

From the Editors

It is a great opportunity to live in a time of human history giving one the chance to present profound and impassioned ideas respecting Man and nature, ideas which shape the existence of human civilization in a way completely different from the organization of any animal group. The now widely apparent bankruptcy of the global monetary-financial system brings an intense, personal need for discussion of economic method, and frees the mind from adherence to what had been considered “standard doctrine.” The opportunity for seeming freshness confronts us, and we must take advantage of it. We must guide ourselves upon the correct, seemingly new path.



Lyndon LaRouche, whose discovery in physical economy is the inspiration for this Journal, gives us a deeply personal insight into his adolescent recognition of the genius of Leibniz, in his *My Early Encounter With Leibniz's Monadology*. He states that “I sense... the duty of identifying some of the most important among the deeper roots of those most precious conceptions now urgently needed for the use of the leading intellectual strata of representatives of present adolescent and young adult generations.” As we approach ever nearer to the brink of the abyss of economic disintegration, Lyndon LaRouche gives us a gift, like a poem, compact, and intended to unfold its full beauty over time.

Lyndon LaRouche originally wrote this paper while a team of his young adult associates were working intensively on a project to uncover Pierre de Fermat's discovery of the cause for the refraction of light. This paper provided them with an important point of reflection as they worked to uncover the true history of science.

The war between Descartes and Fermat over the refraction of light is a topic of scientific controversy that clearly and explicitly puts the most profound questions of the nature of the human mind in the foreground, and it is a delight to have a talented expositor to bring these implications to life. We are pleased to present Sarah Stuart's treatment of Pierre de Fermat's discovery of the least-time principle of the propagation of light, in her *Reflecting on History*.¹ Fermat's discovery is profound not simply for its implications for the study of the apparently “external” world that is usually considered the domain of scientific research: its genesis is the result of a conclusive experiment on the proper functioning of the human mind.

¹ For the full correspondence of Fermat on this topic, see the August 2008 Δυναμῆς sourcebook: <http://www.wlym.com/~seattle/dynamis/>.

Hypotheses are not independent from the mind that creates them.

Stuart takes us through the inside story on the development of Fermat's principle, beginning with Descartes' remarkably incompetent explanations of light, moving through Fermat's objections, and arriving at Fermat's inspiration and breakthrough. The cause of light's changing path in refraction could not be sought in the change of media as an event itself; rather, the principle had to govern the entirety of the phenomenon of light. Light can only move along pathways of “shortest time.”

The controversy raised by this declaration was not about whether his hypothesis were true: the bile with which he was attacked by the Cartesians demonstrated their unwillingness to consider that the human mind was capable of discovering the principles governing the universe, principles that can only be conceived of as being the same form as our uniquely human *ideas*. For them, nothing corresponding to a human idea could be responsible for the universe's organization, but rather only mathematics and the goad of proximal corporeal causes. Fermat-follower Gottfried Leibniz rejects the Cartesian approach, and writes in his *Specimen Dynamicum*,

All phenomena are indeed to be explained by mechanical efficient causes, but... these mechanical laws are themselves to be derived in general from higher reasons...

And:

It must be maintained in general that all existent facts can be explained in two ways – through a kingdom of *power* or *efficient causes* and through a kingdom of *wisdom* or *final causes*; that God regulates bodies as machines in an architectural manner according to laws of *magnitude* or of *mathematics* but does so for the benefit of souls and that he rules over souls, on the other hand, which are capable of

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wisdom, as over citizens and members of the same society with himself, in the manner of a prince or indeed of a father, ruling to his own glory according to the *laws of goodness or of morality*.

Looking to Fermat's future in Leibniz, we can better appreciate his breakthrough in freeing mankind from the contemporarily increasingly hegemonic Cartesian outlook of a separation between mind and body, between soul and world, between time and space. The one world, physical space-time, is not a world in which human thought is an uninvited, somewhat louche and intrusive outsider, but one in which we have a role to play in continuing and perfecting Creation. This is the Riemannian outlook that Lyndon LaRouche applies to economics, and his success has been demonstrative.

The relation of the human mind to the world about us is not a philosophical issue that can be safely set aside when getting down to the nuts and bolts of "real science;" rather, that *is* the essence of anything deserving the name of science. Forcefully rejecting the Cartesian chaff allows the mind to explore a very fertile field, whose further cultivation will be planned by the associates of Lyndon LaRouche.

Be fruitful!

The Editors,
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Pierre de Fermat giving Descartes a good plucking.