Fabri, Honoré, or Honoratus Fabrius | Encyclopedia.com

(*b*. Virieu-le-Grand, Dauphiné, France, 5 April 1607; *d*. Rome, Italy, 8 March 1688)

mathematics, natural philosophy.

Fabri came from a family of judges in Valromey that was probably related to the Vaugelas family.[1] Following his studies at the *institut* in Belley, he entered the Jesuit novitiate in Avingnon on 18 October 1626, remaining until 1628. In the fall of that year he went to the Collégèe de la Trinité[2] in Lyons, where he completed his course in Scholastic philosophy under Claude Boniel. After teaching for two years at the *collège* in Roanne,[3] he returned to Lyons in 1632 in order to begin his course in theology, which he finished—following his ordination as a priest in 1635—in 1636. In the latter year he was named professor of logic at the *collège* in Arles, where for two years he gave lectures on philosophy that included natural philosophy as well. It was at this time that he discovered—independently of Harvey—the circulation of the blood, which he taught publicity.[4]

Besides being prefect at the *collège* in Aix-en-Provence (1638–1639), Fabri was leader of a sort of circle that, among other things, brought him the acquaintance of—and a long-lasting correspondence with—Gassendi. He was then recalled to Lyons to finish his third year of probation under P. Barnaud and in 1640 was promoted to professor of logic and mathematics, and also to dean, at the Collège de la Trinité.

During the following six years Fabri taught metaphysics, astronomy, mathematics, and natural philosophy. This period was the most brilliant and fruitful of his life; several books that he published later were developed from lectures delivered during this time. Fabri was the first of many famous professors produced by the Collège de la Trinité: his students included Pierre Mousnier, who later edited many of his teacher's lectures; the mathematician François de Raynaud,[5] who became famous through his friendship with Newton; Jean-Dominique Cassini; and Philippe de La Hire. Claude Dechales[6] and the astronomer and mathematician Berthet were also members of this circle. Among these scholars and the two Huygenses (father and son), Leibniz, Descartes, Mersenne, and others an active correspondence developed.

The foci of Fabri's tremendous activity were almost all urgent questions of the science of his day; heliocentrism, Saturn's rings, the theory of the tides, magnetism, optics, and kinematics. In mathematics, infinitesimal methods and the continum problem were most prominent.

Fabri's favorable reception of creation Cartesian conceptions[7] embroiled him in an intense controversy with his superiors, which finally led to his expulsion from Lyons and his transfer to Rome, where he arrived on 12 September 1646. Although his stay was supposed to be only provisional, he was made a member in the same year of the Penitentiary College (the Inquisition). He served on that body, finally as Grand Inquisitor, for thirty-four years. Despite his important work in Church politics and theology—Fabri was considered the first expert on Jansenism—there was still time for his wide-ranging scientific research.

In mathematics, Fabri showed that despite the influence of Cavalieri and Torricelli, he was an independent and original thinker. This is clear from his principal mathematical work, *Opusculum geometricum*. Through the functional reinterpretation of Cavalieri's concept of indivisibles by means of a dynamically formulated concept of *fluxus*, Fabri approached similar ideas put forth by Newton. Fabri, however, was not able to free himself of a rather cumbersome, purely geometrical representation. In his *Synopsis geometrica* he developed a method of teaching based on his concept of *fluxus* and was not unsuccessful in using his somewhat inadequately formulated principle of homogeneity in his investigations on infinitesimals.

The *Opusculum geometricum* contains, besides an ingenious quadrature of a cycloid which Leibniz found inspiring, various quadratures and cubatures that amount to special cases of $\int x^n \sin x\,dx$, $\int \sin^p x\,dx$, and $\iint \arcsin x\,dx\,dy$, as well as centroid determinations of sinusoidal and cyclodial segments together with their elements of rotation about both axes. The book doubtless originated in connection with the controversy over cycloids and Pascal's challenge.

