

that they could not be content merely to modify it. On the other hand, the vast majority of medical men were happy to work in the broad framework given to them by their predecessors. They used their scholarship within that framework and their practical experience to refine and extend medicine in answer to the practical problems that they faced.

1

Aristotle among the physicians

CHARLES B. SCHMITT

It is a commonplace that medicine and philosophy were closely linked in the medical curriculum of late medieval and renaissance Italian universities.¹ Nonetheless, when one reads modern scholarly works on university philosophy in renaissance Italy – those on Pomponazzi and the immortality controversy, for example – one has the impression that the philosophers were treating their subject as an end in its own right rather than as a subaltern to medical studies, as the curricular structure would have it. Medical historians, on the other hand, with relatively few exceptions, tend to push into the background the philosophical components of medical education of the period, often treating the history of medicine as though it was entirely devoid of a philosophical element.

In order to shed more light on this question, which is more a problem for contemporary historiography than it was for philosophers and physicians of the sixteenth century themselves, I should like to consider it from a somewhat different perspective. The prevailing view is so deeply ingrained in the historical interpretations that it may seem rather pointless to discuss this relationship further. Still, it is not without interest to consider the question as it related to the medical faculties of sixteenth-century Italian universities from a slightly different angle. I should like to pose the question of how the philosophers and physicians of sixteenth-century Italy saw the relation between philosophy and medicine as it related to their teaching activities. Without doubt the statutes established a curriculum in which logic and philosophy were considered as propaedeutic to medical studies proper. This is evident in many statutory formulations such as that promulgated at Bologna in 1405. Here specific books of Aristotle are designated to be read in a particular order, after which specific medical works are required to be read, also in a particular order.² Was such an institutional structure consciously accepted by its practitioners or had the historical circumstances which led to the intimate relationship between medicine and philosophy of earlier times been lost sight of by the sixteenth century, and had medicine and philosophy begun to go their separate ways? Did, for example, the philosophers who were teaching the first part

of the arts–medicine curriculum at Padua or Bologna see themselves as providing pre-medical training to students who were doing philosophy primarily to fulfil the statutory requirements?

In this paper I should like to face the question of how the sixteenth-century philosophers and physicians saw themselves and how they viewed the individual contributions of philosophy and medicine to the education of the mature, trained physician. It is unlikely that I shall be able to deal with this question in any comprehensive way, but I hope at least to bring the issue to more general attention, and to formulate several hypotheses which may lead to its solution. The question I am raising should be distinguished from at least two other relevant and related questions which have been discussed in the literature. The first is the methodological discussions in philosophy, science and medicine which were an important feature of renaissance intellectual history.³ The second is the problem of the superiority of Galen or Aristotle which attracted much attention at least down to Harvey.⁴ These are both worth studying in their own right, but my focus will be on a different point. I want to consider simply the question of the relation of the medical and philosophical components in the education of the physician and how this relationship was viewed by those involved in the education.

Before considering the sixteenth century, we must look at the historical roots of the philosophy–medicine connection, for it is clear that whatever one finds in the sixteenth century had undergone a long historical conditioning. Though the relation between philosophy and medicine varied in different schools of medical thought among the Greeks, it is clear that for both Hippocrates and Galen, philosophy played a very important role in medical education and practice. In Hippocrates we find the ideal of the ‘philosophical physician’,⁵ and Galen in many respects can be considered a philosopher as well as a physician. Though most of the philosophical works have been lost, enough survives to give us an insight into that part of his thought.⁶ Moreover, the brief treatise *Quod optimus Medicus sit quoque Philosophus* cannot be passed over, and it had a broad renaissance distribution especially in the translation made by no less a humanist than Erasmus.⁷ This point, the emphasis on philosophy as a component of the best medical training, was repeatedly made and eventually became embedded in such a fundamental reference work of early modern medicine as Bartolomeo Castelli’s *Lexicon Medicum*.⁸

Aristotle was also a medical writer as well as a philosopher and scientist, even if his medical works survive only in a very fragmentary form. Yet, there is both textual and iconographical evidence that he worked extensively on anatomy and other medical subjects.⁹ Though only a few lines of his *De Sanitate et Morbo* survive, embedded in the *Parva Naturalia*,¹⁰ this work was avidly discussed in the sixteenth century when the question of Aristotle’s attitude towards medicine arose, as it frequently did. I shall

have more to discuss about this later, but for the moment, suffice it to say that both the ancient philosophical tradition represented by Aristotle and the ancient medical tradition represented by the *corpus Hippocraticum* and Galen saw a close and beneficial relationship between philosophy and medicine. While this tradition did not pave the way for all later developments, it certainly provided a foundation for some of the dominant ones of the next centuries. Though there are disagreements over details, there seems to be no doubt about the general pattern of integration of philosophical and medical learning in the education of the Alexandrian physician.¹¹ The same pattern followed when Greek learning passed to the Arabic world.¹² The importance of the philosophical component is evident in both Avicenna and Averroës.¹³

