

Thomas Jefferson – The Mathematician?

When one hears the name “Thomas Jefferson,” many historical topics—such as the Declaration of Independence, the third president of the United States, and the founding fathers of this country—come to mind. What does not come to mind is his avid interest for mathematics. It is true that we are indebted to Jefferson for establishing the governing principles of this country; however, it is likely true (and very much unknown) that we are indebted to his works in mathematics and its role in education in the United States of America.

Thomas Jefferson had four main accomplishments in mathematics. First, he took mathematics from the ranks of a secondary subject and raised it to such a prominence in the curriculum of the University of Virginia that it was not seen at any other college in the United States at the time. Through Jefferson’s influence, men like J.J. Sylvester, in 1841 (though unsuccessful), were recruited to build up the mathematics courses at the University of Virginia.

In addition to raising mathematics to new heights educationally, Jefferson also established a military academy. This academy at West Point was influential in adopting mathematics in the French style, which led to a more progressive system of learning compared to that of English schools. Jefferson also added rigorous mathematics courses to the curriculum at West Point. The addition of French mathematics to the curriculum tied the United States with Europe and led the way for American leaders in mathematics.

Third, Jefferson’s ties with Europeans made it possible to study the achievements of foreign scholars. His final accomplishment involved his contributions; his works interested young scholars in the United States and allowed mathematical research to grow.

Many of his works related to mathematics are found in his correspondence with known mathematicians. He sent letters to David Rittenhouse in which he described a telescope made with a rustproof metal. Another set of correspondence to Rittenhouse tells about a plan he had to establish standard weights, measures, and coins for the United States; his plan was based on the decimal system, where the positions of the numbers are the same as they are today, but he used ‘ D ’ instead of the present ‘ $\text{\$}$ ’ as the monetary symbol. In yet another letter to Rittenhouse, he questioned whether Isaac Newton was off by one one-thousandth in his calculations found in the *Principia* tables. Jefferson had performed Newton’s calculations more accurately than Newton!

During his time in Paris, Jefferson showed a clever appreciation for the work of Joseph Louis Lagrange. In his correspondence to James Madison, he showed a high interest in astronomy because he recognized the work done on a newly discovered planet and on solar eclipse calculations.

In a letter to Nathaniel Bowditch, he sets some of the original plans of what later became the University of Virginia and asks Bowditch to accept a mathematics professorship at a base of \$1500 and \$25 from each student he teaches. An interest in geodesy is shown in his designs for the buildings and the campus grounds of the University of Virginia; he truly had great architecture and landscape designing skills.

Regarding education, correspondence with his friend and former teacher George Wythe remarked on how geometrical demonstrations should be used to teach students. He also pointed out that the general principles of trigonometry, astronomy, botany, chemistry, natural philosophy, natural history, and anatomy should be known by every man.

It is difficult to conclude a piece on such a pioneer of education in the United States. I believe, though, that David Eugene Smith sums it best in the following passage:

It is apparent that Jefferson was not a mathematician but that he was a man who appreciated the beauties, the grandeur, the values, the classics, and the uses of mathematics and did much to give to the science a recognized standing as a university subject. (p. 70)

Source:

David Eugene Smith, "Thomas Jefferson and Mathematics," in *The Poetry of Mathematics and Other Essays*, Yeshiva University, Scripta Mathematica, New York, 1934.

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