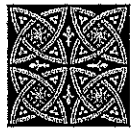
careful, though, not to be misled by Abelard's high-profile career. However sympathetic we might be to his plight, the fact remains that he brought most of his problems upon himself. His blatant hypocrisy and breathtaking arrogance ensured that he had a ready supply of enemies who were quite happy to use accusations of heresy to bring him down. Yet, despite his obvious character flaws, Abelard always had powerful supporters. He was twice a master at the prestigious cathedral school in Paris and abbot of a distinguished monastery (even if, like Anselm, he was too much of a scholar to be any good at the job). Even after his final condemnation in 1140, he found support from Peter the Venerable (1092–1156), abbot of the great monastery of Cluny and equal in stature to St. Bernard himself. Peter ensured that Abelard's confinement took place within his own monastery where he was comfortable and well looked after.[20]

It was Peter who gave Abelard's body to Héloïse at the Paraclete for burial when he died of old age a few years later. By then the pope who had condemned him was dead; the new pope was a supporter of reason. He even owned the two books by Abelard that his predecessor had demanded be burnt.[21] Once Abelard was dead, his controversial and acerbic personality no longer obscured his ideas, and they quickly came to dominate Christian scholarship. In the end, despite his enormous reputation and the silencing of Abelard, St. Bernard had missed the boat.

CHAPTER FOUR



THE TWELFTH-CENTURY RENAISSANCE

If any period deserves the label of "renaissance," it is the twelfth century.[1] Peter Abelard had championed the primacy of logic and argued that it must even be applied to the sacred mysteries. At about the same time, other scholars were beginning to think hard about the physical world as well. Two of the earliest medieval natural philosophers were William of Conches (1085–c. 1154) and Adelard of Bath (1080–c. 1160). Most significant of all for the future development of science was the movement to translate an enormous body of newly discovered scientific and medical writing from the ancient Greek and Islamic worlds into Latin. This flood of new knowledge meant that western Europe could assimilate it and then progress from all that had gone before.

WILLIAM OF CONCHES AND THE NATURAL PHILOSOPHY OF PLATO

William of Conches received his education at the cathedral school at Chartres and probably taught at Paris. He may also have been the tutor of Henry of Anjou (1133–1189), who later became King Henry II of England. Beyond that, we know little for certain about his life. We do know that William of St. Thierry, the friend of St. Bernard who alerted him to Peter Abelard, also accused William of Conches of heresy. But without the cachet of Abelard's dangerous reputation, nothing very much came of this affair. William of Conches shrugged off the accusations with a few amendments to one of his books.[2]

His most important achievement was an attempt to reconcile the natural philosophy of Plato, as found in *Timaeus*, with the creation accounts in the book of Genesis in the Bible. *Timaeus* was the only work of Greek natural philosophy that existed in western Europe during the early Middle Ages. This made it very influential. Unlike most of Plato's dialogues, *Timaeus* consists mainly of a single long speech by the eponymous speaker who describes the origin of the world. Although Plato admits that his explanation of creation is merely a suggestion,[3] his reputation was such that even a mere hypothesis enjoyed great prestige when it came from his pen. Speaking through Timaeus, Plato tells us that a divine creator made the world out of some sort of pre-existing chaos. Because the chaos was difficult to shape, the universe that resulted was not as perfect as the original Forms on which the creator had based his design. The creator also gave the universe a soul, which is the active force that keeps the heavens moving. Various inferior gods govern the day-to-day workings of the universe, and the creator delegated to them the job of fashioning animals, including man. Man thus finds himself in the middle of a great celestial hierarchy. The creator god is at the top with other gods below, while mankind is in the middle and brute animals lie beneath him.