Western medicine after antiquity flourished in the so-called School of Salerno. Its origins are obscure, but it seems as though the general approach of Salernitan physicians during the first century or so of the ‘school’ was practical in orientation with little room for the refinements of philosophy.¹⁴ Kristeller has argued – and, I think, convincingly – that there was a gradual move towards a more theoretical approach to medicine accompanied by an increasingly philosophical component as time passed.¹⁵ These observations are corroborated by Birkenmajer’s demonstration that it was primarily the physicians who championed assimilation of Aristotle into the learned culture of the medieval West of the twelfth and early thirteenth centuries.¹⁶ There is no reason to believe that the physicians wanted Aristotle for any reason other than to derive whatever utility they could from his works as an adjunct to medical studies.

Such is also the case in the Italian universities from the earliest days when medicine was cultivated, as we see from both Bologna and Padua, which began as and remained the most distinguished medical universities from the thirteenth to the seventeenth centuries. Both in the works of Taddeo Alderotti (c. 1215–95) and his school at Bologna and in those of Pietro d’Abano (1257–c. 1315) at Padua, we find the firm conviction that philosophical studies had something very valuable to contribute to the education of the physician. As Nancy Siraisi has recently shown, Alderotti and his followers were interested in a wide range of philosophical issues, including moral philosophy, as evidenced, for example, by Taddeo’s work on the *Nicomachean Ethics* and Bartolomeo da Varignana (c. 1260–after 1321) on the *Oeconomics*.¹⁷

At least as clear in its insistence of the joining of philosophy to medicine, and certainly more influential, was Pietro d’Abano’s *Conciliator*, a work widely read and frequently reprinted down to the end of the sixteenth century and beyond.¹⁸ This work sets up an intellectual structure in which philosophy and medicine are conjoined as closely as they have been anywhere. In the very first *differentia* it is clearly stated that the three most important things for efficacious medical study are logic, natural

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philosophy, and astrology.¹⁹ This linking of disciplines became the general pattern for Italian medical education in succeeding centuries.

Whether the *Conciliator* is a reflection of statute and practice or the inspiration of them is difficult to determine, though one suspects that it may have been a mixture of both. Certainly, the influences impinging from all sides – Hippocrates, Galen, Aristotle, Avicenna, and Averroës – provide reason enough for medical education taking the form it did. This broad approach to medicine which characterized the Italian situation and which promoted such a wide range of learning and the development of so many ancillary disciplines was all but unique to the Italian peninsula. A very different and more restrictive pattern of education was followed in France, especially at Montpellier, but also elsewhere.²⁰ The early sixteenth-century programme put forward at Vienna by Martin Stainpcis certainly gives little place to philosophy in the education of the physician.²¹

This then sets the stage for a consideration of the sixteenth century. Clearly the statutes from all over Italy give the impression that the education in the arts faculties consisted in a two-tiered structure of logic and philosophy followed by medical studies. This is not to say that other subjects such as mathematical arts, Greek and Latin literature, and moral philosophy and metaphysics were absent, but the central core was logic-natural philosophy-medicine. This is evident in the Florentine statutes of 1387²² but even more clearly set forth in those of Bologna of 1405.²³ The structure became institutionalized for Padua in the late fifteenth-century statutes, which were *in vigore* for the whole of the sixteenth century,²⁴ and in the Pisa statutes of 1543²⁵ among others. This is not to say that there was a strict uniformity in Italy, for there was not. There was a considerable variation in the precise books to be read from university to university. Sometimes all of the *Organon* was prescribed, at other times only the *Posterior Analytics*; in some cases all of the *Physics* was required, at others, only books one, two and eight. Nonetheless, statutory evidence from sixteenth-century Italy reveals a pattern in medical education in which philosophy provided a preliminary and important basis for advanced medical studies at university.

