5 Medicine in Medieval Western Europe, 1000–1500

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Salerno and the impact of translation

An observer of medicine in 1050 would have found little changed from 550. The intellectual renaissance of the ninth century had had little impact on medicine, save for a general increase in literacy and the availability of manuscripts. But medicine had not gained a place among the new 'liberal arts', and cathedral schools like Chartres (France) with a reputation for medical teaching were exceptional. Indeed, at Chartres medicine formed only part of a wider programme of studies that encompassed the whole world of natural knowledge – it was not intended specifically to produce professional healers, but to lead to a better understanding of God and His creation. Such instruction, both in its clerical context and in its content (largely Methodist in its therapeutics (pp. 82–5), with a minimum of basic theory), differed from that associated with Salerno from the late eleventh century onwards. Salernitan doctors were already famous in France by the late tenth century, when an erudite Frenchman and a practical Salernitan disputed before the French King, and when a French bishop journeyed to Salerno in search of a cure. But it is not until the next century that one can properly understand what was happening in this small southern Italian town.

The tradition that the school of Salerno was founded by four masters – a Latin, a Jew, an Arab, and a Greek who brought with him the writings of Hippocrates – contains a kernel of symbolic truth. Salerno stood at the intersection of several cultural, economic, and political routes. In the eleventh century, it was ruled by Norman Dukes, who constantly played off the Pope, to the North, against the Byzantine Emperor, who still controlled much of southern and eastern Italy. Jewish physicians might be found anywhere, like Shabbetai Donnolo (913 to *c.* 982), a

southern Italian Jew, whose *Book of Wisdom* united Greek anatomy and pharmacology with Jewish mysticism and astrology in a complex of universal interrelations. Arab settlers had by 950 established themselves in Sicily and along the southern Italian coast, and trading relations, particularly through nearby Amalfi, were maintained with both Byzantium and northern Africa. A hundred miles to the north lay the greatest abbey in Europe, Monte Cassino, then at the height of its influence as an intellectual centre under Abbot Desiderius (1058–87), and housing in its library a collection of medical texts exceptional for both quality and quantity.

In 1063, Alphanus, a monk of Monte Cassino, who in his youth had studied medicine at Salerno, and was now its archbishop, travelled on an embassy to Constantinople, where he became acquainted with Greek medical texts. His translation of *On the Nature of Man* by Bishop Nemesius of Emesa (*fl.* 390) introduced into Latin a Christianised Galenic anthropology, while his own writings on pulses and the four humours reflected contemporary Byzantine medicine. Greek influence is also visible in a collection of Latin *Questions* associated with Salerno at this time. Together they offered a new view of medicine, more speculative and more open to (largely Greek) natural philosophy, *physica*, than what had gone before.

The earliest Salernitan teaching texts of medicine continued this exploration of basically Greek ideas in Latin. Some form of anatomical dissection based on animals was introduced around 1120, by which date the custom of medical teaching by means of commentary on another author was well established. The earliest commentators expounded their base text closely and methodically. By about 1180, however, Bartholomaeus in his lectures on the *Articella* (p. 142) was using his base text as a starting-point for a wider exploration of different arguments, incorporating Aristotelian and Arabic philosophical learning. He did not repeat unthinkingly the letter of the text, but tried to augment his hearer's knowledge of the natural world with medicine at its centre.

Salerno is also credited with the introduction of Arabic medicine into Western Europe. Here the moving spirit was Constantine the African, a Tunisian who became a monk of Monte Cassino, and who between *c.* 1070 and his death by 1097 transmitted to the Latin world hitherto unknown texts of Arabic and Greek medicine. His *On Intercourse* (*De coitu*) and the *Traveller's Guide* (*Viaticum*), both from Ibn al-Jazzar, and

his rendering of the compendium of Majusi (pp. 113–14), which he dedicated to Abbot Desiderius and became known as the *Pantegni* (*Universal art*) of Haly Abbas, conveyed the sense of the Arabic originals rather than their exact words. His translations, via the Arabic, of Galen's *Art of Healing* (*Tegni*), and his commentaries on the Hippocratic *Aphorisms* and *Prognostic*, and of an adaptation of Hunayn's *Medical Questions* (p. 122), the *Liber ysagogarum* (*Introduction*) of Johannicius, provided an enlarged theoretical basis for medical knowledge. By 1150 manuscripts of these texts had spread widely in Italy and beyond, and separate sections of the *Pantegni* had taken on an independent life of their own.