In Rome, Fabri became acquainted with Michel Angelo Ricci, who recommended him to the Medici Grand Duke Leopold II. The latter made Fabri a corresponding member of the Accademia del Cimento. In 1660, with an anonymous work,[8] Fabri opened the controversy with Huygens over Saturn's rings which, after five years and a great expenditure of energy, was decided in Huygens' favor. Fabri was a fair opponent: he apologized and openly adopted Huygens' opinion. In the *Brevis*

annotatio is a note that reads, more or less, “As long as no strict proof for the motion of the earth has been found, the Church is competent to decide [the issue]. If the proof, however, is found, then there should be no difficulty in explaining that the relevant passages in the Bible must be interpreted in a more symbolic sense.” This statement would perhaps have been tolerated later, under Pope Clement IX, on whom Fabri had a strong influence; under Alexander VII, however, it brought Fabri (as a member of the Holy Office) fifty days in prison, and his release was effected only through the intervention of Leopold II. Yet this did not prevent the combative Jesuit from inserting into his *Dialogi physici* (1665) a chapter entitled “De motu terrae.” It was also in 1665 that Fabri discovered the Andromeda nebula, which he at first thought was a new comet.

In natural philosophy Fabri was less fortunate than in mathematics. Nevertheless, the following achievements are noteworthy: the constant use of concept of static moment; an attempted explanation of tidal phenomena based on the action of the moon, even though it involved air pressure as the medium; an explanation of the blue color of the sky based on the principle of dispersion; and investigations on capillarity. His attempted explanation of cohesion, however, was completely unsuccessful.

In 1668 Fabri began a year’s sick leave in Virieule-Grand, where he supervised the publication of various of his works. He continued to work in the Holy Office in Rome until 1680. The last eight years of his life he spent a short distance outside the city, devoting himself to historical studies.[9]

Aside from the individual scientific achievements mentioned, Fabri’s efforts to introduce a priori methods in natural philosophy as well as in philosophy are important historically,[10] as is his lasting influence on Leibniz, who richly recompensed Fabri with his friendship. Newton, for his part, mentioned in his second paper on light and colors that he first learned of Grimaldi’s experiments through the medium of “some Italian author,” whom he identified as Fabri in his dialogue *De lumine*.[11]

NOTES

1.*See* Gassendi’s letter to Mousnier of 1 October 1665, published in Fabri’s *Cours de philosophie* (Lyons, 1646).

2. The Collège de la Trinité was transferred by the aldermen of Lyons to the Jesuits in 1565 but was closed in 1594, following the attempt by the Jesuits’ pupil Jean Châtekl on the life of Henry IV. The Jesuits were expelled from France but returned in 1604 and reestablished the college; it was not completed, however, until 1660.

3. In 1634, at the age of ten, François de La Chaise (later the Jesuit Père Lachaise) entered this *collège*; he was later bound to Fabri by close friendship and an active correspondence.

4. See *Journal des sçavans* (1666), pp. 395–400.

5. Also known as Regnauld and Reynaud.

6. Also known as de Chales.

7.*See* D.-G. Morhof, *Polyhistori litterarum*, II (Lübeck, 1690), 115; and Adrien Baillet, *La vie de Descartes*, II (Paris, 1691), 299.

8.*Eustachii de divinis septempedani brevis annotatio in systema Saturnium Christiani Hugenii* (Rome, 1660).

9. The manuscripts of the last creative period, most of them unpublished, are in the library of the city of Lyons.

10.*See* Léibniz’s letter to Johann Bernoulli, dated 15 October 1710, in *Leibniz’s mathematische Schriften*, C. I. G. Gerhardt, ed., III (Halle, 1856), 856.

11. Newton to Oldenburg, 7 December 1675, in H. W. Turnbull, ed., *The Correspondence of Isaac Newton*, I (Cambridge, 1959), 384.

BIBLIOGRAPHY

I. Original Works. Fabri’s mathematical writings include *Opusculum geometricum de linea sinuum et cycloide* (Rome, 1659), written under the pseudonym “Antimus Farbius”; and *Synopsis geometrica* (Lyons, 1669), to which is appended *De maximis et minimis in infinitum propositionumcenturia*, written in 1658/1659. These works, as well as the minor *Brevis synopsis trigonometriae planae* (1658/1659) are discussed in Fellmann, below.

Fabri’s works in natural philosophy are *Tractatus physicus*... (Lyons, 1646); *Dialogi physici*... (Lyons, 1665); *Synopsis optica* (Lyons, 1667); *Dialogi physici*... (Lyons, 1669); and *Physica* (Lyons, 1669).

II. Secondary Literature. On Fabri's work, see Carlos Sommervogel, *Bibliothèque de la Compagnie de Jésus*, III (Paris-Brussels, 1892), 512–522, which contains an extensive bibliography; and E. A. Fellmann, "Die mathematischen Werke von Honoratus Fabry" in *Physis* (Florence), **1–2** (1959), 6–25, 69–102.

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