It is clear, that regardless of theoretical formulations and the actual practice of writing and teaching philosophy, socially and economically the position of the philosopher in sixteenth-century Italian universities was beneath that of the physician. There is abundant evidence for this. Professors of medicine were systematically paid more handsomely than their philosophical colleagues.²⁶ The normal career structure was to progress from logic, through natural philosophy, to medicine.²⁷ In the course of such a progression the individual moved up both in social prestige and in financial rewards. In other words, there was a pecking order: the logician at the bottom of the ladder, the natural philosopher above him, but physicians at the top, with *theoretici* being superior to

practici. There are exceptions, of course, but such was the general pattern.

Nor have I come across any evidence of a concerted effort on the part of the physicians to denigrate the philosophical component of the curriculum and thus erode the position of philosophical studies in medical education. It remained for later centuries to produce the 'empirical, scientific' and strongly anti-philosophical medical man who is suspicious of anything smacking of theory or philosophy as necessarily deleterious to medical training. Criticisms of philosophy and its value came from other quarters, but even these were of limited consequence. For example, Gianfrancesco Pico della Mirandola (1469–1533), one of the most dedicated critics of Aristotle, found little of value in philosophy in general, and in Aristotelian philosophy in particular. Yet, even he felt that philosophical studies were of some value for the practical art of medicine. He could not give whole-hearted support to philosophical studies, but he seemed to acknowledge that they could not be completely abandoned if there were to be well-trained physicians.²⁸ Towards the end of the century, Francesco Patrizi (1529–97) wanted to get rid of the philosophical basis of medicine altogether. This, however, was because the institutional foundation of philosophical instruction was Aristotelian, not because it was philosophical.²⁹ He would have warmly approved a philosophical curriculum based on Plato for medical students, in the same way that he approved of a Platonic poetics to replace the dominant Aristotelian one of his time. Thus, even convinced anti-Aristotelians such as Pico and Patrizi were not totally opposed to a philosophical foundation for medical studies, but for differing reasons had something to criticize in the curriculum they knew. A similar position was taken by the Spaniard Juan Luis Vives (1492–1540), who had a good deal to criticize about medicine in his *De Causis Corruptarum Artium*, but was not in principle against the discipline's being rooted in philosophy.³⁰

Therefore, it appears, at least from the evidence that I have discovered, that there was nearly a universal agreement that philosophy was not only *not* harmful to successful medical studies, but was indeed beneficial. This still, however, leaves us with the fundamental question with which we started: how did the academic or university philosophers themselves see their activity? Did they consider it subsidiary and, in some way, propaedeutic to medicine, or did they see philosophy as an independent discipline in its own right? Based on my reading of sixteenth-century Italian Aristotelian authors, as well as their modern commentators, I would argue that university philosophy of sixteenth-century Italy was considered a subject in its own right and not as something in the curriculum meant to give a preliminary training for some more important activity. Already in the fourteenth century Petrarch had taken the logicians to task for treating their subject as important in itself rather than merely a boyhood preparation for higher things as he thought it should be.³¹ As

Siraisi notes, the distinction between those primarily involved in the teaching of medicine and those primarily involved with philosophy grew during the fourteenth century.³² Already at that date we may see the roots of the even greater distinction which was to rise in the sixteenth century. The fourteenth century was, of course, the time when Italian scholastic culture, that is, the medical faculties of the universities, underwent a strong influence from the assimilation of the highly developed tradition of logic and natural philosophy which had flourished at Oxford.³³ This influx was notable in Italian medical faculties through the fifteenth and into the early sixteenth century. Such an orientation is already evident in the *Summa Medicinalis* of Tommaso del Garbo (fl. 1370) composed in the third quarter of the fourteenth century;³⁴ it became a prominent and characteristic feature of Italian theoretical medicine for a century and a half. However, in addition to the tendency to assimilate logic and natural philosophy to medicine, which had already been there from twelfth-century Salerno, but was reinforced by the new English material, there developed at the same time a strong tradition of independent philosophical thought. This can be seen in figures such as Peter of Mantua (fl. 1384–99), Paul of Venice (c. 1370–1429), and Blasius of Parma (c. 1345–1416) among others.³⁵ These interests were sometimes allied to a theological bent (as with Paul of Venice) and sometimes to a more scientific cluster of problems (as with Blasius).

It is therefore my suspicion that by the sixteenth century there was already a well-established tradition in the Italian medical faculties for philosophers taking their subject as a serious end in its own right in a way which the statutory evidence will not bear. Certainly in later centuries philosophy gradually became an independent discipline in its own right, reaching an apogee as the highest science in German Idealism and other nineteenth-century developments.

