Chapter Twenty-seven

Catholic Europe's Road to the Renaissance

In twelfth- and thirteenth-century Christendom the excitement over the new religious movements all but obscured the beginnings of more secular interests, which in the very long run have been far more consequential. Ultimately they undermined both Christianity and Judaism, and led to the replacement of Christendom by Western (a better adjective is "modern") civilization. In order to appreciate the twelfth-century seeds of this great change we must see it in perspective.

The First Crusade permanently widened the horizons of Catholic Christendom, and the widening brought with it a revival of learning. The "pilgrims" who went to the Holy Land saw parts of the world whose inhabitants were much better off than were the pilgrims themselves or the communities from which they had come. In addition, the leaders of the First Crusade set up kingdoms or counties in the Levant. Some of these crusader kingdoms survived for only a few decades, and none of them for more than a few generations. Ephemeral as they were, however, they allowed Christians of northern Europe and Italy to come into continuing contact with the Dar al-Islam.

What seemed especially to differentiate easterners from westerners in the early twelfth century was the sophistication of the former: in the Byzantine empire and especially in the Dar al-Islam the pilgrims encountered societies much more complex and advanced than anything they had seen at home. For centuries western Christians had been focused on Heaven and Hell and had been generally satisfied with (or resigned to) the conditions of earthly life that they had inherited from their parents and grandparents. This complacency was shattered by the First Crusade.

The crusader states set up in Jerusalem and elsewhere in the Levant and Cyprus greatly increased trade between the eastern Mediterranean and Catholic Europe. Silks, spices and other luxury imports from the east came especially to northern Italian ports - to Venice most of all, but also to Pisa on the Arno and to Genoa - and by the thirteenth century northern Italy was much richer than it had been in the eleventh. Elsewhere in western Europe economic change was less striking but was nevertheless considerable. Along with trade came new ways of doing business. One very consequential innovation was mathematical calculation with Indian numerals, "zero," and the decimal place-value system. The efficiency of the eastern numerology was seen by merchants who traded in the Dar al-Islam and was advertised in the west by the *Liber abaci* ("Abacus book") written ca. 1200 by Leonardo of Pisa, popularly known as Fibonacci. During the thirteenth century the old Roman numerals began to give way to "Arabic" numerals in much of western Europe.

Education in medieval Europe

Adoption of the "Arabic" numerals was just one of many changes brought on by eastern

influences. Most basically, new kinds of education were required if Catholics were to catch up with the easterners. The twelfth-century innovations in western Europe culminated in the establishment of the first universities.

Education had not entirely disappeared in Europe after the collapse of the Roman empire, although for a very long time few Europeans - even among the clergy - were taught much more than how to read and write. Nevertheless, the ideal of "the educated man" remained visible. From antiquity Christendom had inherited the schema of the Seven Liberal Arts. The first three of these - the trivium - were grammar, rhetoric and dialectic, the three components of effective speech. The last four - the quadrivium, dealing with mathematics and "physics" - were arithmetic, geometry, astronomy and music. The Seven Liberal Arts had been celebrated in the fifth century by the poet Martianus Capella, in his *Marriage of Philology and Mercury*, but soon after Martianus' time education in the Latin west became a luxury that very few could afford. Such education as survived was located primarily in a school (*schola*) established at a cathedral, and the purpose of the cathedral school was to provide some elementary instruction for young priests.

In the eighth and ninth centuries the Carolingian court at Aachen helped to revive the educational ideals of the Roman empire. This was largely the accomplishment of Alcuin, who headed the cathedral school first at York and then - at Charlemagne's invitation - at Aachen. Alcuin's school was not restricted to those boys and young men who hoped to enter the priesthood, but was open to all who aspired to be educated men. After gaining some proficiency in reading and writing Latin and in chanting the psalms, the scholars (*scholārēs*) went on to learn at least the fundamentals of each of the liberal arts. In addition to teaching many young men and for a time heading the Abbey of St. Martin at Tours, Alcuin wrote treatises on education in general and in particular on the liberal arts of the trivium. These treatises were in the form of dialogues, the *personae* of the dialogues being Alcuin and Charlemagne.

Thanks to the Carolingians' support, in the ninth and tenth centuries cathedral schools flourished in many cities in Germany, France, Britain, Ireland and northern Spain, and at most of these schools some education in the liberal arts was provided. Often, however, this education was little more than the memorizing of generalizations or axioms gleaned from ancient texts. The teachers typically were lower members of the clergy, and their knowledge seldom extended much beyond the material that they inculcated into their students.

The professionalizing of law in Catholic Europe

The cathedral schools did not provide education for professions other than the priesthood. After a young man had completed his secondary education in the liberal arts his education was essentially over, because he had no need and certainly no opportunities to acquire any specialized skills. This changed in the twelfth century. The pilgrims and crusaders who returned to western Europe, and those who journeyed to the east and spent some time in the crusader kingdoms in the Levant, had a heightened appreciation of professional education. As we have seen, both medicine and law were learned professions in the Dar al-Islam. As the twelfth century wore on, in western Christendom too law and medicine came to be regarded as learned

professions.

In the early Middle Ages the various barbarian kings of Europe had put into writing the traditional laws of their tribes, but these barbarian codes - of the Visigoths, the Franks, the Lombards - were crude and short. Trials by compurgation or by ordeal were common, and the legal profession was all but extinct. Contact with the highly developed schools of law in the Dar al-Islam raised the standards of law in the west. The "new" law and jurisprudence in Catholic Europe, of course, was not the *shariah* and *fiqh* of the Dar al-Islam. It was, instead, a combination of traditional canon law and of the ancient Romans' civil law, which had fallen into disuse in the fifth and sixth centuries but was revived in the twelfth. Imerius of Bologna (d. 1130) secured a copy of Justinian's law-code, the *Corpus iuris civilis*, and began teaching from it. Young scholars from northern Italy and beyond gathered to hear Imerius' lectures, and after his death other masters took up residence at Bologna and continued his course in ancient Roman law. During the twelfth century kings in western Europe began to base the administration of justice in their kingdoms on the *Corpus iuris civilis*, and thus did a class of lawyers make its appearance in Catholic Christendom.

The beginnings of professional medicine in western Europe

More important than law was medicine, and medicine too became a learned profession in the eleventh and especially the twelfth century. This transformation is known in some detail, thanks especially to investigations by the late Vern Bullough.[1] In western Europe healers in the early medieval period had known a few medical axioms and procedures passed down from Late Antiquity - bloodletting was a favorite device for restoring the balance of the four humors - but just as often resorted to prayer, magic, and astrology.[2] Most of these healers were illiterate, and most of the "cures" that were touted in the early and high Middle Ages were concoctions that included exotic and repellant substances such as the urine or feces of birds and beasts. Miracles by the hundreds were reported and believed in Catholic Europe, Augustine and Jerome having fed the appetite for miracles with their assurance that such things happened in holy places or in proximity to holy persons and holy objects. Edmund, a king of East Anglia in the ninth century, became St. Edmund because of the many miracles attributed to him, and these included occasional resurrections of the dead.

In contrast, literate and educated physicians were the rule in the Byzantine empire and the Dar al-Islam. Byzantine physicians - almost all of them Christian - learned their trade from the Greek medical texts written by Hippocrates, Galen, and other respected ancients. In the Dar al-Islam most physicians - whether Muslim, Jewish, or Christian - were educated from Arabic texts. Some of these were direct translations from the Greek, and many others had been composed in Arabic.[3] The aspiring physician spent years accompanying an established practitioner (medical education was not institutionalized in the east), under whose tutelage the student would gain both practical experience and some familiarity with the recommended books. Although few Arabic or Greek physicians owned such books, medical libraries were accessible in the larger cities. Nothing comparable was to be found in the Latin west: the medical literature available in Latin was a tiny fraction of what was available in Greek and Arabic. Occasional texts, such as the *De materia medica* (a Latin translation - from the Arabic - of Dioscorides' pharmacopoeia), were extant, but few healers in Catholic Christendom were equipped to read

them.

Salerno and Montpellier

Western European standards rose in the eleventh and twelfth centuries, as pilgrims returning from the east recounted what they had experienced at the hands of Arabic physicians who had learned their profession from masters and books and seemed to know what they were doing. A harbinger of this eastern influence was the reputation that the southern Italian city of Salerno gained as a "medical center" already in the eleventh century: healers in Salerno were widely regarded as superior to those in other cities of Catholic Christendom.[4]

The chief contributor to Salerno's medical reputation was a man known only as Constantine the African (ca. 1015-1087). Constantine was hardly his original name if, as a twelfth-century text declares, he was a Muslim merchant from North Africa, who visited Salerno and discovered how backward were the city's physicians.[5] Three years after this initial visit, and perhaps ca. 1077, he returned to Salerno, bringing with him dozens of Arabic manuscripts on medical subjects. Converting to Christianity, Constantine Africanus spent the rest of his life translating the Arabic texts into Latin. When he had achieved a considerable reputation at Salerno, he was invited to the great Benedictine abbey at Monte Cassino. Supported handsomely by Abbot Desiderius, Constantine completed the bulk of his work at Monte Cassino. Possibly the first work translated by Constantine the African was a short pamphlet titled *Isagoge* ("Introduction"), which quickly became a standard elementary text for aspiring physicians in Catholic Europe and remained so for four hundred years.[6] The longest of the texts translated by Constantine was the *Pantegni*, a comprehensive work of twenty books, divided equally between the theory and the practice of medicine. The Arabic original of the *Pantegni* had been written by ʿAlī ibn al-ʿAbbās al-Maǧūsī in the tenth century (little is known of al-Magusi, who seems to have been a native of southwestern Iran) and was widely used from India to Spain. In addition to the Arabic original, Hebrew and Urdu translations of the *Pantegni* were available in the Dar al-Islam.[7]

Close behind Salerno in its reputation for accomplished physicians was the city of Montpellier, on the Mediterranean coast of southwestern France. Already ca. 1137, when visited by Adalbert of Mainz, Montpellier was regarded by western Europeans as exceptional because physicians there were instructed in "the doctrine and precepts of medicine." The instructors had learned their profession in Moorish Spain. Perhaps most of Montpellier's physicians were Christian, but others were Jewish (Christian and Jewish emigrants from Spain, fleeing the Almoravids and Almohads in the late eleventh century, had settled at Montpellier and other cities of southern France). In his *Book of Travels* Benjamin of Tudela, a twelfth-century rabbi from the city of Tudela in northern Spain, reported that in Montpellier "there are Jewish scholars of great eminence."[8]

The translation of Arabic medical texts into Latin continued through all of the twelfth century. Among the trilingual scholars engaged in this project was Adelard of Bath. In the 1120s Adelard set himself to learn Arabic in order to be able to read and translate Arabic texts on mathematics, medicine and astronomy. A contemporary of Adelard was John of Seville, a convert to Christianity from Judaism. John translated various Arabic works into Latin,

including a treatise on gout, but his most popular work was his *Secretum Secretorum*, a literal Latin translation from the Arabic *kitab sirr al-asrar*.[9] The book dealt with other matters important to a king, and especially with food, drink and the maintenance of good health. Of more practical value to physicians were the many translations produced by Gerard of Cremona (1114-1187). Gerard is credited with having translated seventy texts from Arabic into Latin. Perhaps his most important achievement was his *Canon medicinae Avicennae*, a translation into Latin of Ibn Sina's great medical synthesis.

