# Father marin mersenne and the new mathematical approach during the scientific rev...

History, Revolution

Studying the lives of Mathematicians leads to interesting insight into not only their personal lives and the original details of their theories, but also the circumstances in which those theories developed. The origin of many mathematical ideas and theories often reveal important influences such as through interaction with other mathematicians and other people, and relation to other ideas and events, and socio-cultural influences.

This brief study examines the mathematical life of the respected Parisian Minimite Friar (Father) Marin Mersenne (1588-1648) within the context of what was going on in the world at the same time, focusing on the Scientific Revolution of 17th century Europe. It is shown that rather than being influenced by others, Father Marin Mersenne was himself very influential in the lives of many intellectuals, and instrumental in furthering the new mathematical approach and scientific thinking in general. However, it is precisely this scientific thinking that impelled him to promote it, and the need to defend his theology.

Father Marin Mersenne was a contemporary of the mathematicians Thomas Harriot, Blaise Pascal and Isaac Newton, being older than the last two but died when Newton was a child. He was also a close friend of Descartes and Fermat (Smith, 1951). In fact, he was in touch with many other mathematicians as well such as Roberval, Torricelli, Desargues, and Huygens. This is because of his role for serving “ as a clearing house for mathematical information” (Boyer, 1991: 334) through correspondence and meetings. It was also his extensive travels that enabled him to act as the prominent channel of communication (Borowski & Borwein, 1989: 375),

which included Rome. It is said, “ when Mersenne knew something, the whole of the ‘ Republic of Letters’ was shortly informed about it” (ibid). Consequently, much of the unity in mathematical interests at the time is attributable to Mersenne.

His own famous contribution to Mathematics was development of the ‘ Mercenne numbers’ that are primes of the form 2p-1 where p is itself a prime; important to number theory (Selkirk, 1992: 34). In addition, he inspired the invention of the pendulum clock (Borowski & Borwein, 1989: 375). However, Father Marin Mersenne was most influential in disseminating the mathematical ideas of others. For example, it was due to Mersenne that Galileo’s ideas on the path of a falling object on a rotating earth, was widely discussed in France (ibid: 342). Similarly, some of Fermat’s works on analytic geometry, and Descartes’ analysis of inverse tangent problems, were made known in France and Italy through Mersenne. For Fermat, Mersenne was the prime source for disseminating his thoughts. Mersenne was also responsible for engaging mathematicians at the time on the cycloid. Were it not for the tireless efforts of Father Mersenne, many scientific discoveries of the 17th century would not have been known so widely (Young & Minerovic, 1998).

The question is what impelled Father Marin Mersenne? His philosophical stance was most likely influenced by Aristotle, because he was known to be a staunch defender of him against attacks “ by those who would replace him by a new philosophy” (Garber, 2004). He also set out to expose what intellectuals at the time considered as “ the unfounded and unexplained sciences” (Karjala, 2002), namely astrology and alchemy. To him, the Renaissance revival of the doctrine of anima mundi, i. e. that matter is

imbued with life, and linking God with nature was a dangerous trend because it legitimized magical beliefs and practices (Shapin, 1996: 43). This naturalism could potentially dispel the explanatory role of God, so he considered it a duty to promote the mechanistic view in which matter is seen as passive. Furthermore, Father Mersenne himself was influenced by the view seeing " the existence of certainty in knowledge" (David, 2007: 34), and specifically promoted Mathematics as " the most certain and permanent form of earthly knowledge" (ibid: 32).

References

Borowski, E, J. and Borwein, J. M. (1989). Collins Dictionary of Mathematics. Great Britain, Harper Collins Publishers.

Boyer, Carl B. (1991). A History of Mathematics. New York, John, Wiley & Sons, Inc.

David, Paul A. (2007). The Historical Origins of Open Science: An essay on patronage, reputation and common agency contracting in the scientific revolution. Retrieved November 20, 2009 from http://www-siepr. stanford. edu/workp/swp06008. pdf.

Garber, Daniel. (2004). On the Frontlines of the Scientific Revolution: How Mercenne Learned to Love Galileo. Perspectives on Science. Vol. 12, No. 2, pp. 135-163.

Karjala, Rodney S. (2002). Marin Mersenne. Wichita State University, Department of Mathematics and Statistics, Math 750J Project. Retrieved November 20, 2009 from http://www. math. wichita. edu/history/men. html.

Selkirk, Keith. (1992). Mathematics Handbook. York Press, Longman.

Shapin, Steven. (1996). The scientific revolution. University of Chicago Press.

Smith, David Egene. (1951). History of Mathematics. Vol. 1: General Survey of the History of Elementary Mathematics. New York, Dover Publications. Retrieved November 20, 2009 from http://www. archive. org/stream/historyofmathema033304mbp/historyofmathema033304mbp_djvu. txt.

Young, Robyn V. and Minerovic, Zoran. (1998). Notable Mathematicians: From Ancient Times to the Present. Gale Research.