But what can we learn from the writings of the philosophers themselves? While there is undoubtedly much yet to be dug out of the vast number of sixteenth-century philosophical writings, my own attempts to formulate a clear and generalized picture have not been entirely successful. On the whole I think we can say that Italian philosophers were much less concerned with how their teaching and writing related to medical studies than might be expected.

Agostino Nifo (1469/70–1538), for example, whose long university career took him from Padua and Pisa in the north to Rome, Naples, and Salerno in the south, was intimately familiar with both medical and philosophical traditions of all shades. He was one of the most prolific and wide-ranging writers on philosophical topics, but at the same time a physician of eminence and author of several medical works. Yet even his voluminous commentaries on the central Aristotelian works, which were mainstays of Italian medical education, frequently reprinted and constantly

cited until the end of the century, had little to say on the philosophy–medicine relationship.³⁶ His writings seem to take for granted the importance of philosophical studies for medical education, and he feels no need to justify it in the same way which Pietro d'Abano had done two centuries earlier.

Even in those passages where Aristotelians discussed the parts of philosophy and of learning in general – frequently as an introduction to commentaries on the *Physics* – we find little interest in this question. Since one of the premises of the statutes in including natural philosophy as a part of the curriculum must certainly have been a conviction of its relevance for medical studies, one might justifiably expect to find the topic discussed. The place of natural philosophy and medicine in the overall schema of arts and the relation between the two had already been given serious attention in many discussions from the early middle ages onward. By the time we get to the philosophers of the sixteenth century it was a commonplace known to all. Yet, in the *Physics* commentaries of Nifo, Ludovico Boccadiferro (1482–1545), or Giampaolo Pernumia (d. before 1564) who were active at Padua, Bologna and elsewhere, we find essentially nothing on the topic.³⁷

The same also holds true for the popular *Solutiones* of Marcantonio Zimara (c. 1475–1532), a word index based on Aristotle which was used to organize peripatetic thought on many diverse topics.³⁸ Other writers such as Girolamo Balduino (fl. mid-16th century), active in both Padua and Salerno, and Cesare Cremonini (1552–1631), possibly the last significant Aristotelian at Padua, take note of the question, but evidently their interest was little more than a passing one. At the beginning of his commentary on the *Physics* Balduino considers how that work relates to medical studies, but fails to expand on how such an approach might produce practical results at a medical level.³⁹ Cremonini's explanation of the preface to the *Physics* deals with the conventional topic of the division of the various parts of philosophy so characteristic of renaissance treatments of that text, but gives us only a few vague generalizations on how medicine relates to physics without ever essaying a coherent analysis of this key problem.⁴⁰

The one sixteenth-century Aristotelian philosopher who has somewhat more to say on the medicine–philosophy relationship is Jacopo Zabarella (1533–89). A native of Padua, who unusually spent his whole career there, Zabarella must stand out as one of the most acute and influential peripatetic thinkers of his age. Throughout his works we find an abiding concern with medical problems and the methodology surrounding them. Though so far as I know Zabarella did not write on medicine *per se*, in his writings on logic and natural philosophy he quite obviously kept in mind the needs of physicians and the way in which his subjects related to medicine. For example, in his commentary on the *De Anima* he argues that one of the reasons to study the work is that the medical art is able to draw a good deal

from discussions of life, growth and the soul.⁴¹ In his general compendium on the structure of knowledge, *De Naturalis Scientiae Constitutione*, he stated clearly the assumptions behind the curricular structure, which, as we have noted, were not very frequently alluded to in the sixteenth century. He argued that one cannot be a good *medicus* without being a natural philosopher, and, indeed, natural philosophy provides the theoretical structure of science (that is, knowledge, not practical efficacy) which medicine can then take over and apply to some practical end.⁴² This, of course, harks back to ancient and medieval formulations and had been a commonplace in his own university (Padua) since at least the days of Pietro d'Abano. In Zabarella it is insisted upon with some emphasis

Therefore, there cannot be a good physician who is not also a natural philosopher; likewise there can be no good legislator who is not highly skilled in moral philosophy. But there is a difference between them: medicine is concerned only with accomplishing its purpose, while natural philosophy has no purpose to accomplish, but is only (theoretical) knowledge.⁴³

He goes on to give further precision to this viewpoint, but from what has been quoted his position is clear enough. As Zabarella sees it, natural philosophy provides the scientific knowledge from which medicine – in this scheme, it must be remembered, a practical art – takes its starting point to bring about the desired results. In the same work he argued that medicine takes a knowledge of *physiologia* (by which I think he means something relatively close to the modern use of the term) from that part of the natural philosophy which deals with the human body and its parts.⁴⁴ This is a clear statement of the position that medical studies are founded upon a preliminary and basic knowledge of the kind of information contained in the Aristotelian zoological works. He goes on to say that physicians who wish to understand the structure of the human body should follow Aristotle's approach as found in the *De Partibus Animalium* rather than in the *De Historia Animalium*.⁴⁵ By this I think he means that the approach should be through an understanding of function and purpose, rather than through a mere knowledge of the external structure of the parts.