In short, the seedlings of Europe's medical profession were transplanted from the Dar al-Islam. Catholic Christians who knew something of the wider world recognized that the physicians of Andalusia, of North Africa, and of the Middle East were superior to their own healers, and that this superiority was the result of education and learning. As a result, the European nobility too began to expect that its *medici* should have learned their profession from medical books, whether written by Muslim physicians or by writers of the distant past. Over the course of the twelfth century "Avicenna" and Galen became the preferred *auctores* ("authors," or "authorities") for medical questions.

The *doctores medicinae* and the first medical schools

An innovation of profound importance in western Europe was the institutionalizing of medical education. Instead of the one-on-one or apprenticeship method of instruction that was common in the Byzantine and Muslim world, the new physicians of Catholic Europe tended to be educated and trained by professional and recognized teachers (*doctōrēs*) of medicine. This was in large part a consequence of the suddenness with which professional medicine came to the region. Once it was recognized that a trained physician was much more effective than the traditional and untrained healers, the wealthier classes throughout Catholic Europe insisted on being treated by practitioners who had learned their profession from a *doctor* who knew what was in the newly translated texts and who had some reputation as a teacher. While the traditional system of masters and apprentices could steadily supply all the carpenters and craftsmen who were needed, it could not meet the sudden demand for educated physicians. To receive such an education, a young man in the early twelfth century had to betake himself to Salerno or to Montpellier, because those were the cities in Catholic Christendom in which *doctores* or *magistri* of medicine could be found. Most of the *doctores medicinae* had also acquired for themselves sets of detailed anatomical diagrams and illustrations. The centralizing of medical instruction in the west under *doctores* led rather soon to the dissection of cadavers: dissection would seldom have been done by a single physician for the benefit of one or two students, but it was a practical way for a *doctor* to instruct ten or fifteen students in human anatomy.[10]

A medical "school," an organized body of *doctores medicinae,* may have existed at Salerno already in the eleventh century. Little is known about the *schola medica Salernitana* before the arrival of Constantine Africanus. But thereafter, with its treasure of medical manuscripts, the school attracted students from much of Catholic Christendom. By the end of the twelfth century the *doctores medicinae* at Montpellier had also come together to constitute a school. Henceforth, no *doctor* could teach publicly at Montpellier without the bishop's

approval, the bishop being advised on the applicant's worthiness by the other masters of the school. No student who owed a fee to one *doctor* could be accepted for instruction by another *doctor*, and the *doctores* were not allowed to compete with each other for students.[11] To the end of the fourteenth century the medical school at Montpellier remained, alongside those at Paris and Bologna, preeminent in western Europe.[12] The Jewish *doctores* at Montpellier, excluded from teaching in this school because of its ecclesiastical character, seem to have held a small school of their own for Jewish students.

So great was the prestige of the *doctores medicinae* that eventually the term *doctor* became synonymous with an accomplished physician. Although teachers of law, theology and the liberal arts were also *doctores*, over the centuries the term *doctor* began to lose its old Latin meaning of "teacher." Chaucer's "doctour of physik," who knew what all the old Greek and Arabic authors had written on the subject of medicine, was transitional in this shift of meaning. The shift seems to have come about because - whether or not they were teachers of medicine - physicians who had been trained in medical schools advertised themselves as *doctores*. This they did in order to make it clear that they were professionally educated, and not to be confused with the traditional healers and barbers (many of them illiterate) who still performed surgeries in western Christendom.[13]

Theology and philosophy

Even earlier than law and medicine as fields of study were philosophy and theology. Philosophy in medieval Europe meant the mastery of formal logic, and it relied upon the translations of Greek texts into Latin that had been done in Late Antiquity. Boethius (d. 524) had produced translations - not always reliable - of the four works collectively known as the *Organon* of Aristotle, and also of the *Introduction to the Categories* (*Isagoge*) written by Porphyry. Late in the eleventh century these texts and formal logic began to attract much attention. In the school attached to the abbey at Bec, in Normandy, both philosophical and theological questions were dealt with astutely by Anselm (1033-1109), who eventually became Archbishop of Canterbury. In his teaching and his writings Anselm devoted himself to ontological arguments that had been raised in antiquity by Aristotle and Porphyry. Anselm used logic to demonstrate, at least to his own satisfaction, the existence of God. Other ontological questions came to the fore in the twelfth century, with the revival of the ancient debate about the reality of abstractions. If one says, "the dog is man's best friend," does either "the dog" or "man" have any objective reality? Or are we dealing with reality only if we say, "Jerry's dog, Rascal, is Jerry's best friend." Those scholars who maintained that abstractions are mere names were called Nominalists, and those who attributed objective reality to abstractions were the Realists. By the end of the twelfth century a modified Realist position had won the day.

Because questions such as these, whether theological or philosophical or both, were hotly debated in many of the cathedral schools, the "Schoolmen" (*scholastici*) gained a reputation for their argumentative skills. The debates were carried on according to the rules of logic and of dialectic, which was the third course in the trivium. The final arbiter of formal logic was Aristotle, and his *Organon* became the textbook for the scholastics, especially after the commentaries of "Averroes" on the *Organon* became available in Latin. The thirteenth century

was the high-water mark of scholasticism, and Thomas Aquinas was perhaps its outstanding practitioner. By the fourteenth century, however, scholastics and scholasticism were criticized by humanists, who regarded the debates of the Schoolmen as sterile exercises.

Early medieval theology wrestled mostly with Neoplatonist doctrines promoted by (Pseudo-) Dionysios the Areopagite. The writings of "Dionysios" had been translated into Latin in the ninth century by the Irish scholar John Scotus (Johannes Scottus), who added his own commentaries to the translations.[14] In the twelfth century contact with Orthodox Christianity and especially with Islam forced western Christians to defend and refine their theological tenets, but equally stimulating were the arguments from "natural theology" that were debated by philosophers and the Schoolmen. The most notorious theologian in the early twelfth century was Peter Abelard (1079-1142), who began as a philosopher, a logician, and a Platonist, much influenced by the writings of Boethius. After his tragic love affair with Heloise and his brutal castration, Abelard's interests shifted to theology. For a time he was a luminary at the Abbey of St. Denys in Paris, and in 1113 he was appointed to teach theology at the cathedral school of Notre Dame de Paris. Abelard's *De unitate et trinitate divina*, an attempt to make reasonable the doctrine of the Trinity, was hailed by some but was condemned by the Church in 1121. His teachings were time and again denounced by Bernard of Clairvaux, for whom faith and obedience were humankind's only guides and the rationalism of Peter Abelard was a great danger. Although Abelard got on poorly with authority throughout his life, he attracted students - thousands, he claimed - from all over western Europe, and most of the scholars found his lectures enlightening.

The formation of universities

Abelard had held his school at various places in northern France - the small cities of Melun and Corbeil, and then Paris - and wherever he was, there also were students. Like Abelard, other renowned masters (*magistri*) of their discipline moved about and some higher learning was for a time itinerant, with both the students and the masters moving from one city to the next in search of each other. The permanent schools of medicine at Salerno and Montpellier, however, along with the school of law at Bologna, had obvious advantages for the students and the masters, and brought favorable attention to the cities in which they met. At Paris the school of the Cathedral of Notre Dame de Paris grew considerably during the course of the twelfth century, and by the death of King Louis VII in 1180 it seems to have included teachers of the liberal arts, medicine, law and theology. In the second half of the twelfth century the schools at both Paris and Bologna were formalized as *universitātēs*.[15] Soon after the establishment of these two *universitātēs* on the continent, something very much like them developed at Oxford, although the latter did not formally become a *universitās* until 1231.

The term *universitas* had been commonly used in Catholic Europe to denote a guild or professional corporation. Just as the *universitas fabrorum lignariorum* was "the corporation of wood-workers," and the millers' and bakers' guild was the *universitas pistorum*, so a group of teachers and scholars formed a *universitas magistrorum et scholarium*. What set the academic *universitas* apart from the less formal school that preceded it was its legal standing as a corporate entity. Vern Bullough summarized what is known of the origins of the university at Paris:

> One of the first steps was the codification of the unwritten customs of the masters and students into a body of written law. This was followed by recognition of these associations as a corporation with rights to sue or to be sued. To authenticate the actions of the corporation, a seal was created, and finally, to give form and direction to the developing corporation, administrative officials developed.[16]

At Paris the initiative for this legal recognition was taken by the masters, who therefore *were* the university. At Bologna, in contrast, the university was a corporation of students.

In the thirteenth century academic corporations or *universitates* arose in other cities of western Europe and at Cambridge in England, and the structure of the university solidified: young scholars would normally first study the liberal arts, the *artes liberales*, under the direction of the lower masters (the liberal arts were the traditional seven subjects of the trivium and quadrivium). Upon receipt of the *baccalaureatus*, the scholar - now a Bachelor of Arts - could attend the lectures of the higher masters. Although for a time some universities in northern Italy included higher masters only in the fields of law and theology, at Bologna, Paris and Oxford the universities from the beginning included *doctores* of medicine. The medical school at Bologna in fact became famous for its instruction in surgery.

