

by reason, that all science requires mathematics. And the arguments which are used to establish this doctrine, show a most just appreciation of the office of mathematics in science. They are such as follows:—That other sciences use examples taken from mathematics as the most evident:—That mathematical knowledge is, as it were, innate to us, on which point he refers to the well-known dialogue of Plato, as quoted by Cicero:—That this science, being the easiest, offers the best introduction to the more difficult:—That in mathematics, things as known to us are identical with things as known to nature:—That we can here entirely avoid doubt and error, and obtain certainty and truth:—That mathematics is prior to other sciences in nature, because it takes cognizance of quantity, which is apprehended by intuition (*intuitu intellectus*). ‘Moreover,’ he adds,¹⁷ ‘there have been found famous men, as Robert, bishop of Lincoln, and Brother Adam Marshman (de Marisco), and many others, who by the power of mathematics have been able to explain the causes of things; as may be seen in the writings of these men, for instance, concerning the Rainbow and Comets, and the generation of heat, and climates, and the celestial bodies.’

“But undoubtedly the most remarkable portion of the *Opus Majus* is the Sixth and last Part, which is entitled ‘De Scientia experimentalis.’ It is indeed an extraordinary circumstance to find a writer of the thirteenth century, not only recognizing experiment as one source of knowledge, but urging its claims as something far more important than men had yet been aware of, exemplifying its value by striking and just examples, and speaking of its authority with a dignity of diction which sounds like a foremurder of the Baconian sentences uttered nearly four hundred years later. Yet this is the character of what we here find.¹⁸ ‘Experimental science, the sole mistress of speculative sciences, has three great Prerogatives among other parts of knowledge: First she tests by experiment the noblest conclusions of all other sciences: Next she discovers respecting the notions which other sciences deal with, magnificent truths to which these sciences of themselves can by no means attain: her Third dignity is, that she by her own power and without respect of other sciences, investigates the secrets of nature.’

¹⁷ *Op. Maj.* p. 64.

¹⁸ “Veritates magnificas in terminis aliarum scientiarum in quas per nullam viam possunt illæ scientiæ, hæc sola scientiarum domina speculativarum, potest dare.”—*Op. Maj.* p. 465.