The importance of Constantine's translations cannot be overestimated. They put the Latin-speaking world in touch with the tradition of Hippocratic learning promoted by Galen and extended by the Arabs. They introduced new therapies (Constantine's drug book, the *Antidotarium* was widely copied) and a new technical vocabulary, as well as a whole range of new concepts, particularly in anatomy and physiology. The *Liber ysagogarum* also provided a structure for medical discourse, for it laid down how to diagnose a patient and organise therapy. Its emphasis on the 'six non-naturals' (food and drink; sleep and waking; air; evacuation and repletion; motion and rest; and the passions or emotions) as the crucial determinants of health and illness played an important role in medical thinking long after the identity of Johannicius and their Galenic origin had been forgotten. Without proper attention to these non-naturals, the body's natural state would turn to the contra-natural state of illness as a result of changes in its humoral balance. Similarly, by regulating the non-naturals one could protect the body in advance of predictable changes; one needed to eat less, or different, food in summer than in spring or autumn. Medieval and Renaissance authors composed their books on diet (or, better, lifestyle; see pp. 26–8) to take account of the non-naturals, and they prescribed for patients in accordance with the rules set out by Johannicius. Their medical counsels (*consilia*), thousands of which survive, mainly from the period after 1300 and ranging in length from a few lines to many pages, dealt in turn with each of the six non-naturals, describing what foods, rest, ambience, evacuations (including one's sex-life), exercise, and emotional state would best preserve or restore an individual's health. Onto the holistic framework set out by Johannicius, doctors and their patients could fit a highly individualised scheme of therapy.

Translation was only one part of the medical activity of southern Italy in the late eleventh century. It was in Salerno, or possibly even at Monte Cassino, that a new canon of medical authority, known in the sixteenth century as the *Articella* or *Little Art of Medicine*, was created. To the *Liber ysagogarum*, the object of learned commentary at Salerno before 1150, were added Hippocrates' *Aphorisms* and *Prognostic*, and two Byzantine treatises, Theophilus, *On Urines*, and Philaretus, *On Pulses*. Before 1200, this collection had been supplemented by Galen's *Tegni*, soon followed (though not necessarily in Salerno) by Hippocrates' *On Regimen in Acute Diseases* as translated by Gerard of Cremona. The *Articella* swiftly became the basis for advanced teaching in medicine throughout Western Europe. It differed from the typical pre-Salernitan medical collection in several important ways. Firstly, it contained few remedies, and was largely concerned to convey the theoretical knowledge essential for practice. Secondly, it was a mixture of translations from Greek and Arabic (a nice indication of the cultural mixture of southern Italy). Thirdly, its discussions linking medicine with a wider world of natural philosophy demanded both a philosophical and a medical understanding. Its largely Aristotelian orientation increased its attractiveness for those who had already studied Aristotelian logic and natural science – i.e. the university teachers from 1250 onwards. Finally, for all its pedagogic merits, the *Articella* paradoxically narrowed the medical focus. Pre-Salernitan compendia included texts drawn from the Methodist and the Hippocratic tradition; Galen featured in them, but he was not dominant. By contrast, the *Articella* was confined to the Galenic tradition – the Hippocratic works in it were often accompanied by the Galenic commentary, and at least one, *Prognostic*, was constructed out of Hippocratic quotations embedded in Galen's exposition. Constantine's translations of Arabic authors added therapeutic information from within the same tradition, confirming the value of the theories put forward in the introductory texts. In short, while the Salernitan commentators of the twelfth and thirteenth century were far more learned than their medical predecessors of the tenth, and viewed medicine against a broader background of natural philosophical enquiry, their Galenism reduced the range of acceptable medical ideas. The appearance of the *Articella* also gave learned medicine its equivalent of a sacred text – a proper doctor could henceforth be defined in terms of knowledge of a series of books.

This process was accelerated by two important developments, the rise

of universities and renewed access to earlier medical learning through the medium of translation. The two are interrelated, for ideas newly available in Latin influenced what was taught, and the existence of a learned (and wealthy) clientele encouraged the search for new and better translations.