The university was one of the distinctive institutions of Catholic Europe in the late medieval period, and a principal agent in turning Christendom down the path toward modern civilization. No real counterpart to the university was to be found in the Dar al-Islam, or in the Byzantine empire.[17] Throughout the Muslim world a madrasa could normally be found near a large mosque, for study of the Quran and of Sharia. The most ambitious of the madrasas, what might be called "college mosques," also taught young men something of mathematics and philosophy.[18] But education in the madrasa began with the *hfiz*, in which the student memorized the entire Quran. Even the grandest of the madrasas - al-Azhar in Cairo and al-Qarawiyīn at Fez - were essentially extensions of the mosque, meant to provide instruction in the holy law.

A few institutional parallels can be drawn between the Muslim madrasa and the Christian university,[19] and it is true that all early universities had connections with the Church. So, for example, teachers in a university belonged to the minor orders of the Catholic clergy, and both teachers and students were formally under the supervision of the bishop of the city in which the university resided. But while the madrasa was in the service of Islam, the university was hardly in the service of the Church. For students and teachers alike the university was an academy, at least slightly removed from the Church and with a purpose very different from that of the Church. The many young men who wished to devote themselves more fully to the Church and to God could do so in the priesthood, in the monastery, or in one of the mendicant orders. In contrast, the university appealed to those young men who wished to devote themselves to something *other* than God and the Church: to law, to philosophy, or to theological study less restrictive than that available in the cathedral schools. As it happened, many of the Church's most devastating critics - culminating in John Wycliffe at Oxford, Jan Hus at Prague, and Martin Luther at Wittenberg - came from the universities. The success of the early university in attracting students depended directly on the academic excellence (or the reputation for

excellence) of its *magistri*, and for that reason at least a limited freedom of inquiry was required. Because of that freedom of inquiry the university turned out to be one of the most consequential innovations of western Christendom.

The influence of Arabic philosophers on philosophy in western Christendom

Law, medicine and to a lesser extent theology were professional disciplines. A broader desire to learn and to know came to western Europe somewhat later, but was once again the result of influences from the Dar al-Islam. In the thirteenth century a few churchmen of wealth and noble birth were fired with an enthusiasm for a new kind of philosophy. This was Aristotelian "science," the huge corpus of works that Aristotle had written concerning the physical world.[20] Thanks to their translation from Arabic into Latin, some of these - along with the commentaries on them that "Averroes" had recently written - became available to Catholic Christians.

It is a paradox that the Arabic philosophers of Spain, the last of the classical philosophers of the Dar al-Islam, helped to pull Christian and Jewish scholars of western Europe out of the Dark Age. From Arabic the writings of Maimonides and Ibn Rushd were translated into both Latin and Hebrew. Even before Maimonides' death his *Guide to the Perplexed* had been translated from Arabic into Hebrew, by Shmuel ibn Tibbon of Montpellier. By ca. 1225 the *Guide* had also been translated into Latin, as the *Dux Neutrorum*. Who was responsible for the Latin translation is uncertain. This was the version that was used by Thomas Aquinas (1225-1274) in the middle decades of the thirteenth century. In Italy especially Christian and Jewish scholars were not only in contact but collaborated in mining the new knowledge that was available in Arabic. The work of Shmuel ibn Tibbon was continued by his son-in-law, Jacob Anatoli (1194-1256), who like his father-in-law was a native of the French Provence. Anatoli translated into Hebrew the Arabic commentary that "Averroes" had written on four of Aristotle's six books on logic.[21] Anatoli's translation project was subsidized by the Holy Roman Emperor, Frederick II, who invited Anatoli to take up residence at Naples, one of Frederick's palace cities.

In Christendom, of course, translations into Latin were much more important than translations into Hebrew. The intermediary here was Michael the Scot, or Michael Scottus (ca. 1175-1232), who seems to have been something of a mentor to the younger Anatoli. Although born in Scotland, Michael spent most of his life on the European continent. As a young man he studied at the new "universities" that were then forming at Paris and Bologna, and well before 1209 he took up residence in Toledo. An old and populous city in the middle of Spain, Toledo had been under Muslim control for almost four hundred years. In 1085, however, it was conquered by Alfonso VI of Leon and Castile, who made it his capital. During Michael Scottus' sojourn in Toledo, the kingdom was in the hands of Alfonso VIII. Although Toledo had a Christian king, it remained almost as religiously diverse as it had been under its Muslim amirs. This was a great rarity in Christian Europe, where the city became famous for the "coexistence" (*convivencia*) of its Muslim, Jewish and Christian inhabitants. In the twelfth century the archbishops of Toledo, aware of the immense store of learning that was available in Arabic texts, began to support the translation of these texts into Latin. It was here that the indefatigable Gerard of Cremona had completed most of his translations. This, then, was the activity that

drew Michael Scottus to the city. In his time the enthusiastic patron of Toledo's "School of Translations" was Rodrigo Jimenez de Rada, who was archbishop from 1209 to 1247 and was himself fluent in Arabic.

Once Michael had mastered the language he immersed himself in the Arabic translations of Aristotle's works and also in the original writings of the Arabic philosophers. One of Michael's earliest writings was his summary of Ibn Sina's philosophy (the *Abbreviatio Avicennae*, published in 1210). Michael then translated at least three works of Aristotle - the *Historia animalium*, the *De anima*, and the *De caelo et mundo* - from Arabic into Latin, along with the commentaries that Ibn Rushd or "Averroes" had written on them. In the *De caelo* (in medieval Latin usually spelled, *De coelo*) Aristotle had in four books described a perfectly spherical universe centered on a spherical earth. After leaving Spain Michael went to Palermo, where he became a tutor and advisor to Frederick II. Michael's Aristotelian studies became famous throughout western Christendom, and thus was Aristotelianism made accessible for the scholars of western Europe.

Albertus Magnus and Roger Bacon

One of the most important of the early Aristotelians was Albertus Magnus (ca. 1200-1280). Born to a noble family in southern Germany, Albertus studied at Padua and Bologna, joined the Dominican order, and taught at Paris and Cologne. His writings fill approximately forty volumes in the most recent edition. Some of these are theological, and take issue with Ibn Rushd's conclusions about God, the Active Intellect, and the dissolution of the individual soul in the Active Intellect. In 1256 Albertus published his *De unitate intellectus contra Averroem*, arguing for the immortality of the soul, and fourteen years later he supplied material to his more famous student, Thomas Aquinas, who at the time was making the same argument against "Averroes" in his *De unitate intellectus contra Averroistas*. Like Thomas, Albertus also wrote a *Summa theologiae*, but the master's book was swamped by the much more ambitious work of his student.

Albertus Magnus read and re-read all the writings of Aristotle that were available, and in addition to the Latin translations from the Arabic he devoured the commentaries on Aristotle that had been written by "Averroes" and other Arabic philosophers. In most of his own writings Albertus concerned himself with the physical subjects on which Aristotle had written. Although he occasionally disagreed with or corrected the ancient philosopher, Albertus generally followed his lead and came to be known as "Aristotle's Monkey." Among Albertus' books on *realia* are treatises *On Animals*, *On minerals*, and *Astronomy's mirror*.[22] A student also of mathematics, Albertus wrote a commentary on Euclid's *Elements.* Albertus was one of Europe's first "doctors of philosophy" (*doctores philosophiae*), and so wide was his learning that he was given the epithet *Doctor Universalis*.

Another avid student of Aristotle was Roger Bacon (1214-1291). During his most productive years Roger was forbidden by his Franciscan order from publishing anything, but he wrote nevertheless and in 1267 sent his massive *Opus maius* to Pope Clement IV, who saw to its publication. The *Opus maius* included much on the methods that an investigator must use in

order to arrive at truth. Roger stressed mathematics as the basis of sound knowledge, and he also urged experimentation or empiricism. He was one of the first to advocate the learning of Greek and Hebrew so that one could avoid the pitfalls of mistranslations of the Bible. He did not know Arabic, and so relied on Latin translations of Avicenna and Averroes. In physics, Roger was interested especially in optics, or "perspective." He evidently had constructed a device which helped him, so he claimed, to see the moon and stars much more clearly than one could see them with the naked eye. He was fascinated by the properties of mirrors and was famous for using glass to divide light into its constituent colors. He taught at the University of Paris for six years, but spent most of his career at Oxford, where he was posthumously known as *Doctor Mirabilis*.

Thomas Aquinas

Unlike Albertus Magnus and Roger Bacon, who devoted themselves to the quest for new knowledge, Thomas Aquinas (1225-1274) used his philosophical education and his argumentative skills in a single-minded defense of the Catholic faith. Son of a nobleman, Thomas was born in a castle not far from Aquino in central Italy (ancient Aquinum was the birthplace of Cicero). Thomas entered the Dominican order and as he excelled in his studies was sent to Cologne, where Albertus Magnus held his Dominican school. There Thomas became familiar with what had been done by the Arabic writers Maimonides and "Averroes," both of whom powerfully influenced the young scholar.

During his relatively short adult life Thomas also studied and taught at Paris, but he was most active in Italy. In addition to writing commentaries on many books of the Bible - Psalms, Job, the Gospels - and his shorter treatises in Christian theology, Thomas set forth Catholic Christian belief in a systematic and comprehensive way. He especially exerted himself to defend those doctrines of Christianity that strain credulity, and to show that they may be held by a reasonable person. Against Muslim, Jewish or skeptical critics of the Church Thomas wrote his *Summa de veritate catholicae fidei contra gentiles*. This was an exercise in natural theology, written on the assumption that the reader would not accept the Christian New Testament as a sacred text.

To strengthen the faithful Thomas wrote his *Summa theologiae*. This massive opus, on which he was still at work when he laid down his pen and wrote no more, was divided into three parts, the first dealing with God, the second with ethics, and the third with the Christ. Each part consisted of scores of questions, 512 all together, and each question was broken up into subordinate articles. After stating the question, Thomas began by presenting several apparently plausible objections, which he then proceeded to answer and refute. So, for example, Was woman made from Adam's rib? An objection raised by some is that a rib is too small to furnish the material out of which to create a woman. But Thomas pointed out that just as from only five loaves Christ made enough bread to feed five thousand people, so from the material of a single rib God could easily have created a fully-grown Eve. Thomas devoted much effort to the angels: how many are there, what is their nature, and what are their powers? Many questions pertained to Jesus the Christ and his Holy Mother. Did Mary remain a virgin after Jesus' birth? Yes, for her womb was the shrine of the Holy Ghost and therefore inviolate. Into which Hell did

the crucified Jesus descend? Into both the Hell of the Lost and into Purgatory. Did Jesus' body putrefy in the tomb? No, for he had willed that his body should remain incorrupt.

