When Walter de Merton founded Merton College in 1264, he sought to provide a residence hall for Arts students intending to proceed to the Faculty of Theology at Oxford. Nevertheless, with the exception of Thomas Bradwardine, Merton scholars from the first half of the fourteenth century have achieved widespread fame not for their achievements in sacred theology, but rather for their contributions in the fields of natural philosophy and mathematics. The precise nature of the Mertonian achievement is a topic which has been discussed at great length during the past seventy-five years,¹ and a subject into which this paper will not venture. Instead, its focus will be Mertonian methodology and in particular the relationship between the Mertonians’ work and a problem first discussed by Aristotle in his Posterior Analytics.

* An earlier version of this paper was presented at the Nineteenth International Congress on Medieval Studies, May 10-13, 1984 at Kalamazoo, MI.
While the *Posterior Analytics* as a whole contains Aristotle's thoughts on demonstrative science, in Book I, chapter 7 he discusses a particular aspect of the method known as *metabasis*, that is, the transition from one scientific discipline to another in the process of demonstration. For a variety of reasons, both ontological and methodological in nature,^{2} Aristotle argues that science can be organized into distinct categories or disciplines and that it is impermissible to prove propositions by passing from one such genus to another (οὐχ ἢ ἐξ ἕλλον γένους μεταβάντα δεῖξιν). As is often the case in the *Posterior Analytics*, Aristotle produces a mathematical example to reinforce his point: it is not possible, he says,

> to prove a geometrical proposition by arithmetic. ... Where different genera, e.g. arithmetic and geometry, are involved, although the basis of the proof may be the same, it is not possible to apply the arithmetical demonstration to the attributes of extended magnitudes, unless magnitudes are numbers.\(^3\)

Nevertheless, Aristotle was compelled almost from the beginning to modify his prohibition somewhat, for in chapter 7 and again in chapters 9 and 13 he admits that the so-called subalternating and subalternate sciences—astronomy, music, optics, and the like—constituted a small group of exceptions to his general rule.\(^4\)

When the *Posterior Analytics* entered the Latin West in the middle of the twelfth century,\(^5\) Aristotle's prohibition of *metabasis* generated

\(^2\) Aristotle's rejection of *metabasis* arises in part from his criticism of the Pythagoreans and Platonists. In *Metaphysics* VII.11 1036b8-21, for example, he rejects the reduction (ἀναγωγή) of all things to numbers, not simply because he feels numbers are not the proper candidates, but because more fundamentally he opposes the reduction of all things to one genus. More explicitly, in *Metaphysics* IV.2 1004a4 and I.9 992b19-933a7 he rejects any notion of a Platonic master-science to which all the other sciences are reducible because there is no genus which encompasses all things. Methodologically, Aristotle says that the existence of such a master-science would imply that the first principles of the sciences beneath it would all be proven by the master science, and hence all syllogisms would by reduction have the same first principles. Aristotle rejects this emphatically in *Posterior Analytics* I.32 88b19. Finally, the ability to transcend scientific genera was a property Aristotle recognized in Platonic dialectic, and against which he developed his own theory of demonstration. For a discussion of this important issue, see below, p. 62.

\(^3\) *Posterior Analytics* I.7 75b38-b6.