In his writings on logic, too, which form the basis of both his renaissance and modern reputation, Zabarella emphasized more than most other logicians of his time the application of his subject to other disciplines. This is particularly true of that part of the logic discipline deriving from the *Posterior Analytics*, which he sought to relate to a spectrum of arts and sciences ranging from literature to medicine.⁴⁶ In the schematic *De Natura Logicae*, for example, he says forthrightly 'The natural philosopher takes nothing from the physician, but the physician much from the natural philosopher.'⁴⁷ This again reinforces the position already cited that natural philosophy provides the scientific basis (that is, the theoretical knowledge)

which enables the physician to produce the desired results in medical treatment. In developing the theme, he provides a cogent justification for the pre-eminent place which logic held in the medical curriculum.⁴⁸ The more interesting and innovatory *De Methodis* includes an extended discussion of the logical structure of medical thinking. He argues forcefully that the fundamental logical method employed in medical reasoning is the *methodus resolutiva*. In his lengthy discussion he is at pains to show that such a position was also held by earlier authorities of note, including Galen, Avicenna, and Averroës.⁴⁹ While this theme was an old one by Zabarella's time, his forceful reiteration of it gave theoretical substance to the 'Italian' position on the medicine–philosophy relationship which was to have an important *Nachleben*, especially in seventeenth-century Germany and Britain where his works were still widely read when medicine was entering a new age.⁵⁰

All of this indicates, I think, that unlike most of his Aristotelian associates of renaissance Italy Zabarella held in mind both the provision of the statutes under which he was teaching and the needs of his students, who were, after all, for the most part neophyte physicians. Possibly a coherent attitude towards medicine and its relation to philosophy could be extracted from Zabarella's work. It is certainly true that he was much more conscious of his position as a teacher in the medical faculty than were most of his philosophical contemporaries, including Nifo and others. Precisely how unusual he was in this respect requires further research.

Medical authors, on the other hand, were considerably more concerned with the question than most of the philosophers, as we can see, for example, in the works of Giambattista Da Monte (or Montanus) (1489–1551) and Girolamo Capodivacca (or Capivaccio) (d. 1589), both of whom were major medical figures at Padua during the middle years of the century. In his *De Differentiis Doctrinarum sive de Methodis*, which could profitably be compared with Zabarella's *De Methodis* as a contemporary treatment of the same problem by a physician, Capodivacca faces some of the same key issues.⁵¹ He is every bit as concerned as Zabarella to determine whether the study of method is the problem of the logician alone or whether it also comes within the province of the philosopher and physician. Possibly this work, as well as any of the century, illustrates the amalgamation of medical and philosophical themes. It, along with several of Da Monte's works touching on methodological questions,⁵² requires further study before its general place in sixteenth-century medical and philosophical thought can properly be evaluated.

One of the key texts, if not *the* fundamental text, which lay at the base of the whole tradition making medical training follow on from philosophical training is to be found in Aristotle's *De Sensu et Sensato*. It was frequently referred to in many different contexts in the sixteenth century, and was in many ways a rallying cry which gave full justification for the

study of philosophy in Italian universities. It was cited and discussed almost everywhere in the medico-philosophical literature of the renaissance, but to the best of my knowledge has not received the modern scholarly attention it deserves. Let us first quote it in full

It is further the duty of the natural philosopher to study the first principles of disease and health; for neither health nor disease can be properties of things deprived of life. Hence one may say that most natural philosophers, and those physicians who take a scientific interest in their art, have this in common: the former end by studying medicine, and the latter base their medical theories on the principles of natural science.⁵³

The passage just cited, though brief, furnished a rationale, based upon a genuine Aristotelian text, for the whole programme of medical education which still dominated the Italian universities of the sixteenth century.

There were relatively few commentaries on the *De Sensu* from the sixteenth century, but this key text was obviously in the consciousness of nearly everyone concerned with the interaction of philosophy and medicine. It is a text – along with other parts of the *Parva Naturalia* – whose importance and influence during the middle ages and renaissance have seldom been recognized, but the evidence of its broad distribution both in manuscript and in early printed editions is unequivocal.⁵⁴ Along with the more substantial and better known works of the *libri naturales* it held a central place in Italian university education.