Aquinas's energies were thus spent in defending revelation from the rationalism that other educated men were beginning to embrace. He is nevertheless an indispensable link in the chain of Europe's intellectual growth because he reconciled the Catholic Church to the new philosophy. At the most fundamental level, so argued Aquinas, Aristotle's writings were compatible with Christian doctrine. Both revelation and reason, that is, were given to humankind by God, and therefore the two did not and could not contradict each other. Endorsing Aristotle's conclusion that supreme happiness comes from the full employment of one's intellect, Thomas considered the question whether it is possible for anyone to know God:

> Some who considered this held that no created intellect can see the essence of God. This opinion, however, is not tenable. For as the ultimate beatitude of man consists in the use of his highest function, which is the operation of his intellect; if we suppose that the created intellect could never see God, it would either never attain to beatitude, or its beatitude would consist in something else beside God; which is opposed to faith. For the ultimate perfection of the rational creature is to be found in that which is the principle of its being; since a thing is perfect so far as it attains to its principle. Further the same opinion is also against reason. For there resides in every man a natural desire to know the cause of any effect which he sees; and thence arises wonder in men. But if the intellect of the rational creature could not reach so far as to the first cause of things, the natural desire would remain void. Hence it must be absolutely granted that the blessed see the essence of God.[23]

Although divine revelation was, according to Thomas, more important than human reason as a source of knowledge, the latter has an important role to play:

> We have a more perfect knowledge of God by grace than by natural reason. Which is proved thus. The knowledge which we have by natural reason contains two things: images derived from the sensible objects; and the natural intelligible light, enabling us to abstract from them intelligible conceptions. Now in both of these, human knowledge is assisted by the revelation of grace. For the intellect's natural light is strengthened by the infusion of gratuitous light; and sometimes also the images in the human imagination are divinely formed, so as to express divine things better than those do which we receive from sensible objects, as appears in prophetic visions.[24]

In his *Summa theologiae* Thomas achieved his goal, and in Christendom for the next two hundred and fifty years (and long beyond that in the Catholic church) the hostility between "Athens and Jerusalem" was muted by Thomas' argument that Aristotle and the Bible presented different aspects of the same truth. Thus was Thomas Aquinas able to do for Christianity what Maimonides had done for Judaism. And thus did many Catholic scholars come to terms with philosophy at the very time that in the Dar al-Islam philosophy and rationalism were beginning to seem inimical to Islam. This attitude had been encouraged by al-Ghazali's *On the Incoherence*

of the Philosophers and it gained ground during the lifetime of Aquinas, when most of the educated class in Iran and Iraq were perishing at the hands of Mongolian warlords.

Jewish philosophy in the fourteenth century

Jewish philosophy was stimulated by the flowering of Arabic philosophy and of Islamic *kalam*. Begun by Saadi ben Joseph and invigorated by Maimonides, the Jewish philosophical tradition, was continued by Rabbi Levi ben Gershon (1288-1344), known to Catholic Europeans as Gersonides and known in Jewish tradition by the acronym *ralbag*. Levi was born in Provence and spent most of his life at Orange and Avignon. In addition to commentaries on the Pentateuch and on the prophetic books of the Tanakh, Levi wrote several books - most of which were eventually translated into Latin - on mathematical, astronomical and medical problems. Although he was a polymath, Jewish readers knew him primarily for his *Sefer milhamoth ha-shem*, or "Book of the wars of the Name." In this work Levi ben Gershon addressed many of the philosophical problems handled by Maimonides, and took the Rambam to task for having answered some of them incorrectly. Levi was an admirer of Ibn Rushd and was himself a thoroughgoing Aristotelian: when Aristotelianism collided with traditional Jewish beliefs he preferred Aristotle. As a result, most rabbis denounced Levi and his works. One of Levi's early critics was Hasdai Crescas (1340-1410), who rejected Aristotelianism and promoted a philosophy more in keeping with traditional Judaism. For centuries, however, the *Sefer milhamoth* strongly influenced the development of Jewish philosophy.

Another respected but less controversial Jewish philosopher of the time was Moses ben Joshua, or Moses of Narbonne (ca. 1300-ca. 1365). Moses, who spent his life in various cities of the Languedoc and of Spain, regarded himself as fully within the Jewish tradition. He wrote commentaries on various books of the Tanakh, and on both sacred and secular subjects he wrote in Hebrew. He was, however, less stimulated by the sacred texts of Judaism than by the two great Arabic philosophers, Maimonides and especially Ibn Rushd, and with their help he delved into Aristotle's works. In addition to several works on medicine, Moses wrote commentaries on Maimonides' *Guide to the Perplexed* and on Ibn Rushd's summary of Aristotle's *Organon*.

The writings of Levi ben Gershon and Moses ben Joshua continued to influence Jewish philosophy long after the fourteenth century, and Latin translations of several works by "Gersonides" occasionally overcame the barrier between Jewish and Christian philosophy. More importantly, the fourteenth-century Jewish philosophers informed Baruch Spinoza (1632-77), who broke out of the confines of Jewish philosophy, wrote in Latin, and played a large part in launching the Enlightenment.

The proliferation of universities

Although Thomas Aquinas had argued that philosophy and divine revelation were compatible, some powerful churchmen vigorously opposed the teaching of Aristotelian philosophy. In 1277 the bishop of Paris, Étienne Tempier, placed more than two hundred Aristotelian propositions under an interdict. By what has become known as the "Condemnations of 1277" Bishop Tempier forbade the masters at the University of Paris to teach any of the listed

theses. Among the most important were the propositions that the universe is eternal, that miracles do not occur because natural law is invariable, and that the intellect is unitary.

By and large, however, the Church in western Europe made way for the revival of learning. Most bishops and popes were pleased to see the advancement of knowledge, and were satisfied that egregious errors - such as Averroes' denial of the immortality of the individual soul - were dealt with firmly and refuted by luminaries such as Albertus Magnus and Thomas Aquinas. In 1323 Pope John XXII declared Thomas a saint. When asked what miracles Thomas had performed to deserve sainthood, the pope replied that Thomas had performed as many miracles as there are articles in the *Summa*.

By the close of the thirteenth century more than thirty cities in Catholic Europe housed a university. The appetite for learning continued to grow, and during the first half of the fourteenth century many more universities were established. Some of these had few accomplished masters, and seemed to hold their students to relatively low standards. In the proliferation of universities a form of accreditation emerged: as a guarantee of its high quality, a university might receive from the emperor or from the pope a charter designating it as a *studium generale*. A university identified as a *studium generale* could assure its masters and scholars that their credentials would be accepted throughout western Christendom. A papal bull in 1318, for example, designated the university at Cambridge as a *studium generale*.

Because of the success and proliferation of the academic *universitates*, over the centuries the word *universitas* lost its more general meaning of "corporation" or "guild" and came specifically to denote a formally organized institution of higher learning, usually including several schools. Such was the early history of the European universities. They had arisen in large part because of Catholic Europe's desire and need to catch up with the Dar al-Islam in the fields of law and medicine. Once established, however, the universities developed a momentum of their own, as the desire for practical knowledge widened into a more academic and less pragmatic search for understanding. For more than eight hundred years universities have remained at the heart first of western Christendom and then - more widely - of modern civilization.

The tentative revival of classical literature

Just as the rise of universities and the enthusiasm for Aristotle's science challenged the authority of the Church, so did the recovery of the literary classics of antiquity. This literature was not anti-Christian, but it was unmistakably non-Christian. A Roman poet or prose author who wrote during the time of the Caesars was not only a pagan in Christian eyes, but also an heir to a set of ethical assumptions very much at odds with the values of medieval Rome.

The texts of the Latin authors most esteemed in antiquity had not been entirely lost in the European Middle Ages, although they were reduced to a few copies housed in monasteries. Abbots who knew the great reputation that Vergil or Cicero had once enjoyed would from time to time assign their most literate monks to make copies of the old texts. In the early Middle Ages such texts would seldom be read, but the abbots - especially at Monte Cassino and other Benedictine monasteries - considered it their duty to have the books available.

Although the full recovery of the Latin classics began in the fourteenth century, they had been tentatively revived twice before: first in the ninth century and again in what Charles Haskins described as "the renaissance of the twelfth century." In the ninth century several cathedral schools, at the encouragement of Alcuin and with the support of the Carolingian kings, instructed their students in Vergil, Cicero, Sallust and several other Latin writers of the distant past. This revival of the classics was neither broad nor long-lasting, and by the middle of the tenth century the cathedral schools were again teaching only the *litterae sacrae*: Jerome's translation of the Bible. Clandestine reading of the old poets, however, continued. Ovid's racy poems about love and sex were especially popular, although the monasteries pretended that what the monks were looking for in the *Ars amatoria* and the *Remedia amoris* was not the literal meaning but some higher truth.[25] The poetry of Vergil too remained available, even though the reading of it was seldom encouraged.

In the twelfth century the reading of the Latin classics came out into the open, and a few cathedral schools in France took pride in teaching the *litterae humaniores* alongside Jerome's Vulgate. The school at the Chartres cathedral was especially famous for its literary curriculum. Among the poets Ovid and Vergil were most widely read, followed by Lucan, Statius, Juvenal and Horace. In prose, Cicero's philosophical works (including his unsettling *On the Nature of the Gods*) and orations were highly respected.[26] From this point onward the Latin classics continued to be taught in the more ambitious cathedral schools, and even if he had not himself read the works a scholar was expected to know something about them. In the thirteenth century, however, classical Latin literature was overshadowed by new interests. It had not yet worked its way out of the schools, and in the schools themselves it was less exciting than the debates of the "scholastics," with their contests of logic and dialectic. For older students - those studying medicine, law, theology or Aristotelian science in the new universities - the Latin poets were of no help.