William wrote a commentary on *Timaeus* to set out how it could be reconciled with Genesis. This might appear fairly straightforward in some

respects. It is possible, though naïve, for instance, to equate Plato's creator with the Christian God. Plato's world-soul sounds similar to the Christian Holy Spirit. Plato also believed in the immortality of the soul and largely approved of the mode of life favored by Christian monks. William of Conches realized that matters were not so simple; to give one example, Plato says that the creator constructed the world from existing material, but the Bible implies that God created it from nothing. Furthermore, Plato's creator was a much more passive deity than the Christian God who frequently meddled in human affairs. While wrestling with these concepts, William tried to interpret both *Timaeus* and the Bible in a figurative sense. He states explicitly that a literal understanding of parts of Genesis would be absurd. Rejecting such a literalistic interpretation of scripture, he wrote: "The authors of Truth are silent on matters of natural philosophy, not because these matters are against the faith, but because they have little to do with the upholding of such faith, which is what those authors were concerned with."[4]

Such a view was widespread, if still controversial, in William of Conches' time. We have already seen how, in practice, biblical passages that support a flat earth were not read as accurate descriptions of nature. In a similar vein, the Genesis creation account refers to both the sun and the moon as "great lights," which implies that they both produce their own illumination.[5] However, no less a churchman than Pope Innocent III (c. 1160–1216) was perfectly aware that the moon's light is reflected from the sun, and seemed to assume that this was widely known.[6]

The contrast between the Christian God who intervened in human affairs and a deity who just left the universe to run itself was a significant one for William. He could see that for natural philosophy to be worthwhile, nature had to enjoy autonomy. To appreciate why this idea was so important, consider one of the standard arguments purporting to explain why science and religion might find themselves in conflict. It has been suggested that religious people who see God as intervening in the world cannot do science because they believe everything that happens is God's

will. In other words, they are unable to distinguish between something that is a result of the laws of science and something that occurs due to the direct action of God. A good example is the question of what a Christian should do if she becomes ill. Is sickness a divine punishment for some sin that has been committed? Alternatively, is it just a natural phenomenon best understood in terms of the physical spread of disease? In short, is it better to visit a priest or a doctor? Actually, most medieval people would tend to hedge their bets and follow both religious and medical advice. The former was especially popular during the plague and against other diseases for which there was no cure. We do hear plenty of preachers blaming pestilence on God's wrath and the sins of the people, but this did not preclude the use of the medical profession as well.

William of Conches and his contemporaries managed to reconcile the two points of view in a way that was acceptable to all of the natural philosophers who came after him. He suggested that when we consider the reasons behind an event, we have to look at both the primary and secondary causes. According to William the primary cause, the ultimate reason why anything happens, is God. His omnipotence is such that he is the ultimate reality that underlies everything else. Nothing happens that is contrary to his will. However, the natural philosopher can also ask in what way God has attained his aims. This is the secondary cause of an event. Nature obeys the laws that God ordained when he created the world. These "natural laws" are the secondary causes that God usually employs, although the precise terms "natural law" and "law of nature" were not used in this sense during the Middle Ages. Thus, by investigating natural causes, the philosopher does not threaten God's omnipotence in any way. There is nothing to prevent God from intervening directly and causing a miracle. However, we can only recognize a miracle as contrary to the normal course of nature if we already have some idea of what the normal course might be.

To illustrate this, imagine that you have just put the kettle on. Inside it, some water is gradually coming to the boil. The primary cause of the

water boiling is that you fancy a cup of tea. However, a physicist in your kitchen could happily study the thermodynamics of boiling water in your kettle without ever having to worry about why you had set it going in the first place. He is interested only in the secondary causes, such as the way in which electricity heats the element and how this heat is transmitted to the water. One day, you turn on the kettle but switch it off again before the water has boiled because you have been called out unexpectedly. This one-off event has absolutely no effect on the physicist's analysis. Your direct intervention in the operation of the kettle, by turning it off, is irrelevant to his work on the secondary causes of boiling water.

In the same way, a natural philosopher can ignore the possibility of miracles in his research even while admitting that they occasionally happen. As one twelfth-century theologian explained:

> All things have been made by God as their author, but certain things are called God's work just as they are, namely those that he makes by himself....Others are called works of nature and they are created by God after some natural resemblance, as a seed from other seeds, a horse from other horses and similar things from similar things.[7]

William of Conches also believed that God is loving and consistent rather than capricious and arbitrary. This meant that he could expect natural laws to remain the same forever. Now, he not only had a justification for investigating nature which did not infringe on the sovereignty of God; he also had a reason for believing that nature is regular enough in its workings to be worth exploring in detail.