Five separate stages in the translation of earlier material into Latin can be usefully distinguished. The first, associated with Constantine and southern Italy, involved both Greek and Arabic texts, and was predominantly concerned with medicine. It established a new vocabulary of medicine, e.g. *siphac* (peritoneum), as well as the beginnings of a standard way of medical thinking.

Of equal significance, however, was the great outpouring, from the 1140s onwards, of Latin translations made in Spain from the Arabic, often with the assistance of Hebrew intermediaries. This included, as well as medical texts, many works of science and philosophy, especially Aristotle. Although Gerard of Cremona (*fl.* 1150–87 at Toledo) translated some of Galen's writings, e.g. the *Method of Healing*, he and his colleagues concentrated on major Arabic practical texts, like the *Canon* of Avicenna (p. 114) and the *Liber ad Almansorem* of Rhazes (p. 112). The consequences of these Spanish translations were two-fold. They provided a far wider and heavily Arabised vocabulary for learned medicine in Latin, and they imparted an ever greater Arabic and Aristotelian slant to Galenic medicine. In Avicenna's *Canon*, medicine was systematised within a strongly philosophical and logical framework, with each part carefully related to every other. What in the Galenic original was diffuse or tentative was now reduced to succinct certainty. The new Arabic material was also far more advanced, conceptually and practically, than what was available through the Greek; Kindi's *De gradibus* (*On the Grades of Drug Action*), said Roger Bacon (*c.* 1214–94), demanded a knowledge of mathematics well beyond his own contemporaries in philosophy, let alone in medicine. Arabic pharmacology, surgery, and practical medicine in Latin dress thus formed the foundation for further medieval investigations, and apparently new questions of wider, philosophical interest now occupied teachers of medicine. Whereas for the Salernitan commentators, medicine had remained at the centre of the universe of physic, their successors in Spain and northern Italy discussed medicine as only one part of an Aristotelian philosophical universe, and a subordinate one at that.

Contemporary with Gerard, but operating from Constantinople, was

a Pisan merchant, Burgundio (1110–93). A friend of the Salernitan master Bartholomaeus, he had his own collection of specially copied Greek manuscripts, in which one can still read his annotations and follow the development of his technique as translator. His renderings of Galen from the Greek are more accurate than those of Gerard, and covered a wider range of (generally theoretical) writings, including *On Crises* and *On the Natural Faculties*.

A century later came another burst of translation, mainly in Spain and Italy, that brought into Latin other major works of Arabic science (e.g. the *Continens* (*All-Embracing Book*) of Rhazes, in Sicily in 1282; or the *Colliget* (*The Book of Universals*) of Averroes (Ibn Rushd), in Padua in 1283), and yet more Galen. In Spain, Arnald of Villanova (d. 1311) translated Galen's *On Rigour* (1282), as well as Avicenna's *On the Properties of the Heart* (*c.* 1280?); while in Italy, versions of Galen, including portions of *On the Use of Parts of the Body*, were made by another professor, Pietro d'Abano (1257 to *c.* 1315), directly from Greek manuscripts he had brought back from Constantinople. Still more significant was the utilisation of the new Galenic material to review the doctrines found in the Arabo-Latin compendia. Arnald's commentary on Galen's *On Bad Temperament* criticised earlier views of fever, while Pietro's *Conciliator* (*The Reconciler of Differences Between Philosophers and Doctors*) was a celebrated exposition of the basic principles of Galenic/Aristotelian medical science. The Spanish translations clearly influenced the type of medicine taught by Arnald and his colleagues at the University of Montpellier (southern France), and the 'new' Galen seems also to have stimulated Taddeo Alderotti (active at Bologna 1260–95) to original thoughts on disease and internal medicine. His example was followed by several of his pupils, who tended to take Galen's side in university debates with Aristotelian philosophers.

