Chapter 1

THE NATURAL WORLD IN THE EARLY MIDDLE AGES

THE NATURAL WORLD is a human construct. Despite their seeming simplicity, the terms "natural world" and "nature" were used to mean a wide range of things in the premodern period. It is only relatively recently, following the rise of the physical sciences as a category, that they have come to refer to a widely accepted idea familiar to anyone who has attended a Western-style school or university.[1] But it is worth remembering that these ideas are still far from universal. There are continuing indigenous or non-European models of ecosystems in which the natural world looks very different, and which are not well-recognized by mainstream science.[2]

A very similar problem exists for the early Middle Ages because the modern idea of "nature" as shaped by "science" tends not to recognize early medieval models of the natural world. Compounding this issue is a persistent perception of the early Middle Ages as a period of compilation and preservation, which produced few works of real originality or lasting value. The concept of "nature" continues to be seen, even by twenty-first-century historians, as shaped entirely by the Classical past and advanced little or not at all before the twelfth century in the Latin West.[3] But recent scholarship has demonstrated that almost every aspect of early medieval intellectual culture purposely forged new contexts out of older ones.[4] Against this dynamic background, it would have been almost impossible for early medieval thinkers not to take up older ideas about nature and shape them to their own needs. As this chapter argues, that is just what they did.

Before turning to early medieval innovation, however, it is necessary to disentangle the somewhat confused narrative about medieval nature from the much more dominant narrative of a progress of science. The first part of this chapter first looks critically at the ways in which past scholarship has approached the concept of "nature" in the Middle Ages, and how it has mapped contemporary preoccupations onto past material. This includes the ideas inherited by the Middle Ages: the Neoplatonic understanding of a progenerative being, and the concept of *natura* in philosophy. This discussion situates the *Physiologus* within a broader debate while highlighting its poten-

1 See Buc, *The Dangers of Ritual*, 3, on the blind spots of writing in the same tradition as the object of study.

2 Jessen et al., "Contributions of Indigenous Knowledge."

3 Astronomy, as driven by computus, is perhaps the only exception.

4 Two recent illustrations of this are Chambert-Protat, "Le manuscrit Montpellier 157"; and Westwell, "The Content and the Ideological Constructionof the Early Pontifical Manuscripts." See also the four excellent "Storehouses of Wholesome Learning" volumes: Bremmer and Dekker, eds., *Foundations of Learning*, *Practice in Learning*, and *Fruits of Learning*; and Giliberto and Teresi, *Limits to Learning*.

tial to draw out early medieval specificities. Then, in order to examine the cultural and intellectual reception of "nature" in the early Middle Ages, and to obtain a historically sensitive reading of the *Physiologus*, this chapter reviews the evidence for how the physical world was perceived. This evidence includes not only texts but also art and material objects. The early medieval context evidenced by these sources had a rich cultural and spiritual dimension that is generally missing from the modern scientific definition of the natural world as a precisely measurable entity.

The second and longer part of this chapter offers a closer reading of these sources and the different aspects of the early medieval worldview that they represent. From the seventh century onwards, attempts were made to integrate this inherited classical learning about the physical world with the particular understandings of Christianity that were becoming dominant among intellectuals of those centuries. Although there was no centralized oversight of these intellectual works—which meant that they were often disjointed and contradictory—they were nevertheless products of monastic learning, which advocated broadly similar teaching methods and reading material across the Latin West. By the late eighth century, those texts (old or recent) which dealt with the physical or created world had, under the particular influence of the liberal arts curriculum and especially Isidore of Seville's *Etymologiae*, been reframed into a new context. Central to this was an approach based on language, and the use of allegory and etymology not only to interpret texts but to link seemingly disparate things: the Bible, morality, human bodies, portents and omens, the position and movement of celestial bodies, plants, stones, and animals, among others.[5] This universalizing system was, in effect, a new cosmography, based on inherited ideas but using methodologies that were distinctive to this time and place, dealing with its particular challenges and ambitions. By the ninth century, the *Physiologus*, and the plurality of readings its material context represented, was a sophisticated tool for learning and applying these new concepts. Although far removed from our own ideas about nature, as we will see in subsequent chapters, this developing early medieval worldview was both intellectually complex and deeply innovative.

Nature and Science

Medieval concepts of nature can be studied from a philosophical or literary perspective, but categories such as ethics, philosophy, and theology—as well as zoology and botany—have their own histories that have led to their current place in our system of knowledge. This system was not the same a hundred years ago and is a great deal less recognizable twelve hundred years ago. In order to be understood, it must be taken on its own terms. The same problem with the scientific approach, which asks the wrong questions of seventeenth-century naturalism by looking "for the roots of modern zoology and botany," was recognized by the historian William Ashworth in 1990.[6]