There are two substantial and careful commentaries on the work by sixteenth-century Italians which are worthy of attention from a number of points of view and not only for the particular issue I am considering here. In both cases the brief work was translated anew from Greek into Latin and given a minute analysis based upon a thorough knowledge of the Greek text and earlier relevant commentaries and expositions. The commentators are Mainetto Mainetti (c. 1515–72) of Pisa, who taught philosophy and later medicine at Pisa and Bologna, and Simone Simoni (1532–1602), who became a protestant and spent most of his mature life in Northern Europe, though his Italian education shines through in his Aristotelian works. Both recognized the importance of the passage quoted above and devoted energy to explaining it. Mainetti's main strategy is the traditional one of arguing that medicine is subaltern to natural philosophy, a method common in the middle ages and renaissance when the individual sciences were generally viewed as part of an interlocking and interrelated hierarchical scheme, which had already been put forward by Aristotle in several separate works. This conception is based upon a view of the world in which particular sciences are considered superior to others by virtue of such qualities as being capable of producing greater accuracy and having a more noble subject matter, a theme treated, for example, in the *Posterior Analytics*.⁵⁵ This theme of subalternation became standard afterwards

finding its way into the well known schemes of the 'division of the sciences' in medieval writers such as Al-Farabi, Gundissalinus, and Hugh of St Victor.⁵⁶

Mainetti and Simoni both argue that sickness and health are not alien to the concerns of the *physicus* or *physiologus* (both terms are used for the natural philosopher), since they are found in the living body which is the proper subject matter of physics, that is, the changeable physical body.⁵⁷ Simoni argues, for example: 'Let us conclude that the living body is considered by the natural philosopher in so far as it is healthy.'⁵⁸ He qualifies this, however, by saying that the *physicus* treats the subject of sickness and health only under a particular aspect. Somewhat differently from the other commentators (including Mainetti), he contends that *medicina* is not subaltern to *physiologia*, since the former is a *res artis* and cannot strictly speaking be subjected to a *res naturae*.⁵⁹ Though deviating somewhat from the usual position, he nonetheless takes a standard Aristotelian position in not mixing different categories. He emphasizes that art and science (or nature) are different categories and must not be confused.⁶⁰ In spite of making this point, however, he concludes that the subject of medicine coalesces from a number of different sciences and accepts its general principles relating to sickness and health from the *physicus*.⁶¹ The view that medicine represents a coalescence of various disciplines and fields of knowledge is itself, of course, an old one having roots in most of the ancient writings on medicine. In the Latin tradition of the West it goes back at least to the time of Cassiodorus and Isidore of Seville.⁶²

This is really the premise of the medieval and renaissance medical curriculum of Italy and, indeed, with slight variations allowing for certain alterations in the nature of the sciences involved, is the basis for more modern medical education. Mainetti puts the point clearly

Medicine then coalesces from many sciences, since from the natural philosopher (*physiologo*) indeed it has drawn anatomy itself, the elements and humours, as well as the knowledge and virtues of plants.⁶³

He then goes on to illustrate how medicine also draws useful material from astronomy and mathematics.⁶⁴ This, of course, is nothing but a reiteration of a tradition laid down by Hippocrates, Galen, Avicenna, Averroës, and Pietro d'Abano, among others.

What these two commentaries illustrate above all is that the authors, when faced with the question of the relationship of philosophy to medicine came down firmly for the traditional position. This is expressed in a dictum which became a cliché in the renaissance, and may have roots much earlier. I have found it stated frequently in those contexts where the medicine-philosophy relationship is discussed, and both Simoni and Mainetti use it in support of their main point. Though one encounters minor verbal variations, it perhaps most frequently takes the crisp and

clear form which Simoni gives it: 'Ubi desinit physicus, ibi medicus incipit' (Where the natural philosopher finishes, there begins the physician).⁶⁵ This becomes almost as common a programmatic statement in the medical literature as the principle of Ockham's razor became in the logical literature of the fourteenth century or the principle 'Nihil est in intellectu, quod prius non fuerit in sensu' became from Thomas Aquinas to Locke. Behind this simple statement lies the assumption that natural philosophy prepares one for medical studies and that a good foundation in those traditional areas of Aristotelian learning is essential before medical practice can even begin. Moreover, it became a sort of shorthand statement for the *De Sensu* passage I have already noted, which itself becomes much quoted and discussed, as for example in Zimara's *Quaestio* on the nobility and distinction of medicine as compared to law.⁶⁶ My research on this has not been exhaustive and I have been unable to determine the origin of this principle.