One of William's colleagues at the school in Chartres summed up these ideas when he wrote in a *Commentary on Genesis*:

> Because the things in the world are mutable and corruptible, it is necessary that they should have an author. Because they

> are arranged in a rational way and in a very beautiful order, it is necessary that they should have been created in accordance with wisdom. But, because the Creator, rationally speaking, is in need of nothing, having perfection and sufficiency in himself, it is necessary that he should create what he does create only through benevolence and love.[8]

A common metaphor at the time was to imagine nature as a book written by God. Another twelfth-century theologian wrote: "The whole of the sensible world is like a kind of book written by the finger of God."[9] The Bible, of course, was another book written by God, and so Christians could learn about him in two ways–by reading either the book of nature or the book of scripture.

ADELARD OF BATH

Adelard of Bath was a close contemporary of William of Conches but had a much more active life. He was a gentleman by birth who, like Peter Abelard, chose a clerical rather than a military career. As well as being a scholar, he was accomplished at the noble art of falconry and played the harp. He was probably a man of independent means who took on a few students, including his nephew, in order to give himself something to do. However, his true vocation was mathematics and natural philosophy. He realized that he was never going to become a master of these arts in Europe, so he left his students in France where he had been teaching and travelled to Sicily in 1112. His goal was to learn the secrets of the Arabs, who had ruled Sicily until 1091 when they lost the island to the Normans, the same people who annexed England under William the Conqueror. Even in Sicily, though, he could not quench his thirst for knowledge, so he journeyed on to the Middle East. This was the era of the crusades when much of the area was under Christian rule. Adelard reached Syria in 1114 and set about learning Arabic.[10]

National Library of Austria

5. A manuscript illumination from a thirteenth-century French Bible of God designing the world

At the time, there was little writing on advanced mathematics available in Latin. Boethius' short treatise on arithmetic was not a practical manual, and his book on geometry was no longer extant. Adelard decided to translate the greatest achievement of ancient Greek mathematics into

Latin so that his fellow Christians could benefit from it. The book universally recognized, then and now, as the finest work of Greek math was the *Elements* by Euclid of Alexandria (325–265 BC). This contains an exhaustive study of geometry arranged so that each step leads inevitably to the next. From just a few axioms, Euclid builds an edifice of geometrical conclusions, all of which he grounds firmly on solid foundations. As well as being useful in practice, it showed how logic could construct a perfectly functioning system from simple axioms that were indisputably true. Euclid's *Elements* provides an excellent example of just how far it is possible to go with the power of pure reason. No wonder some Christians decided that God must be a master of geometry. He was even illustrated holding a pair of compasses to measure the universe. The *Elements* also contains chapters on number theory, similar to the *Arithmetic* of Boethius, and on solids. Although Euclid's masterwork was originally in Greek, Adelard came across Arabic translations during his travels. He rendered it into a Latin version that would remain the standard text until the sixteenth century.[11]

As well as translating the *Elements*, Adelard also wrote books of his own. These are very helpful to the modern reader because they give a good idea of what an educated person of the time knew. In his *Natural Questions*, Adelard is in conversation with his nephew. The nephew bombards his uncle with queries about the world of nature, ranging from "Why don't the oceans start to overflow due to the constant inflow of rivers?" to "What do stars eat?"[12] Adelard's answers are often ingenious, but his lack of scientific knowledge constitutes a serious handicap. He suggests that water in the ocean is recycled back into rivers via underground streams that emerge as springs. He knows about evaporation but does not understand that it involves water turning into invisible vapor. Likewise, he believes that stars are alive because they move of their own accord. And being alive, they must eat something! Adelard suggests that they might feast on the air that rises off the earth.

There is a temptation to dismiss all this as nonsense. When Adelard's nephew asks, "Why are women more lustful than men and yet also colder?" he is simply repeating the nostrums of his age. Like the ancient Romans, medieval people believed that lust came from women. They also associated lust with physical heat. In his answer, Adelard explained that it is actually an excess of moisture in women that causes lust and not excess heat.[13] This resembles a garbled misunderstanding of Greek medical theory, coupled with some medieval misogyny. In his book, Adelard is struggling because he is attempting to make sense of incomplete information while also sticking to the rules of rational enquiry. He never tells his nephew that a subject is impious or forbidden. Nor does he invoke concepts that he would class as supernatural (even if the idea of stars having souls seems that way to us). Adelard's science was wrong, often spectacularly so, but not because he was irrational or superstitious.