The final translator of importance was Niccolò da Reggio (*fl.* 1315–48), a bilingual doctor and diplomat in the Kingdom of Naples. In all he translated over 50 writings by Galen, many for the first time, including the complete *On the Use of Parts of the Body*. He was remarkably accurate, living up to his claim 'neither to add nor remove anything' from his Greek original, and modern philologists have united in his praise. Some Galenic texts, e.g. *On Procatarctic Causes*, were for centuries accessible only in his versions, but his medieval influence was generally small, perhaps because most of the Galenic treatises he translated are minor, e.g. *On Prognosis*, or highly philosophical, like the two

tracts *On Causes*, and appeared at a time when university curricula, and their preferred texts, had already become established. The few who cited them, e.g. the French surgeon Guy de Chauliac (*c.* 1300–68), were already learned men, able to appreciate their subtleties, and, more important, wealthy enough to have such relatively recondite books copied for them. Whether all owners read them is another matter. By 1503, a manuscript in Nuremberg (southern Germany) containing several of Niccolò's versions was located only through the stench of its rotting leaves and binding, a reminder, in more than one way, of the fragility of medieval medical learning.

The literature so far mentioned circulated in Latin, the language of learned Europe. A similar, if far more restricted, transmission of the learning of others can be found among the Jews of Catalonia and southern France around 1300, including some Galen as well as works by such local medical worthies as Bernard of Gordon (*fl.* 1283–1308). Not until the late fourteenth or early fifteenth century can one detect elsewhere the growth of a learned but non–latinate class with interests in medicine. This is not to say that medicine was not written earlier in the vernacular languages – several thirteenth-century manuscripts contain drug recipes written in both Latin, English, and Norman French – but, with the exception of surgery, both the types of text involved and their message rarely rise above the level of basic self-help. By contrast, vernacular writings from 1350 onwards included (a little) Galen and Hippocrates, as well as theoretical discussions. Fifteenth-century German medical texts, in particular, often ally practicality with a sophistication of thought and exposition superior to that of university treatises. Indeed, many of their authors had themselves studied at an Italian university, and could easily have written in Latin, had they so wished. The explanation for their choice lies rather in their intended audience – more local and less dependent on the universities.

Nor do Latin and vernacular texts represent learned and folk traditions respectively. The *Surgery* of John of Arderne (*c.* 1307–70) exists in both Latin and English, and Bartholomew the Englishman's *On the Property of Things* enjoyed a wide circulation in both Latin and English. Although many of the texts translated were severely practical, dealing with surgery, drugs, veterinary medicine, and 'medical forecasting', parts of the *Articella*, for instance, were available in French, English, and Gaelic. Their sponsors were frequently surgeons, especially those resident in major cities, keen to have for themselves in an accessible

tongue treatises that were highly praised by other practitioners. Other writers, like Henry Daniel in his English *Book of urines* (1379), were intent on bringing the best of medicine to a wide audience, with charitable or religious aims in mind. Books like these, and, in particular, the many writings by German physicians and surgeons in the fourteenth and fifteenth centuries, show how an audience for learned medical discourse was being created outside the universities.

These translations into Latin, and later into the vernacular, had important consequences for medieval medicine. They reinforced the power of tradition, while at the same time enabling a more sophisticated understanding of medicine to develop within the new linguistic community. New words, new concepts, and new errors alike were introduced. The texts themselves carried a Galenic medicine, frequently within an Arabised and Aristotelian framework. Such medical knowledge was validated by its place within the divinely created order of things; apparent contradictions did not necessarily indicate error, but rather positions to be reconciled by logic, by words, and by better understanding. The heavy Arabism of many Latin translations tended to create a specifically medical vocabulary, which in turn encouraged the separation of medicine as an elite science in the thirteenth century, a development only partially retarded by the rise of learned medical writing in the vernacular, especially on surgery, in the fifteenth.

Religion and Medicine in the Later Middle Ages

From the eleventh until the fourteenth century at least, the economic, political, and social power of the Papacy and its dependent religious institutions grew enormously. Older claims to oversee the whole of the life of the Christian community were vigorously repeated, even if local conditions, not least the opposition of kings and local magnates, nullified the effects of many decrees of Popes and Councils. It is significant that the most effective religious action against any type of medicine did not take place until the sixteenth century, when Emperor and Inquisition, acting together in Spain to stamp out heresy, secured the destruction of a medical tradition based on a first-hand acquaintance with Arabic (and occasionally Jewish) sources. In the Middle Ages, neither Church nor State possessed such an efficient mechanism of control, whatever legislators thought to the contrary.

Besides, the Church's priority was the eternal salvation of the soul.