It might be well to mention some of the writers who use the dictum. Zabarella⁶⁷ and Cremonini⁶⁸ both adopt it as a well-worn principle, as do several medical writers. For example, Giambattista da Monte, whose importance as a central figure of the sixteenth-century methodological discussions involving medicine has long been recognized, follows the formula of medicine being subaltern to natural philosophy.⁶⁹ He expands the saying somewhat, clearly taking it for granted as a central directive for analysing the philosophy–medicine interface.⁷⁰ The more usual version is given by Oddo degli Oddi (1478–1558) in his commentary on the first fenn of Avicenna's *Canon*.⁷¹ In the next century Caspar Bartholin (1585–1629), a Dane who studied in Italy with Fabricio, Casserio and Iasolino, wrote a *De Studio Medico* in which he outlined a programme of medical studies where he claims 'Natural philosophy and mathematics are as much relevant to the physician as ethics is for the lawyer. *Ubi enim desinit physicus, ibi incipit medicus*.'⁷²

With Da Monte and degli Oddi, as well as with a number of other writers I have mentioned this principle is tied in with another brief and relevant text from the *Parva Naturalia*. These few lines are usually placed at the end of the *De Respiratione*, but there has been a good deal of discussion of how and where this short passage fits into the *corpus Aristotelicum*. Again, it is well to quote these sentiments in their entirety

As for health and disease it is the business not only of the physician but also of the natural philosopher to discuss their causes up to a point. But the way in which these two classes of inquirers differ and consider different problems must not escape us, since the facts prove that up to a point their activities have the same scope; for those physicians who have subtle and inquiring minds have something to say about natural science, and claim to derive their principles therefrom, and the most accomplished of those who deal with natural science tend to conclude with medical principles.⁷³

Several points should be made about this crucial passage at the outset. First, it has been argued that it is the beginning of a separate work of Aristotle, *Περὶ νόσου καὶ ὑγείας* (*De Morbo et Sanitate*), of which the remainder is lost. Internal and external evidence provide a basis for believing that Aristotle did in fact write a work on the subject and that these may be the opening sentences.⁷⁴ Secondly, a consideration of the content tells us why the passage was thought to be so crucial by Italian philosophers and physicians. Not only does it, along with the *De Sensu* passage, face the central problem of the medicine–natural philosophy issue, but it gives much more away to the physician vis-à-vis the philosopher than any other text we can find in Aristotle. In it he goes so far as to say that 'for those physicians who have subtle and inquiring minds have something to say about natural science', which is quite a concession and must have given some comfort to the physicians who felt themselves subaltern to the *physici*. Indeed, one might say that it goes so far as to question the whole subalternation viewpoint which, as I have argued, provides the basis for the Italian medical curriculum. It goes somewhat beyond saying that the physician takes the (theoretical) results of the natural philosopher and builds upon them in his own practically oriented endeavour. Yet, in the final analysis two further things can be said. First, this is a somewhat enthusiastic statement on Aristotle's part, slightly at odds with the considered opinion expressed elsewhere. Secondly, and probably more importantly, the concessive nature of the statement 'those physicians who have subtle and enquiring minds' limits those having 'something to say about natural science' somewhat severely.

This precise passage was taken up by Simoni and by a number of others who used it to cement the relationship between physician and philosopher.⁷⁵ One can read some Italian philosophers of the sixteenth century – Pomponazzi, for example – and get little impression that they saw themselves as contributing to the education of physicians or to the advance of medical studies. The same is possibly also true of one such as Nifo, who was himself not only a practising physician, but also wrote commentaries on nearly the whole gamut of Aristotle's natural philosophy. On the other hand, in those contexts in which the question of the medicine–natural philosophy relationship specifically arose, and in many other relevant passages as well, there was a general commitment by physicians to an acceptance of natural philosophy as a basis of medicine. Usually it was rigidly in the subaltern mode, but even when liberalized, it was nearly always recognized that logic and natural philosophy were necessary preparations for medical study. This became concretized in the early seventeenth century, not only in Bartholin's work previously referred to, but also in Pietro Castelli's (c. 1575–1661) *De Optimo Medico*, which gives a kind of utopian programme of medical education very much in line with the encyclopedic tradition of learning characterized above all by