In William of Conches and Adelard of Bath, we see two contrasting ways of expanding our knowledge of nature. William took as the basis for his studies materials already familiar in the early Middle Ages–Plato's *Timaeus* and the Bible–but thought deeply about what they actually meant. Adelard searched out new materials in order to bring the cream of ancient learning to a western audience. Nevertheless, their lack of access to the best of ancient Greek science seriously hampered both William and Adelard. The few old books preserved after the fall of Rome were satisfactory as textbooks of logic, but they were inadequate for mathematics and natural philosophy. Instead, they served to whet the appetite of readers who picked up many hints from them about other works that were no longer available. This made them desperate to search out the lost wisdom of ancient Greece. The resulting movement to rediscover and translate the classics was one of the most important events in western history.

THE TRANSLATORS

From the early twelfth century onwards, western scholars translated a vast corpus of Greek and Arabic erudition into Latin. Once recovered, these works quickly came to dominate learning throughout Catholic

Europe. The translation movement occurred because western Christians knew they were missing out on a great deal of knowledge that was already available to Muslims and Byzantines. They spoke of the "poverty of the Latins" because only the most basic material was available in their language. To remedy this they set out to acquire the riches they knew existed in other cultures.[14] Many societies are slow to accept that they can learn something from their enemies. This was not the case with medieval Europeans, who borrowed many foreign ideas and inventions. Acquiring this knowledge and rendering it into Latin for the first time was the work of a relatively small number of scholars who had the necessary language skills. Sometimes it was difficult to find anyone who did, and so several steps were necessary. First, someone had to translate the desired work from Arabic into Spanish or Hebrew, and then someone else re-translated it into Latin.[15]

Of course, the Arabs did not simply hand over their libraries to the Christians. Most were taken by military force. By the eleventh century, Muslims had started to lose their grip on the Iberian Peninsula, which they had conquered in the eighth century. The process whereby Christians slowly annexed all of Iberia, usually called the *reconquista*, took centuries. Islam would maintain a strong presence in southern Spain until Granada fell to Christian invaders in 1492. Initially, the whole of Arab Spain had the benefit of a single ruler. Dynastic squabbles and civil war ended this unity, and the Caliphate split into various small principalities. The kings of the Christian territories entered into a shifting network of alliances with these Muslim rulers, which resulted in the slow absorption of the old Caliphate into Christendom. By cleverly exploiting disputes between Muslim states, the Christians rarely came up against their combined strength until it was far too late to turn back the tide. In 1085, the great city of Toledo fell to Alfonso VI of Castile (1040–1109). With it, the fruits of Arabic learning came into the hands of the Christian invaders. They captured the famous library of the city intact, and word of the riches contained within soon spread. Contrary to popular belief, Christians were no more inclined to burn down libraries indiscriminately than anyone else was.

The most prolific of the translators was Gerard of Cremona (1114–87), who spent many years in Toledo working on the manuscripts in the library there. He learned Arabic (as an Italian scholar, he was already proficient in Latin) and translated over sixty books on science, math, and philosophy. Probably his most impressive achievement was his work on the *Almagest*. *Almagest* means "The Great" in Arabic, but the original Greek name for this book was the much less glamorous *Mathematical Synthesis*. It was written by Ptolemy of Alexandria (fl. 140–170 AD) and represents the high point of Greek astronomy. Ptolemy gathered together the best descriptions of the heavens that he could find and put them all on a firm mathematical basis. The result is a very difficult treatise that explains how to calculate the positions of the planets using complicated geometrical models. For anyone seeking to plot the stars, whether for the purposes of making a calendar or an astrological prediction, the *Almagest* was the last word in accuracy. In practice, its contents were so hard to master that most people instead used ready-prepared tables to trace the planetary movements. The Arabic name *Almagest* is testimony to the importance attached to it by Muslim scholars. It had been translated out of the original Greek into Arabic during the ninth century. Copies spread around the Mediterranean Sea to Spain where Gerard found them. This meant that the version he made in Latin was twice removed from the Greek original and mistakes had inevitably crept in. With such a complex and technical work, that was a serious drawback. Regardless of these difficulties, with the *Elements* of Euclid and *Almagest* of Ptolemy both now available in Latin, the finest Greek mathematical science was open to western Christians. Gerard also translated commentaries and original treatises by Muslim scholars. The two most important writers in Arabic were Avicenna (980–1037), who specialized in medicine, and Averroes (1126–1198), whose annotations on the works of Aristotle were so important that medieval scholars called him simply "The Commentator."