Humanists and humanism: the exaltation of the Latin classics

Not until the fourteenth century did classical literature begin to loom large in western Europe. In the "twelfth-century renaissance" it had been studied in the cathedral schools despite the fact that it was non-Christian. Over the course of the fourteenth century, in contrast, the classics appealed more and more to an educated adult precisely *because* they were non-Christian. An obvious attraction of this literature was its eroticism. For twelve hundred years Christianity had pitted itself against one of the most basic aspects of the animate world, and when Europeans finally felt the confidence to ignore the Church's warnings they found much to enjoy in the Greek and Roman gods, stories, and art work.

But the appeal of classical literature had a much broader basis than its eroticism. From the fifth century through most of the eleventh western Europeans were grateful to God that they lived in Christendom rather than in the pagan past. Whatever external appeal it may have had, that is, "the ancient age" (the *aetas anteana*, literally "the former age") was supposed to have been a period of darkness and ignorance, because it preceded the light and the true wisdom that came with the gospel and the Church. During the twelfth and thirteenth centuries this perception changed radically in parts of Catholic Christendom, and by 1300 some Europeans were coming to believe that what had ended a thousand years earlier was not the age of darkness but the age of

light and wisdom. Although inspired by contact with the contemporary Dar al-Islam, the western Europeans' study of law, medicine, logic and philosophy pointed beyond the Muslim world and back to classical antiquity, from which the Muslims had themselves learned their lessons. Appreciation of the ancient world began with the ancients' expertise in practical matters, but by the end of the thirteenth century it was beginning to seem that the excellence of the ancient world went far beyond its physicians and mathematicians: the Roman empire of Julius Caesar, Caesar Augustus and Trajan may have been a better place all round than the world in which the Europeans themselves lived.

This admiration for the ancient past went hand in hand with an indictment of the recent past, and the notion of a "Dark Age" began to take shape. When compared to the accomplishments of antiquity, that is, the immediate past seemed to be a period of ignorance and incompetence. At the outset the disdain for the immediate past did not include a condemnation of the Church, because the Church itself was engaged in the effort to recover the wisdom of the ancient Romans and Greeks. The universities were to a large extent ecclesiastical institutions. The typical university was under the supervision of the city's bishop, and its *magistri* had entered the minor orders of the clergy. By the middle of the fourteenth century, however, the appreciation of the classical past and the denigration of the immediate past had proceeded far enough that even the pagan gods were rehabilitated: not, of course, as divine entities deserving of worship, but as beautiful and fascinating products of the ancient imagination. The Church Fathers from the second through the fourth century had denounced the old gods as demons or henchmen of Satan, from whom the Roman empire needed to be saved. A thousand years later those Europeans who read the Latin classics found that neither the classical writers nor their public had taken their pantheon seriously. Evidently the "pagans" had not been very religious at all, and seemed instead to have devoted all of their attention to the secular world.

It is conventional and appropriate to give the label "humanists" to those western Europeans - and northern Italians especially - who took the lead in the revival of classical literature. The term "humanist" did not appear until the fifteenth century, when Italians began referring to a person devoted to the ancient classics as an *umanista* (the word was then Latinized as *humanista*). But from the beginning of the fourteenth century the admirers and teachers of classical literature had declared themselves devoted to *studia humanitatis*. The word *humanitas* was one of Cicero's favorites, and denoted for him those activities and interests that set humankind apart from the rest of the animal world. Among those the most important was speech, whether oral conversations or the written word. In the fourteenth century the meaning of *humanitas* was more vague, and was contrasted with *divinitas*. The new focus, that is, was on human society and the secular world, instead of on the sacred and on God. Traditionally one had read the Bible, the *litterae sacrae*, but to learn about the secular world one now read the Latin classics, the *litterae humaniores*.

The Renaissance in northern Italy

The term "Renaissance" (or *Rinascimento* in Italian) came to be applied to the period because of the "reborn texts" (*renascentes litterae*) that humanists celebrated. The Renaissance in Catholic Europe began in northern Italy. Apart from its reputation for the study of Roman law, the region had not been culturally distinguished in the twelfth and early thirteenth centuries.

But Italy as a whole had obvious connections with the ancient Roman world, and the northern part of the peninsula was in a position to exploit these (the north was far more prosperous than the south, as a consequence of the northern cities' domination of the sea-routes to the Levant). In addition, such eminent classical writers as Vergil, Catullus and Livy had been natives of northern Italy. By the end of the thirteenth century a few gifted men in the cities of the region had begun to emulate their classical forbears. One such was Geri of Arezzo (ca. 1270-1339), who wrote dialogues and letters in the Ciceronian tradition and, as best he could, in Ciceronian Latin.

Greater by far was Dante Alighieri (1265-1321), a native of Florence and a fervent admirer of the poetry of Vergil. To a considerable extent the concerns of Dante were still those of a medieval European, but his interest in the ancient world was obvious in both his life and his writings. This was not negated by the fact that he was among the first European authors who dared to write serious literature in the vernacular - in Dante's case the Florentine dialect of Italian - rather than in Latin. In his great work, the *Divina commedia*, the ostensible focus is the soul's salvation. What gives the poem its great appeal, however, are its vignettes of humans and humanity. In the *Divina commedia* Dante visits Hell, Purgatory and Paradise. His guide in the *Inferno* and the *Purgatorio* is Vergil: the sublime poet was a native of Mantua, not too far distant from the various cities in which Dante lived while in exile from his native Florence.

In the fourth canto of the *Inferno* Vergil guides Dante through Limbo, that neutral place where the dead know neither joy nor sorrow. This place Vergil knows well, since it is where he himself must dwell. In Limbo Vergil introduces Dante not only to such Old Testament figures as Adam, Noah, Moses, Abraham and David, but also to a host of men and women from the classical world. They hold a place of special honor in Limbo, and when Dante asks his guide who they are, Vergil answers:

> The renown of their great names,
> That echoes through your world above, acquires
> Favour in heaven, which holds them thus advanc'd.[27]

Some of the honored were brave: Hector is there, along with Aeneas, Caesar, and the first Brutus, who drove the evil Tarquins from their throne. Many of the women were moral exemplars during their lives: Electra, Penthesilea, Lucretia, and Marcia, the wife of Cato the Younger. Most numerous among the honored, however, are the writers and teachers of Greek and Roman antiquity. Vergil introduces Dante to Homer, Sokrates, Plato and Aristotle. Here too are Horace, Ovid, Lucan, Cicero, Seneca, and Galen. Finally, among those honored dead who taught the world are the great Arabic philosophers, Avicenna and Averroes.

Although the substance of the *Divina commedia* is Dante's own creation, twentieth-century scholarship has shown that for its structure and for the overall concept Dante was indebted to a Muslim book about Muhammad's Night Journey: the *Kitab al-miraj*. This romance, which supplemented the Prophet's journey to Heaven with a visit to Hell, had been composed a century before Dante's birth and by the 1260s had been translated from Arabic into Latin as the *Liber scalae Machometi*. So popular was the story that by the end of the thirteenth century Spanish and Old French translations of the *Kitab al-miraj* were also available.[28]

Francesco Petrarca (1304-1374), although still a devout Christian, was a man of the Renaissance. Petrarch did much, in fact, to persuade educated Italians that the recent past was a "Dark Age": the period from the decline of the Roman empire to the recovery of the ancient Roman writers, a project to which Petrarch devoted himself.[29] Petrarch's most enduring poetry was written in Florentine Italian: the 366 sonnets (*sonetti* are "little songs") known as the *Canzoniere*. In each of the Petrarchan sonnets - which mourn the poet's unrequited love for a woman named Laura - are fourteen lines, rhymed according to a fixed formula.

Although today Petrarch is known chiefly for this poetry in the vernacular, his first great literary success was his *Africa*, an epic written in Latin. The subject of the *Africa* was the ancient Romans' victory over Hannibal and Carthage and its hero was Scipio Africanus. The *Africa* made Petrarch famous throughout Latin-reading Europe, and shows the fascination that the ancient Roman world held for fourteenth-century Europeans. In his search for manuscripts of the Latin classics Petrarch brought to light Ciceronian texts that had been unavailable for almost a thousand years. One of these was the oration *Pro Archia* and a far greater discovery came in 1345, when Petrarch found at Verona a manuscript containing hundreds of letters that Cicero had written to his friend Atticus between 68 and 43 BC.

One of the most famous Renaissance paintings celebrating the sexuality of the ancient world, Sandro Botticelli's *Birth of Venus*, was commissioned by Lorenzo de' Medici ca. 1485, but in literature the celebration began far earlier. The *De voluptate* written by Lorenzo Valla (1406-1457) outlined the Stoic and Epicurean views on pleasure. The Epicureans, as Valla presented them, made the better case. One of the earliest apostles of pleasure was Giovanni Boccaccio (1313-1375). Today the best known of his works is his bawdy *Decameron*, written in Florentine Italian (the *Decameron* is a "frame-tale" that stitches together a hundred stories that ten travelers tell each other during the course of a ten-day journey). Before writing the *Decameron* Boccaccio had produced several Latin works that more discreetly entertained his readers with classical learning. His *De mulieribus claris* ("About Famous Women") presented stories of 106 women, and all but ten of them are figures either from Greek myth or from Greek and Roman history. Omitting the Virgin Mary and other New Testament women, Boccaccio included only two biblical women: Eve, and the wicked queen Athaliah. Another of Boccaccio's Latin books was his *Genealogia deorum gentilium*, which traced the genealogy of the Greek and Roman gods and retold the myths in which they were featured.

Although not so zealous as Petrarch in searching out manuscripts of classical authors, Boccaccio made at least one important contribution to the effort. He brought to public attention, that is, a manuscript of the long-lost historical works of Tacitus. This manuscript had evidently been produced in the eleventh century at the Monte Cassino abbey, and ca. 1360 Boccaccio took (stole?) it and brought it to Florence, where eventually it landed in the magnificent library of Lorenzo de'Medici.[30] The publication of the manuscript excited scholars all over western Europe and by the time that the printing press was introduced they or their amanuenses had written out many copies of it, sixteen of which survive.[31]

Also included among the "reborn texts" was the poetry of Catullus and Lucretius. Early in the fourteenth century a manuscript of Catullus' *Carmina* was found at Verona. It had evidently been produced centuries earlier by a monk whose grasp of Latin was unsure. Because

the manuscript was not easily intelligible, humanists worked for more than a century to establish a reasonable text of Catullus' 116 odes.[32] Lucretius' *De rerum natura* was rediscovered in 1417, when Poggio Bracciolini found a manuscript of it in a monastery.[33] Once again a flurry of copying followed the discovery, producing for the benefit of humanists the many fifteenth-century manuscripts that are still extant.