contemporary figures such as J. H. Alsted (1588–1638) and J. A. Comenius (1592–1670).⁷⁶ Castelli's work gives us an exhaustive and detailed outline of what a good medical education should have been at the turn of the seventeenth century. Empirical knowledge – including chemistry, botany and various medical subjects such as surgery and anatomy – is much emphasized, but there is still the old stress on philosophy.⁷⁷ Castelli opens his section on the role of philosophy in medical education with a reference to Aristotle's subjection of medicine to philosophy in the *De Sanitate et Morbo* fragment and thereupon quotes the dictum 'ubi desinit physicus, incipere medicum'.⁷⁸ He then goes on to square that with Galen's position stated as 'optimum medicum esse optimum philosophum'.⁷⁹ These early seventeenth-century formulations reflect the sixteenth-century view, which had developed in Italy and then spread beyond the borders through the influence of many foreign students who had studied medicine there and taken what they had learned back home.

While it was all but universally acknowledged that logic and natural philosophy were valuable – even indispensable and essential – subjects to be studied for all physicians this acceptance did not necessarily apply to the other parts of philosophy. Both Bartholin and Castelli found other branches of philosophy to be of more limited value. Bartholin said straight out that 'Metaphysics is of no direct use to the physician',⁸⁰ though his own *Enchiridion Metaphysicum* was a great popular success as a textbook in the protestant countries.⁸¹ Both agreed, however, on rhetoric. Though Castelli in particular emphasized the necessity of clarity and precision in medical style, he had little use for rhetoric *per se*. According to him 'non cloquentia, sed medicamentis curantur aegri'.⁸² Bartholin expressed it only slightly differently in saying 'non enim verbis sed herbis aeger curatur'.⁸³ In both men we have a clear understanding that science is to be strictly separated from the rhetorical arts as surely as modern medical research is to be separated from the twentieth-century successor of renaissance rhetoric, commercial advertizing. Whatever use, or pretended use, rhetoric may have had in renaissance history writing, politics, or royal ceremonial, it could claim little direct relevance for medicine or the sciences other than in the purely propagandistic role to which figures such as Bacon or Galilei turned it.

The conclusion must be that it was generally assumed in sixteenth century Italy that philosophy was a valuable propaedeutic to medical studies.⁸⁴ There were few dissenting voices, though there were a number of philosophers who did not concern themselves particularly with the issue, in spite of the fact they were themselves providing this preliminary education for the student physicians. Moreover, both from the formulations of the statutes and from the theory insofar as we can know it, it seems evident that only certain branches of philosophical studies – above all logic and natural philosophy – were seen as directly relevant to medical studies.

For the most part philosophers tended to treat their own subject as an independent discipline, a development which is wholly understandable given the emphasis placed upon philosophy both in statutory and in theoretical formulations. In doing so they set the stage for the progressive emergence of philosophy as a subject in its own right in later times. Thenceforward the philosophical component of Italian universities has tended to be viewed as an independent discipline instead of one closely allied to medical studies. In similar fashion renaissance medicine has been generally seen as a scientific discipline independent of philosophical presuppositions. What is clear at this point is that historians must make a greater effort to study the philosophy (especially logic and natural philosophy) and medicine of the Italian renaissance in unison and to consider the interface of the two disciplines more carefully. The traditional approach which treats history of philosophy and history of medicine separately can give only limited results.

Since this chapter went to press I have discovered further uses of the phrase 'ubi desinit physicus, ibi medicus incipit'. It occurs, for example, in the prologue to the 1604 recension of Christopher Marlowe's *Doctor Faustus*, but is not included in the 1616 revision of the play. See W. W. Greg, *Marlowe's Doctor Faustus, 1604–1616* (Oxford, 1950; repr. 1968), 165, a reference to which I am indebted to Richard Gaskin. It is also included, with a discussion of its meaning, in Gratianus Montfortius, *Axiomata philosophica, quae passim ex Aristotele circumferri et in disputationem circulis ventilari solent . . .* (Antwerp, 1926), 409. The scholarly discussion of the meaning of this axiom is concluded as follows: 'Vera manet igitur haec sententia: *Ibi medicus incipit, ubi physicus desinit*. Sed verior est haec altera: *Ibi incipit Parochus (seu sacerdos funereus), ubi desinit medicus*.'

Also relevant to the point of this chapter is the discussion entitled 'De differentia inter medicum et physicum, et an medicina subalternetur physicae, et cuius sit ponere discrimen inter scientias, which appears in lib. II, cap. 4 (pp. 51–3) of Benito Pereira, *De communibus omnium rerum naturalium principiis* (Venice, 1591), a work first published in 1562.