Gerard was not the only translator at work in Spain, and there were other sources of ancient manuscripts awaiting exploitation. In Sicily, where Adelard had started his search for mathematical learning, other Catholics searched the old libraries. There they found manuscripts in their original language: Greek. Sicily had been ruled by the Byzantines until the ninth century and still held on to much of its Hellenistic culture. At the same time, monks started digging around in other Italian libraries and found more than a few manuscripts of their own.

The Greek author that everyone wanted to read was Aristotle. Boethius, of course, had translated some of Aristotle's logical works back in the sixth century. Now, the bulk of his natural philosophy became available. This included *Physics*, *On the Soul*, *On the Heavens*, *Generation and Corruption*, and *Metaphysics*. These books would form the basis for European natural science until the seventeenth century, and in the coming chapters we will be hearing more about them. However, all of Aristotle's writing is challenging, even to the modern reader, and none of his books can be called literature in the traditional sense. This is in contrast to Plato's dialogues, which are masterpieces of prose as well as philosophy. Reading Plato can be a pleasure, whereas reading Aristotle is usually nothing of the sort.

There is a good reason for the different characters of the two philosophers' works. Plato actively wanted his dialogues to be published, and so he polished them for public consumption. Aristotle's treatises are simply lecture notes that he pulled together for his own use in teaching his classes. He never intended them to be published in their own right. This is why they appear rough and unrefined. We do know that Aristotle also produced his own literary dialogues, but these were lost during antiquity.[16] Although Aristotle's surviving treatises are not always clear, they are packed with huge amounts of profound thought about almost every subject imaginable. Aristotle practically originated the disciplines of natural history with his treatises on animals, which are obviously based on careful observation and collection of specimens. The subject matter of one of his

greatest books was so novel that no one even knew what to call it. *Metaphysics* got its name because it followed *Physics* in the standard list of Aristotle's works, and "meta" is ancient Greek for "after." Up until Aristotle's time, this subject did not have a name because he had not yet invented it. His many works on logic have already been mentioned, but he was also concerned with ethics, rhetoric, psychology, and even drama. It is no wonder that Aristotle was known simply as "the Philosopher," and that the great medieval poet Dante Alighieri (1265–1321) called him "the master of those who know."[17]

Aristotle was born in 384 BC at Stagaria (which is why he is sometimes called "the Stagarite") in northern Greece, where his father was the personal physician of King Philip II of Macedonia (382–336). Philip came to the throne in 359 and launched an ambitious plan to conquer the whole of Greece. By the time of his death, only militaristic Sparta was still holding out. Aristotle's father sent his son south to Athens, then the intellectual center of Greece, for his education. He attended the Academy run by Plato and remained there until the older man died. Although the two of them disagreed about many aspects of philosophy, Aristotle always evinced a healthy respect for his teacher, even long after his death. Nonetheless, Aristotle was passed over for the job of succeeding Plato as the head of the Academy, and so he decided to leave Athens. He travelled widely, got married, and then returned home to take up the job of tutor to King Philip's son Alexander (356–323). Alexander would later ascend the throne of Macedonia and totally eclipse his father's achievements. In a remarkable thirteen-year reign, he succeeded in destroying the mighty Persian Empire and leading his armies as far east as India. It is no surprise that Alexander earned the epithet "the Great," or that he is still an object of fear in the countries he conquered. Aristotle did not travel east with his royal student, but returned to Athens where he set up his own school of philosophy called the Lyceum. Here, he taught a new generation of students. According to legend, his favored method of teaching was to stroll around talking while a gaggle of listeners followed him. For this reason,

later scholars called his philosophy "peripatetic," from the Greek word for "walking around." Sadly this delightful image is based on a mistranslation. The word "peripatetic" actually refers to the covered portico in which Aristotle and his students sheltered from the Athenian sun.[18]