Neoplatonism

Another element of classical civilization revived by the humanists of the early Renaissance was "Platonism." The "Platonism" of the humanists was in large part what is today called Neoplatonism, the system that Plotinus had set forth in the third century and that dominated the philosophical schools of Late Antiquity. But it was a Christianized Neoplatonism, reworked by (and filtered through) Ps.-Dionysios the Areopagite, and therefore capable of coexisting with Christianity. In the early Middle Ages the only work of Plato available in western Europe was the *Timaeus*, which had been translated into Latin by one Chalcidius in the fourth or fifth century. Platonic influences were also felt through Boethius' *Consolation of Philosophy* and some of the works of Augustine, although in the latter they were heavily overlaid by orthodox Christian beliefs. The first real addition to the Platonic corpus in the west was made in the twelfth century by Henricus Aristippus, whose native language was Greek and who learned Latin in the Norman kingdom of Sicily. For his Norman patrons Henricus provided Latin translations of Plato's *Meno* and *Phaedo.*

The influence of Plato in western Europe, however, was not significantly felt until the fifteenth century.[34] Leonardo Bruni (1369-1444), known chiefly for his history of Florence (*Historiae Florentini populi*), also produced Latin translations of works that had been written by classical Greek authors, Plato among them. Chiefly responsible for western Europe's new fascination with Plato was the Byzantine empire's most eminent Platonist, Georgios Gemistos, who had added to his name the epithet *Plethon* because it so resembled the name of his hero, *Platon* (Gemistos' Greek name is conventionally Latinized as Gemistus Pletho). Gemistos was an heretical scholar who spent much of his life at Mistra in the Peloponnesos, in exile from Constantinople because of his religious views and his devotion to Plato. But in 1438 the Byzantine emperor brought him along to Italy, to attend the Council of Ferrara (meant to unify the Catholic and Orthodox churches). While in Italy, Gemistos lectured often on Plato and attracted much attention. Cosimo de'Medici was impressed enough to set up an Accademia Platonica at Florence.

A mainstay of the Accademia Platonica was Marsilio Ficino (1433-1499). A precocious boy, Marsilio was at an early age taken under the wing of Cosimo de'Medici. After the young man had mastered the Greek language he was prepared to translate Plato's dialogues into Latin, but was asked by his patron first to translate an important part of the Hermetic corpus, the supposed writings of Hermes Trismegistos and the supposed source of Plato's wisdom. The Hermetic texts presented a syncretism of Platonism and the Christian doctrine of the *Logos*, and had been highly esteemed in the Byzantine empire. They were, so it was thought, God's earliest revelations, having been revealed to "Hermes" at or before the time of Moses and having been translated into Greek well before the birth of Plato. In fact the Hermetic corpus is a pseudepigraphon composed during the period of the Roman empire: it postdates not only the

Christian New Testament but also the early Christian apologists. But that was not demonstrated until the seventeenth century. In 1463, when Ficino completed his translation into Latin of the Hermetic *On Divine Wisdom and the Creation of the World*, it seemed to the Medici and to the humanists that the world's most ancient theology was finally accessible.

At that point Ficino set about translating the Platonic corpus. In addition to the translations, he wrote - now with the support of Lorenzo the Magnificent - commentaries on many Platonic dialogues, among them the *Gorgias*, *Phaedrus*, *Sophist*, and *Symposium*. After completing his work on Plato, whom he regarded as "the divine philosopher," Ficino translated the *Enneads* of Plotinus, the main text of Neoplatonism. Among Ficino's most important original works was his *Theologia Platonica de animae immortalitate*, a summary of what he took to be Plato's teachings about the immortality of the soul.

Despite his enthusiasm for Plato, Ficino did not think of his own work and his writings as contrary to Christianity, and instead supposed that he was strengthening the Church by reconnecting it with its roots. After entering minor orders as a young man he became a priest in 1473 and joined the clerical staff at the cathedral in Florence. He quickly became one of the cathedral congregation's favorite preachers. As the fifteenth century came to a close, the Church did not yet have a serious quarrel with the burgeoning intellectual activity in Christendom. That would come with Copernicus, Francis Bacon, and Galileo, but in Ficino's time the hope was still to combine Catholic Christianity with the great works of pagan antiquity.

The Renaissance popes[35]

The splendor of Renaissance Rome began with Pope Martin V (1417-31), the Colonna pope who returned the papacy to Rome after more than a century of residence elsewhere. Other cities, especially in northern Italy, were by Martin's time far more impressive than Rome, with ornate churches, palaces, villas, fountains and piazzas. One of the important projects of the Renaissance popes was therefore to give the city of Rome an exterior that would match if not surpass that of Venice, Florence and other cities that for generations had grown wealthy while Rome had stagnated or declined.

The restoration of political power was also a priority. For the last hundred and forty years the temporal powers of the papacy have been limited to Vatican City, and the modern world has become accustomed to thinking of the pope as a strictly spiritual leader. Before 1870, when the last of the Papal States were taken over by the Kingdom of Italy, the pope was both a spiritual leader and an important head of state. Informally, the popes had been temporal rulers since the fifth century, and that power had been formalized in the eighth century, when the "Donation of Pepin" created the Papal States of northern and central Italy. During the popes' residence in Avignon, and during the Western Schism that followed, the popes' actual power over the Papal States had been greatly weakened. In many cities that were nominally under papal control the real power belonged to a local aristocratic family or to a tyrant. The popes therefore needed to reassert themselves in political and military terms lest they be at the mercy of the strong city-states of northern Italy. Beginning with Martin V and Eugenius IV, the fifteenth- and sixteenth-century popes were remarkable for their military experience and ambitions, and for their readiness to go to war in order to bolster their position over against the kings, dukes, and

strong-men of the secular world.[36] Even maintaining their position in Rome required the popes to resort to physical force. Although Eugenius' reign began in Rome, in 1434 the Colonna family drove him from the city. For the next ten years Eugenius spent much of his time trying to effect his return to Rome, a goal achieved by both diplomacy and victories won on the battlefield. And for the next century and a half the pope was regularly obliged in war and peace to maneuver among the bellicose and ambitious Italian city-states - Bologna, Ferrara, Florence, Milan, Venice, and more - trying always either to maintain or to enlarge his own Papal States.

Eugenius' immediate successor, Nicholas V (1447-55), preferred books and libraries to arms and strategy. Nicholas' proudest achievement was the creation of the Vatican Library, which was soon to become one of the finest in the world. But at Nicholas' death the cardinals turned once again to a man of action. In 1453 the Byzantine empire had come to an end when the army of Mehmed II, the Ottoman Turkish sultan, took the city of Constantinople after a relatively short two-month siege. The walls of Constantinople had withstood siege after siege for more than a thousand years, but the young Mehmed had assembled a great array of cannon, and the cannon crumpled the walls. Although the Greek church and the Latin church had been in schism since 1054, some of the bitterness began to wear off as the Ottomans expanded their empire at the expense of the Byzantines. The fall of Constantinople to a Muslim army therefore dismayed and frightened western Christendom, and when Pope Nicholas died in 1455 the cardinals thought it necessary that his successor as the leader of Catholic Europe be a man who was eager to pit Latin Christendom against the Turkish infidels. After failing to agree on an Italian candidate for the papacy, the cardinals compromised by electing (again from their own college) the aged archbishop of Valencia, Alfonso Borgia, the first pope from Spain since Damasus in the fourth century. What made Borgia - Pope Callixtus III - appealing was not only his short life expectancy, but also his background in the Spanish *reconquista* and his zeal for launching a crusade against Mehmed II.[37] Callixtus did indeed attempt to stir up a crusade, but the Catholic kings were loathe to take up the challenge.

Callixtus' successor was Aeneas Sylvius Piccolomini, who took the papal name of Pius II (1458-64). The Piccolomini pope enjoyed reading and writing about the wars of the ancient Greeks and Romans, and also played an important role as strategist - but not field commander - in his own wars. Although much of his time and mental energy had to be spent on a war over the succession in the Kingdom of Naples, what most concerned Pius was the Ottoman Turkish conquest of the Byzantine empire. His exhortations brought together a fleet, and Pius himself went to the harbor at Ancona with every intention of sailing with the fleet in an attempt to recover Constantinople. Pius took sick and died, however, before the fleet could set sail. The crusade was quickly abandoned.

The Renaissance popes were keen to improve their armies. Many mercenaries were hired from Switzerland, which had a reputation for producing stout fighters. The Swiss guards who still stand as sentries in the Vatican are a relic from the fifteenth century. Like other Italian leaders in the fifteenth century, the popes recruited excellent *stradiotti*, both infantry and cavalry, from Greece and Albania. They also acquired cannon, the great new weapons that were beginning to transform warfare. Pius II, who seems to have had a gun factory in the Vatican, commissioned the construction of three bombards, or heavy artillery, which he named after himself, his father, and his mother (the blast of the "Victoria" was loudest of all).[38]

The most military of the Renaissance popes was Julius II (1503-13), who before his election was Giuliano della Rovere. Julius himself led campaigns that recovered for the Papal States the cities of Perugia and Bologna. Even in these times a pope taking command on the battlefield was a novelty, and many condemned Julius for his military enthusiasm. Soon after his death an anonymous satire, *Julius Exclusus*, recounted how St. Peter - berating the recently expired Julius for his delight in warfare - turned the pope away from the Gates of Paradise.

Nepotism, corruption, and the college of cardinals

The Renaissance popes are notorious for their ambition, wealth and favoritism. They typically gained the office by bribery, either outright or by promising future favors or rewards. The college of cardinals was central to the corruption. When an incumbent pope died, the cardinals elected his successor, usually choosing one of their own number. In the fifteenth century the college ideally consisted of twenty-four cardinals, and an election was not valid until one of the contestants received two thirds of the votes. In order to reach that number a cardinal in contention often had to offer something of value to those of his colleagues who were reluctant to support him.

