

# Fermat to Clerselier

Sunday, May 21, 1662

SIR,

I received your two letters of the sixth and thirteenth of May at the same time. They did me more honor than I could reasonably have expected, and far from being shocked by your Latin words, I am convinced that in the assumption of your thoughts on the subject of the demonstration of M. Descartes, there has been nothing more truthful anywhere else in your letters.<sup>1</sup>

For if this demonstration is made according to the rules of certain and infallible demonstrations, then nothing is more true than to say that those who are not convinced by it do not understand it. The essential quality of a demonstration is to force belief, such that those who do not feel this force, do not feel the demonstration itself, which is to say that they do not understand it.

Therefore, sir, I attribute this mollification that the Gentleman of your Assembly have inspired in you, only to an excess of courtesy and civility, and I give you my very humble thanks.

For the main question, it seems to me that I have often told both you and M. de la Chambre that I neither claim nor have ever claimed to be in the secret confidence of Nautre. She has obscure and hidden ways that I have never tried to penetrate; I have only offered her a small help with geometry on the subject of refraction, if she were ever to have need of it. But since you assure me, Sir, that she can manage her affairs without this and that she is happy enough with the movement that M. Descartes has dictated to her, I give up to you with no ill-feelings my supposed conquest of physics, and it is enough for me that you leave me in possession of my geometry problem, completely pure and *in abstracto*, by means of which one can find the path

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<sup>1</sup>i.e., Fermat did not understand, because there was nothing comprehensible in Descartes' non-demonstration.

of a moving body which passes through two different media and which tries to complete its movement as soon as it can.

And would the marvel not be greater, if we were to assume that I wrongly discovered the reasoning of Nature? For can you imagine anything more surprising than what happened to me? I wrote, more than ten years ago,<sup>2</sup> to M. de la Chambre, that I believed that refraction must be reduced to this geometry problem, and I was convinced at that time that the analysis of this problem would give me a proportion different than that of M. Descartes. And nevertheless, in attacking the problem, which is reasonably difficult, I discovered, ten years later, exactly the same proportion as M. Descartes.

If I have told a lie, have I not some reason for thinking that it is one of these famous lies of which it is said in Tasso, as I have already written you:<sup>3</sup>

Quando sarà il vero  
Si bello, che si possa a ti preporre?

And for the rest, I cross my arms. Only allow me here, if you please, to assure M. Chanut and M. the Abbot of Issoire, his son, of my very humble obedience: I do not have the honor of being acquainted with the father,<sup>4</sup> but why should I be the only person in Europe not to hold him in total veneration?

I am, Sir,

Your very humble and very obedient servant,  
FERMAT.

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<sup>2</sup>If Fermat's memory is correct, he is referring to a letter which is now lost. The letter in his collected correspondence is from five and a half years earlier.

<sup>3</sup>When shall the truth be so beautiful, that it might be placed before you? See Fermat to Clerselier, March 10, 1658.

<sup>4</sup>The father, Hector Pierre Chanut, was the French ambassador to Sweden, and Clerselier's brother-in-law.