In 323 BC, Alexander the Great died in Persia. The Athenians lost no time in overthrowing the Macedonian government that had been installed in Athens. Aristotle, as Alexander's former teacher, was indelibly associated with the Macedonian regime and became *persona non grata*. He had to flee for his life to prevent, as he said, the Athenians "sinning twice against philosophy."[19] The first sin had been the execution of Socrates. Aristotle died shortly afterwards in exile. His works have allegedly reached us via a rather circuitous route. They are said to have lain, hidden and forgotten, in a cellar for a couple centuries after Aristotle's death. Eventually a rich bibliophile rediscovered them and brought them back to Athens. Shortly after that, the Roman general Sulla (138–78 BC) captured the city and carried the moth-eaten books to Rome.[20] The conquest of Greece had started a fad in Rome for Greek culture. The Romans regarded Aristotle's books as fine examples of Greek philosophy, so they copied them and thus ensured their survival.

THE FIRST UNIVERSITIES

At the same time as the medieval movement of translation into Latin was gathering speed, a new development in education was just getting under way. This was the invention of the university. Higher education had of course existed in the classical world in Alexandria, Athens, and Constantinople. In ancient Athens, a single individual such as Plato or Aristotle ran each school, which he effectively owned and could pass on to his successor when he died.[21] The schools of Alexandria and Constantinople were both royal foundations that depended on the whim of the monarch for money and patronage.

In contrast, the new universities of western Europe enjoyed a special kind of status that made them effectively independent. Using legal

precedents originally developed by the monasteries and found within Roman civil law, the new universities formed themselves into "corporations."[22] This meant they were not just collections of individuals, but companies that faced the world with a united front. Meanwhile, the individuals who made up each corporation could make all their internal decisions behind the scenes. Thus, the university was not dependent on any particular person and could survive even after all the original members had left or died. Nor were they beholden to princes and bishops. Indeed, universities became adept at playing secular rulers off against the Church to maximize their own freedom of maneuver. Using their independence, the universities were able to defend their position and hold out for even more privileges. Such was the economic clout of a big university that towns and cities would bend over backwards to keep its members happy. Moreover, if they did not get their own way, they would either go on strike or walk away from the area.[23] The development of the corporation was an extremely important advance in other ways too, as it could also be used by commercial concerns. This eventually gave rise to the limited company, which is still essential for the smooth running of capitalism.

The world's first true university was the law school in Bologna. The Holy Roman Emperor Frederick Barbarossa (1123–1190) granted it an imperial privilege in 1158 when he allowed the students to govern themselves.[24] An exodus of these students, unhappy with their treatment by the town council of Bologna, led to the foundation of the University of Padua in 1222.[25] The University of Paris grew out of the cathedral schools where Peter Abelard had taught, gaining royal recognition from the king of France in 1200.[26] During the thirteenth century, the masters of Paris were sometimes on strike for years at a time, but such was the university's importance and prestige that they almost always got their own way in the end. Mystery surrounds the origins of Oxford, but it first appears in the records during the early thirteenth century.[27]

Bologna specialized in civil and canon law. It was unusual in that the students were in charge and they employed the masters to teach them;

elsewhere, the masters held the reins. Some universities excelled in particular subjects. Medical schools arose at Montpellier and Padua with the aim of using the newly discovered Arab and Greek works on medicine as the basis for training professional physicians. For this, the basic textbook was *Articella*, a collection of short treatises by Avicenna, Galen (131–201 AD) and Hippocrates (fl. fifth century BC) gathered into a single convenient package.[28] The most important subject of all, though, was theology, the queen of the sciences. Teaching this became the preserve of the University of Paris and, to a lesser extent, Oxford. The central text for theology was, of course, the Bible, but the writings of the early Church fathers were also highly significant. The problem, as Peter Abelard had identified in his *Yes and No*, was that the fathers did not always agree. To rectify this difficulty, Peter Lombard (1095–1160) produced a synthesis called the *Sentences*, which completed Abelard's project in its attempt to make sense out of the Church fathers' disparate convictions.[29] The *Sentences* gets its name from the Latin word *sententiae*, which literally means "opinions." It was second only to the Bible in its importance for the study of theology in the Middle Ages.[30]

