perfected by Descartes himself in the application of Algebra—the general arithmetic of the Arabians—to Geometry; it changed the latter from a science which, though rigorous, was somewhat casual, to a methodical doctrine by which configurations in space could be generally and exhaustively treated. It must indeed have been a seductive prospect for those acquainted with the great development of mathematical science which followed the invention of the analytical and infinitesimal methods to acquire in the uncertain regions of philosophic thought the grasp and mastery exhibited by the mathematical sciences. Nearly all the great Continental, notably the French, thinkers of the seventeenth and eighteenth centuries came more or less under the spell of this idea. That it did not exert a similar spell in this country was largely owing to the fact that here the foremost mathematical genius, Newton, retained in his immortal works the synthetic methods of the ancients, which in the hands of all but the very greatest mathematicians remained specific and did not rise to abstract generality.[1]

The detailed arguments by which Descartes elaborated the two main principles of his philosophy, viz., that certainty can be found only in and by thinking, and

[1] The synthetic methods of the ancients which were, following the example of Newton, retained for a long time in the teaching of higher mathematics in this country, attained nevertheless, under the hands of French geometricians (notably of Monge and Poncelet in the beginning of the nineteenth century) a systematisation equal in importance to the analytical principle of Descartes. This was by means of the 'Principle of Projection.' An analytical interpretation of this principle led in the course of the nineteenth century to an approximation of the two methods and in the sequel to an extraordinary development of mathematical thought and knowledge (see vol. ii. of this History, p. 658 *sqq.*)