After the return of the papacy from Avignon to Rome, the college of cardinals became progressively Italian. At the election of Eugenius in 1431 half of the cardinals came from outside Italy, but when Alexander VI was elected in 1492 the only cardinal who was not a native Italian was Alexander himself.[39] The creation of cardinals was the privilege of the pope, and every pope was careful to appoint to the college men whose loyalty he trusted. These were often the pope's own nephews, whence the term *nepotism* (the Latin word for "nephew" is *nepos*). As a result, the papacy was repeatedly held by the same family. Angelo Corraro (Gregory XII, 1406-1415) was the uncle of Guglielme Condulmer (Eugenius IV, 1431-47), who in turn was the uncle of Pietro Barbo (Paul II, 1464-71). Pius III was the nephew of Pius II. After Cardinal Alfonso Borgia was in 1455 elevated to become Pope Callixtus III, he raised two of his young nephews to the rank of cardinal, and thirty-seven years later one of them - Rodrigo Borgia - was to become Pope Alexander VI (1492-1503), perhaps the most notorious and corrupt of all the popes.

The della Rovere family, which was to become important in Italian history for more than four hundred years, owed its promotion to Francesco della Rovere, who became Pope Sixtus IV (1471-84), builder of the Sistine Chapel. Sixtus created six cardinals from among his many nephews. Several of the della Rovere nephews did very well politically and financially and in 1503 one of them (Giuliano della Rovere) became Pope Julius II. Renaissance papal families were often intertwined with the great noble houses of Italy: the Este, Farnese, Gonzaga, and Medici. The Genoese Giovanni Cibo (Innocent VIII, 1484-92) arranged for one of his many illegitimate sons to marry into the Medici family of Florence, and in appreciation he made Lorenzo de'Medici's young son, Giovanni, a cardinal at the age of thirteen. At the very young age of thirty-eight Giovanni became Pope Leo X (1513-21). He was the first of nine Medici cardinals and the first of three Medici popes, the others being Clement VII (Giovanni's cousin) and Leo XI.

Primarily men of action and power, the Renaissance popes were not models of piety and

morality. Personal vendettas occasionally ended with an opponent's death, and most of the popes at this time became very rich. Celibacy was ostensibly required, but lapses were excused and even expected. Julius II begot three daughters after his elevation to the cardinalate. Innocent VIII was reputed to have sired eight illegitimate sons and as many daughters. The Reformation and the Counter-reformation would change the expectations and requirement for the papacy, but in the fifteenth and early sixteenth century the popes were as unbridled as were the kings in western Christendom.

The printing revolution

The invention of the printing press was revolutionary for Christendom. In propelling western Eurasia toward modern civilization the printing press was an engine just as powerful as the university. Both the university and the printing press were native to Catholic Europe, and for a long time the printing press, like the university, was seldom to be found outside of western Christendom. Orthodox Christians were relatively slow to exploit it, and until the eighteenth century Muslims adamantly resisted it. Because "the printing revolution" was fundamental for the modernizing of western Europe it is surprising that only in the last thirty or forty years has this revolution begun to receive from historians the attention that it deserves.[40]

Europeans had been printing with woodcuts long before the fifteenth century, and block printing had been done in China already in the ninth century, but the invention of movable metal type was made in the 1440s by Johannes Gänsfleisch Gutenberg. A goldsmith in the Rhineland city of Mainz, Gutenberg manufactured the type for his press by pouring molten steel into letter-shaped molds. Gutenberg printed a calendar for the year 1448, but caught Europe's attention with his printing of the Bible. In 1455 he finished the project: not quite two hundred copies of Jerome's Latin Vulgate, with forty-two lines per page.

Gutenberg's printed Bible looked almost identical to the best manuscript (hand-written) Bibles of the time. The codex - a sheaf of parchment or papyrus leaves bound together within a wooden or leather cover - had been the standard form for a book since Late Antiquity, when it replaced the scroll. In eleventh-century Spain Catholics learned from their Muslim counterparts how to manufacture paper, and by the middle of the fifteenth century the leaves of books were often made of paper. Vellum, however, continued to be used for finer books, and Gutenberg printed his Bible on vellum. The printer used the same ink as the scribe, or "scrivener," and the format of forty-two lines per page was not unusual for manuscript books of good quality. The letter-forms in a Gutenberg Bible were shaped precisely like the elegant letters that scribes had perfected in the late medieval period. Even the chapter numbers in Gutenberg's Bible, and the initial letter of each chapter, were hand-written in red or blue ink, in order to match exactly the conventions that had become traditional for manuscript Bibles.

The appearance of Gutenberg's Bible being essentially the same as that of a manuscript Bible, the only thing different about the printed book was the method of its production. That difference, however, was revolutionary. The printed book, that is, could be produced far more quickly than a hand-written book, and the cost was correspondingly much lower. Working for the better part of a year, ten scriveners in a scriptorium could copy ten Bibles. During the same time ten men in a printing shop could produce a thousand Bibles. The product of the scribe and

the printer looked the same, but the printer's book cost a small fraction of the scribe's.

The invention transformed European society, as presses were built in other cities and printers raced to produce printed books. An issue of books was called an "edition" (*editio*, literally a "giving out"), and the first printing of a title was the title's *editio princeps*. By the end of the fifteenth century almost every city in Catholic Christendom had at least one printing press, and the presses had issued more than 29,000 editions, possibly some 15,000,000 books. Bibliophiles and collectors refer to a book printed between 1455 and 1500 as an *incunabulum*. Swelling the number of incunabula were of course many editions of the Bible. The great majority of these were in Latin, but Jewish printers in the late fifteenth century produced more than a dozen editions of the Hebrew Tanakh. Such was the prestige of Jerome's Vulgate in Catholic Europe, and so limited the knowledge of Greek, that the *editio princeps* of the New Testament in Greek was not produced until 1516 (the printer was Johann Froben in Basel and the editor was the distinguished humanist Desiderius Erasmus, who collated six Greek manuscripts in order to establish his text).

Along with Bibles in the ancient languages came translations into the vernaculars of western Europe. Until the Lutheran Reformation these were usually small editions: vernacular versions of the Bible were discouraged by the Church, which - especially after its experience with the Cathars and Waldensians - was wary of making the Scriptures immediately accessible to the laity. Nevertheless, a poor translation of the Bible into German was published in 1466 by Johannes Mentelin. Trained as a manuscript illuminator, Mentelin set up a printing press at Strassburg (Strasbourg) and arranged for a team of scholars to translate the Vulgate into German. Five years later printers at Venice put out an edition of Niccolo Malermi's translation of the Vulgate into Italian. The text was accompanied by many beautiful woodcuts, all colored by hand. During the Protestant Reformation the German and Italian Bibles were followed by New Testaments and Psalters in most of the languages of Europe.

Religious devotion also created among clerics and scholars a demand for Biblical commentaries. Most of these were of course Christian, but it is noteworthy that the very first book printed in Hebrew was the commentary on the Pentateuch that Rabbi Solomon bar Isaac ("Rashi") had written in the eleventh century: Jewish printers in Reggio Calabria put out an edition of the commentary in 1475 (when the first edition of the Hebrew Pentateuch was printed, in 1482, it too was accompanied by Rashi's commentary). Christian scholars, bishops and priests were quick to request editions of works by the Latin churchmen, from Jerome and Augustine to Thomas Aquinas.

The volume of such scholarly books was far surpassed by printed books for the laity. In the last decades of the fifteenth century Catholics purchased hundreds of thousands of prayer books and other devotional aids, many of them illustrated with woodcuts. The first music printed in Italy appeared in a missal in 1476: the *Missale Romanum*, including the liturgical responses with their appropriate musical notation, was printed at Rome by Ulrich Han, who proudly claimed in the book's preface that *imprimit ille die quantum non inscribitur anno* ("in a day he prints what cannot be written in a year").

Appearing soon after the earliest religious texts were printed editions of the ancient Latin

classics. The first classical Latin poetry to be printed was Lucan's *Pharsalia*, an epic more highly esteemed by Renaissance humanists than it is by classicists today. The *editio princeps* of Lucan's epic was published in Rome in 1469, a year or two before the *editio princeps* of the *Aeneid* and the other poetry of Vergil. At about the same time, what was available from Tacitus' great history was published at Venice.[41] The classics of Italian literature were also printed without delay. The first printed book in the Italian language - even earlier than Malermi's translation of the Bible into Italian - was Petrarch's *Canzonieri*, published in 1470. An edition of Dante's *Divina commedia* followed in 1472. The next year Johann Zainer, a printer at Ulm, published both the Latin original and a German translation of Boccaccio's *De mulieribus claris*.

In the fifteenth century the market for Greek books was still very small in Catholic Europe, with northern Italy something of an exception. Many humanists were fascinated with the "ancient theology" of Neoplatonism and were eager for texts of Plato's dialogues, but initially this interest was satisfied by the publication of Latin translations of the Greek texts. Most important was the 1485 publication of Marsilio Ficino's Latin translation of the Platonic dialogues. The *editio princeps* of Ficino's own *Theologia Platonica* had been issued in 1482. The first book printed in Greek was not an ancient classic at all, but the work of a contemporary. In 1476 printers made available a Greek grammar written by Constantinus Lascaris (died ca. 1501), a scholar who had fled from Constantinople and taken up residence at Milan. Homer was the first ancient Greek author whose works were printed in Greek. At Florence two refugees from what had been the Byzantine empire produced the *editio princeps* of Homer's *Iliad* and *Odyssey* in 1488 (Demetrios Chalcondylis was the editor of the text, and the printer was Demetrios Damilas). The first editions of most classical Greek texts date from the early decades of the sixteenth century. Aldus Manutius, a wealthy Italian nobleman who had a deep love for the Greek classics, established an academy and set up a press at Venice in order to print the classics in Greek. A string of "Aldine" editions followed: the year 1502 saw the *editio princeps* not only of Sophocles' tragedies but also of Thucydides' history. The next year came the Aldine edition of Euripides' plays and in 1513 the editions of Pindar's odes and Plato's dialogues.

Important as was the printing press for the rapid and inexpensive copying of old books, even more consequential was the quickening of what we may call a writer's culture. The printing press made it possible for writers to bring ideas or information to thousands of people, something that until then could be done only fleetingly through the spoken word, and only by a gifted orator or preacher. Commercial possibilities for the printing press were recognized almost immediately: financial rewards awaited the author and especially the printer of a popular book. Cookbooks and medical manuals, written for the general reader rather than for physicians, were much in demand. So too were books on a hundred other subjects of practical importance: maps and navigational aids, instructions for young ladies on proper deportment, navigational charts, manuals on the casting of bells, or on the propulsion and trajectories of cannonballs, and on and on. Readers edified or entertained themselves with printed translations of Aesop's fables, and peered into the future with books on astrology. Predecessors of the modern novel also appeared: the Spanish "comedy" *La Celestina*, anonymously authored and originally titled *Comedia de Calisto y Melibea*, was published at Burgos in 1499, or perhaps at Toledo in 1500.