The twelfth-century renaissance represented the triumph of Peter Abelard over St. Bernard. Logic was established as a vital tool for theology, and the universities were founded to provide a place for its study. The monasteries, guardians of Europe's literary heritage through the early Middle Ages, lost some of their significance. It was at the universities, primarily Paris and Oxford, that natural philosophy would make its home.

CHAPTER FIVE

HERESY AND REASON

On 20 November 1210, in the marketplace of Champeaux near Paris, ten members of a small sect called the Amalricians were burned at the stake. As the heretics were led out to their deaths, a storm was brewing. The cloaks of the clergy flapped in the wind and pouring rain soaked the straw that was to act as tinder on the pyre. After tying the victims to the uprights, the king's executioner more than earned his pay as he got a roaring fire going in the damp conditions. The Amalricians had reason to be grateful for the weather; when wet wood burns it generates a great deal more smoke than usual, and they would have suffocated before the flames even reached them. Among the people who gathered to watch, some muttered that the storm demonstrated the souls of the heretics were damned and surely destined for hell. On this occasion, the crowd was treated to a particularly gruesome spectacle. Next to the ten live victims, the executioner threw onto the pyre the rotten remains of another individual who had died three years prior. This was the corpse

16. Ibid., p. 67.
17. Ibid., p. 147.
18. Clanchy, *Abelard*, p. 199.
19. Ibid., p. 107.
20. Ibid., p. 322.
21. Ibid., p. 318.

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2. Lynn Thorndike, *History of Magic and Experimental Science*, vol. 2 (New York: Columbia University Press, 1923), p. 60.
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4. M.-D. Chenu, *Nature, Man and Society in the Twelfth Century: Essays on New Theological Perspectives in the Latin West*, trans. Jerome Taylor and Lester K. Little (Chicago: Chicago University Press, 1968), p. 12.
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6. Edward Grant, *God and Reason in the Middle Ages* (Cambridge: Cambridge University Press, 2001), p. 24.
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11. Michael Mahoney, "Mathematics," in *Science in the Middle Ages*, ed. David C. Lindberg (Chicago: University Of Chicago Press, 1978), p. 153.
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13. Ibid., p. 169.
14. Anon, "A List of Translations Made From Arabic Into Latin in the Twelfth Century," in *A Source Book in Medieval Science*, ed. Edward Grant (Cambridge, MA: Harvard University Press, 1974), p. 35.

15. David C. Lindberg, "Transmission of Greek and Arabic Learning," in *Science in the Middle Ages*, ed. David C. Lindberg (Chicago: Chicago University Press, 1978), p. 62.
16. Roger D. Masters, "The Case of Aristotle's Missing Dialogues: Who Wrote the Sophist, the Statesman, and the Politics?" in *Political Theory* vol. 5, no. 1 (February 1977): p. 32.
17. Dante Alighieri, *Inferno*, trans. Robert M. Durling (New York: Oxford University Press, 1996), p. 77 [IV: 131].
18. *Brill's New Pauly: Encyclopaedia of the Ancient World*, vol. 10 (Leiden, Boston: Brill, 2002), p. 798.
19. Robin Lane Fox, *The Classical World: An Epic History of Greece and Rome* (London: Allen Lane, 2005), p. 211.
20. Keith Dix, "Aristotle's Peripatetic Library," in *Lost Libraries: the Destruction of the Great Book Collections Since Antiquity*, ed. James Raven (Basingstoke: Palgrave MacMillan, 2004), p. 59. There is good reason to doubt the story, as Aristotle's thought continued to be studied throughout the period that his books were supposedly moldering in a cellar.
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