

Natural Philosophy and the Curriculum

Universities and Textbooks

The Aristotelian natural corpus covered a wide range of subjects in a number of separate texts: while the *Physics* was a sort of general work—which appeared to some fifteenth- and sixteenth-century authors more metaphysical, even overlapping with the *Metaphysics*—the other treatises represented different sections of natural philosophy on particulars. The success and influence of Aristotelian natural philosophy was due to its centrality to university teaching, where it was favored because it covered every topic, like an encyclopedia. Few attempts were made to reconsider which texts represented the core of the study of natural philosophy in the universities; one remarkable exception was Pierre de la Ramée (1515–1572), who put a distinctive emphasis on particular sciences at the expense of study of the *Physics*. *Physics*, along with *On the Heavens*, *Meteorology*, and *On Generation and Corruption*, was the main reference for natural philosophy in the traditional curricula of the Faculty of Arts. Universities—especially in Italy—appointed many lecturers in natural philosophy, who usually received high salaries. In the second half of the sixteenth century, separate chairs, of botany, mathematics, and even chemistry (in Mantua and Germany), were established. Aristotelian texts were traditionally studied according to the commentaries by Averroes (which provided the internal partition of the texts into sections).

Between the fifteenth and sixteenth centuries, the works of other, more ancient commentators on Aristotle were also adopted: those of Alexander of Aphrodisias and Simplicius were particularly popular, the first because of its radical mortalism, the second for its Neoplatonic and conciliatory tendencies. The rediscovery of the ancient commentators was accompanied by an increasing reliance on the Greek texts in universities, despite the enduring predominance of medieval Latin material. New commentaries also appeared alongside the ancient ones: practically all of the most prominent professors composed their own commentaries to the Aristotelian natural texts, in particular between the sixteenth and seventeenth centuries. Usually these commentaries followed the texts according to the Averroistic divisions, but sometimes they were organized in *quaestiones*.

SCIENCE IN MEDIEVAL CIVILIZATIONS

Topic 13

Furthermore, the advent of printing made a large selection of textbooks more widely available: some of them were very short introductions for younger students, others were compendia, others paraphrases (like those by Jacques Lefèvre d'Étaples (1455–1536), printed for the first time in 1492), and still others dialogues (again, Lefèvre d'Étaples created some of the most significant examples). Other popular works used for teaching were abridged versions of the Aristotelian treatises reduced to conclusiones, like the popular *Textus abbreviatus philosophiae naturalis* by the French theologian Thomas Bricot (d. 1516). There were also many different textbooks, which generally followed canonical organizations: either they explained the Aristotelian works according to their order in the corpus, or they highlighted subjects like principles, causes, movement, infinity, place, void, and time. The famous *Commentarii Conimbricenses*, which from 1594 on became the standard text in the Jesuit curriculum, contains a whole course on natural philosophy organized as a commentary of the Aristotelian corpus. Particularly after the second half of the sixteenth century, vernacular treatments of Aristotelian natural philosophy also began to circulate, such as the translations by Antonio Brucioli (1498–1566), the paraphrases by Alessandro Piccolomini (1508–1579), the summaries by Jean de Champaignac (fl. 1595) and Scipion Dupleix (1569–1661), and the commentaries by Cesare Crivellati (1553–1640), the latter explicitly addressed to university students.

Natural Philosophy's Rivalries and Interactions

Natural philosophy interacted with many other disciplines. The close relationship between natural philosophy and medicine had already been stressed by Aristotle himself at the beginning of *On Sense and Sensible* (436a19–436b2). Medicine often competed with natural philosophy within the universities: philosophy was a curricular requirement for those who wanted to study medicine in the Italian universities and many of the greatest Renaissance natural philosophers were also physicians (e.g., Alessandro Achillini (1463–1512) and Simone Porzio (1496–1554); there were also professional physicians who wrote on natural philosophy, such as Daniel Furlanus (d. 1600)). *Ubi desinit philosophus (or physicus), incipit medicus* (“where the philosopher ends, the physician begins”): so went a proverb which implied an ambiguous boundary between the two disciplines: on the one hand, it reflected the need to move beyond the theory represented by philosophy and into the actual practice of medicine; on the other, it affirmed the idea that natural philosophy was necessary in order to prepare for medical studies. From this perspective, natural philosophy represented either a mere preparatory stage on the

SCIENCE IN MEDIEVAL CIVILIZATIONS

Topic 13

way to the more perfect and concrete knowledge of medicine, or, alternatively, medicine was subordinate to natural philosophy (others, like the philosopher Jacopo Zabarella (1533–1589), preferred to distinguish natural philosophy from medicine because these two disciplines did not share subject and method).

The Renaissance debate over the superiority of Aristotle or Galen was part of this rivalry: Aristotle was regarded by physicians as an important authority because of his philosophical system, but Galen had offered in his works more precise observations of the human body. Nonetheless, since many points of their disagreement (e.g., the localization of the brain functions) were merely founded on speculation, some doctors preferred to demonstrate the harmony between Aristotle and Galen in order to overcome this impasse.

Another discipline often compared to natural philosophy was astrology. The Jesuit Benito Pereira (1536–1610) stated that natural philosophy is different from astrology because, among other reasons, the former studies things a priori, the latter a posteriori. Pereira also claimed that natural philosophy was not capable of delineating its own sphere of inquiry, something which was possible for other disciplines such as logic and metaphysics.

University courses on the Physics traditionally began with a lecture on ethical themes. This arrangement was inspired by Averroes' proem to the text, which argued for the moral perfection of the speculative man. The connection between ethics and natural philosophy also appeared in discussions of subjects like the immortality of the soul or the human will, and consequently ethical discussions could occupy large sections both in reportations of lessons and commentaries.

Source: <https://plato.stanford.edu/entries/natphil-ren/>