Thanks to the printing press, travelers' tales could be disseminated quickly and cheaply. A considerable appetite for this exotic literature guaranteed brisk sales. Especially popular was an account of a pilgrimage that Bernhard von Breydenbach of Mainz had recently made to Palestine, the account being published in 1488 under the title *Peregrinatio in terram sanctam.* The book was illustrated with woodcuts of a camel, a crocodile, the city of Venice, a map of Egypt and Palestine, and much else. By 1500 the printers of Europe had put out not only thirteen editions of the *Peregrinatio* in the original Latin, but also translations into German, Spanish, French and Flemish.

Much more than a traveler's tale, but appealing to the same interest, was Columbus' account of his voyage to find a westward route to India. Columbus returned to Europe in March of 1493 and immediately wrote a long letter to his royal sponsors, Ferdinand and Isabella, detailing what he had found in "the Indian sea." A month later, in April of 1493, printers at Barcelona offered for sale a printed edition of Columbus' Spanish original. To make the letter accessible to educated people throughout Catholic Europe the pamphlet was then translated into Latin and was published at Rome by the printer Stephan Plannck under the title, *Epistola de insulis nuper inventis* ("A letter about the recently discovered islands"). Plannck had earlier made a name for himself with his edition of *Mirabilia Romae*, a description of the many wonders to be found at Rome. Plannck's Latin edition of Columbus' letter was equally successful, and in 1494 printers in Basel offered their own edition of the letter, this one illustrated with eight woodcuts. Other editions appeared almost simultaneously at Strasbourg, Paris and Antwerp.

For the first time a fairly wide reading public was able to follow discussion and debates about important topics. Unlike the books published for commercial reasons, an academic publication was usually written in order to persuade the reader to adopt the author's view on a controversial matter. One of the most influential authors in the late fifteenth century was Giovanni Pico della Mirandola, who grew up during the printing revolution. Pico's enthusiasm for the Kabbalah literature of Judaism led him to publish his *Conclusiones philosophicae, cabalasticae, et theologicae*, printed at Rome in 1486, when the author was only twenty-three.

Two other works by Pico were published soon after the author's premature death in 1494. First was an attack on astrology, the *Disputationes adversus astrologiam divinatricem* (Bologna: 1495). More important was the oration on the dignity of humankind: *Oratio de hominis dignitate* (Bologna: 1496), which epitomized the optimistic and progressive outlook of the Renaissance. What Pico found most remarkable about humankind was its enormous potential: while the beasts must remain the same, generation after generation, God has reserved for men and women the capacity to grow and to become what their ancestors were not. Like humanists in the age of manuscript books, Pico certainly expected that his oration would be read by his few dozen peers. The tone and content of his *Oratio,* however, indicate that Pico wrote for a public far wider than had his predecessors: educated people throughout Catholic Europe, all of whom - thanks to the printing press - were now within an author's reach. The printing revolution was under way.

1. Vern Bullough, who ended his career as Distinguished Professor of Medicine and the Social Sciences at SUNY Buffalo, began writing on medieval medicine in the 1950s and continued to contribute to this topic and many others almost until his death in 2006. His most important articles on medieval medicine, along with four hitherto unpublished papers, are gathered together in Bullough 2004.

2. On the Church's approval of magic and incantation as means of divine healing see Flint 1991.

3. For a survey see Isaacs 1990.

4. The *Regimen sanitatis salernitanum*, a poem perhaps composed in the 12th century, was probably not produced at Salerno but capitalized on the city's reputation for the medical arts.

5. Bullough 2004, pp. 8-9.

6. On the likelihood that Constantine was the translator of the *Isagoge* see Newton 1994, pp. 39-40. At p. 17 Newton estimates the length of the Latin text: "In a hand of normal size and upon ordinary octavo-sized parchment, it would occupy no more than a dozen leaves."

7. Burnett, p. vii, in Burnett and Jacquart 1994.

8. For the quotation from Benjamin of Tudela and for discussion see Bullough 2004, pp. 17-18.

9. This work, *The Secret of Secrets*, purported to be an Arabic translation of an Aristotelian original. See Latham 1983, p. 155.

10. According to Bullough 2004, pp. 51-52, dissection begins to be mentioned in Latin medical texts in the middle of the thirteenth century.

11. Bullough 2004, p. 19.

12. The school at Salerno declined in the late twelfth century because of the city's political instability, caught as it was between the Hohenstaufen emperors and the Norman rulers of southern Italy and Sicily.

13. Bullough 2004, pp. 263-68.

14. In the 13th century the writings of Ps.-Dionysios were translated again into Latin, this time by Robert Grossteste, the bishop of Lincoln.

15. Some of the old European universities have discovered very early "foundation dates" for themselves, and there are claims that the University of Bologna was established in 1088. Undoubtedly legal instruction of some kind was available in Bologna even before Imerius began teaching the *Corpus iuris civilis*, but the *terminus ante quem* for the existence of a university there is 1158, when Frederick I Barbarossa issued an imperial charter guaranteeing certain rights

to the *universitas* of scholars at Bologna.

16. Bullough 2004, p. 10.

17. A school known as the Pandidakterion had been established in Constantinople by Emperor Theodosius II in the early 5th century. It was evidently intended for training imperial functionaries in the arts of grammar and rhetoric. After the 8th century such training was done either in the imperial palace, or at the Patriarchal cathedral, Haghia Sophia.

18. Ochsenwald and Fisher 2004, pp. 115-16.

19. These are noticed in Makdisi 1981, pp. 224 ff.

20. The surviving corpus of Aristotle's writings is voluminous, filling approximately 2400 pages in Barnes 1984. Altogether, 47 different works are preserved, and in length they vary enormously. In the set of translations edited by Barnes *The Situation and Names of Winds* covers two pages and the *History of Animals* covers 220 pages.

21. The six works - *Categories*, *On Interpretation*, *Topics*, *Prior Analytics*, *Posterior Analytics*, and *Sophistical Refutations* - were known to the Peripatetic school as the *Organon*, or the "instrument" of formal logic.

22. The *Speculum astronomiae*, the *De animalibus*, and the *De mineralibus*.

23. *Summa Theologiae* 1, 12, 1; translation from Aquinas 1947.

24. *Summa Theologiae* 1, 12, 13; translation from Aquinas 1947.

25. See Haskins 1927, pp. 107-08: "There was the usual attempt to allegorize and point a moral, but this must ordinarily have been the rationalizing effort to find justification for what men were reading for other reasons."

26. Haskins 1927, pp. 111-12.

27. *Inferno* Canto IV, ll. 72-74, trans. Cary.

28. The argument that Dante was indebted to the *Kitab al-miraj* was first made by Miguel Asin Palacios in 1919 (for an English translation of the Spanish original see Asin Palacios 1926). When Asin Palacios's book was first published many Dante scholars regarded it as ill-founded and many Catholic theologians condemned it as slanderous. A second and fuller edition of Asin Palacio's book in 1943 made a stronger case that Dante had indeed borrowed much from the Muslim story. Further support came from two studies published by Enrico Cerulli, the first in 1949 and the second in 1972.

29. Mommsen 1942 pointed out how highly Petrarch (who in 1341, on the Capitoline hill of Rome, was crowned as the city's poet laureate) esteemed the ancient Roman empire. "Is all of history," wrote Petrarch, "anything other than praise of Rome?" (*Quid est enim aliud omnis*

historia quam Romana laus?). Petrarch's *De viris illustribus* extolled the ancient Romans from Romulus to the emperor Titus. Petrarch lamented that after Titus the empire tended to be ruled by "barbarians" from Spain and Africa, and therefore declined.

30. Whence its designation: Laurentianus 68.2. Although a great treasure, the manuscript was quite incomplete: it ran from the middle of *Annales* 11 well into 16 (covering most of Nero's reign) and then jumped to what today is designated *Historiae* 1-5.

31. The first six books of Tacitus' *Annales* likewise hang from a single ms., this one copied at Fulda in the 9th cent. This Fuldensis manuscript came to light in the early 16th cent, and was quickly acquired by Pope Leo X.

32. On this see Gaisser 1993.

33. Textual critics today have two other early mss. of the *De rerum natura* with which to work: the O and Q codices were copied in the 9th century. But these were discovered long after Bracciolini found his manuscript, and indeed after the first printed edition of the poem.

34. On this topic see Walker 1972.

35. On the Renaissance popes see pp. 177-195, in Eamon Duffy's *Saints and Sinners: a History of the Popes*, 2nd edition (New Haven: Yale, 2002).

36. This long-ignored topic has now been masterfully treated in D. S. Chambers's *Popes, Cardinals and War: the Military Church in Renaissance and Early Modern Europe* (New York: I. B. Tauris, 2006). Chambers, now retired from the Warburg Institute at the University of London, is a specialist in Renaissance history.

37. See Chambers 2006, pp. 48-9: "Since the higher clergy of Spain were the most prone to a military tradition of defending the faith against the infidel, it is not surprising that Nicholas' successor in 1455 was the Archbishop of Valencia, Cardinal Alfonso Borgia, Pope Callixtus III, to whom was attributed a few years later as axiomatic, 'The palm of glory grows nowhere except on the battlefield.' Callixtus gave war against the Turks absolute priority."

38. Chambers 2006, p. 63.

39. Duffy 2002, p. 191

40. On earlier historians' neglect of the printing revolution see Eisenstein 2005, pp. 3-12 and 313-58. Eisenstein 2005 is a second and abridged edition of her *The Printing Press as an Agent of Change* (Cambridge: Cambridge University Press, 1979 [two volumes in one]).

41. The text of *Annales* 11 - *Historiae* 5 was published at Venice ca. 1470 by a printer named Spira. The *editio princeps* of *Annales* 1- 6 came out in 1515, shortly after Pope Leo X acquired from the monastery at Fulda the manuscript of this part of the Tacitean corpus.