétuel" (1740), 201–209; "Sur un instrument propre à jauger les tonneaux et les autres vaisseaux qui servent à jauger les tonneaux et les autres vaisseaux qui servent" (1741), 382–402; and, with Hellot, "Sur l'étalon de l'aune du Bureau des Marchands Mercier de la ville de Paris" (1746), 607–617; and the geodetic report, with P. Bouguer, C. F. Cassini de Thury, and A. G. Pingré, "Opérations faites par l'ordre de l'Académie pour mesurer l'intervalle entre les centres des pyramides de

Villejuive et de Juvisy, en conclure la distance de la tour de Montlhéri au clocher de Brie-Comte-Robert, et distinguer entre les différentes déterminations que nous avons du degré du méridien aux environs de Paris, celle qui doit être préférée” (1754), 172–186.

The *Cours de mathématiques* appeared as *Éléments d’arith-métique* (Paris, 1749), *Éléments de géométrie théorique et pratique* (Paris, 1750), and *Éléments de mécanique statique*, 2 vols. (Paris, 1750–1751).

II. Secondary Literature. The standard biographical sources on Camus are the *éloge* by Grandjean de Fouchy in *Histoire de l’Académie royale des sciences* (Paris, 1768), pp. 144–154; and Théophile Lhuillier, “Essai biographique sur le mathématicien Camus, né à Crecy-en-Brie,” in *Almanach historique de Seine-et-Marne pour 1863* (Meaux, 1863). A brief evaluation of his work, but with several errors, is available in Niels Nielsen, *Gémètres françois dudixhuitième siècle* (Paris, 1935), pp. 81–83. For more important considerations of his *Cours* and his role as examiner, see Roger Hahn, “L’enseignement scientifique aux écoles militaires et d’artillerie.” in *Enseignement et diffusion des sciences en France au XVII^e siècle*, René Taton, ed. (Paris, 1964), pp. 513–545; and René Taton, “L’ École royale du Génie de Mézières.” *ibid.*, pp. 559–615.

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