5 On portents, especially, see Foot, "Plenty, Portents and Plague."

6 Ashworth, "Natural History," 304.

Nevertheless, the history of science provides a very powerful narrative from which it is difficult to separate the history of nature, especially as it is recounted for the early Middle Ages. In this narrative, the concept of nature is traced back to science in ancient Greece. The Greek philosophical schools developed various models for understanding the universe, drawing on the wider intellectual inheritance of the ancient world. Traditional accounts of the history of Western science have credited the Greeks, especially though not exclusively Aristotle, with inventing the idea of "scientific" rigour.[7] There are good reasons to see the ancient Greek philosophers as important contributors to the beginnings of modern science, but they were not therefore dispassionate, objective observers of the world who separated moral and emotional concerns from intellectual ones. Scientific objectivity as we know it today is a nineteenth-century development, growing out of an "epistemic virtue" that historians of science Lorraine Daston and Peter Galison called truth-to-nature. By following truth-to-nature, naturalists examining natural objects aimed to represent their ideal or universal form or type. Both truth-to-nature and the other forms of objectivity that succeeded it were closely linked to the philosophical ideas of the eighteenth and nineteenth centuries.[8] Objectivity in science more generally was a product of the scientific revolution, which had begun around the sixteenth century, and which saw the rise of the scientific method. These ideas certainly had their roots in ancient and medieval knowledge both in the West and beyond—they did not arise out of nothing—but they are much more recent than we tend to think. Even when they seem to be recognizable in ancient Greek philosophy, their roots, purposes and uses often seem alien. An example of this is the science of acoustics, which in ancient Greece was inextricably associated with the art of poetry.[9] Similarly, Natalia Lozovsky has shown that in the early Middle Ages, geography was considered to be a sub-section of history, in particular sacred history.[10] For the vast majority of human history, objectivity in science has been far less important than its cultural and social functions. And the modern emphasis on objectively provable knowledge does not mean the scientific achievements of the pre-modern past were somehow of less value. As David D'Avray has put it, "it would be arrogant and culture-bound to assume that the modern West's attempt to understand the central problems of existence—e.g., whether there is a difference in kind as well as in degree between humans and other animals, or whether personal identity continues in any way after death—is any more "scientific" than that of medieval people."[11]

Histories of modern science have now also moved on beyond traditional narratives. They range from critiques of modern science based on environmental and health disasters; the anthropocentrism of modern science; the lack of women's and indig-

7 For example, Agazzi, *Scientific Objectivity*; Graham, *Science Before Socrates; Harrison, The Bible, Protestantism, and the Rise of Natural Science*. See also Arnaldez and Beaujeau, eds., *La Science*.

8 Daston and Galison, *Objectivity*, 20–21.

9 Barker, "Words for Sounds."

10 Lozovsky, *The Earth is Our Book*, chap. 3.

11 D'Avray, "Symbolism and Medieval Religious Thought."

enous voices and knowledge; the far wider global roots of science before more narrow Enlightenment ideas came to dominate; and new "climate" narratives which see the Anthropocene as a time of regrowth and possibly better human health.[12] These lines of inquiry critically interrogate the way human beings interact with the world in which they live, while taking into account past contributions. Likewise, the conceptualization of the world in the early European Middle Ages in locally produced miscellaneous manuscripts, as investigated in this book, can and should be critically explored as a particular (historical) instance of human interaction with nature. What we can learn from this is both useful for early medieval history and transferable to the present, both from an evolutionary and a comparative perspective.

For the history of science, a view of knowledge that takes modern categories and terms as its starting principles demonstrates a particular kind of progress and permits historians to judge the success or failure of ideas or cultures within the context of that progress.[13] A consciously partisan position may in fact be necessary for any *longue durée* history if it is to be more than a descriptive chronology. But it makes no sense to do the same for the history of nature during the early Middle Ages. Seen from the point of view of scientific objectivity, the early medieval contribution to the Western understanding of the natural world was negligible, and it disappears altogether when compared with ideas put forward in antiquity or in the later medieval universities. Viewed on its own terms, the early medieval understanding of nature was so bound up with the very idea of what constituted knowledge and faith, and with the social means of exercising these—education, language, worship—that it serves as a window onto the landscape of early medieval society. Alone the strangeness of this landscape to our eyes makes it worth investigating, both as an important part of our shared past and as a challenge to our own inherited imperatives.

Early Medieval *natura*

Viewed separately from the story of scientific progress, then, what was the natural world in the early Middle Ages? The available conceptual frameworks are strikingly rich in what they encompass. In antiquity and into the Middle Ages, the Latin word for nature, *natura* (which in turn derives from Latin *nascor*, to be born) was most frequently used to mean either an active, usually divine force that animates the universe or the human body, or the essential quality of a person or thing. This is the case in the *Instructiones*, a set of sermons composed by the sixth-century Irish saint Columbanus, in which the word *natura* occurs thirteen times but always refers to God or an inner quality rather than the natural world.[14] In the seventh century, Isidore of Seville affirmed this in the *Etymologiae*: "Nature [is] called *natura* because it causes something to be born, *nasci*, and is capable of producing and creating. Certain people have said nature is God, by whom all things are created and have

12 See for example Brooke, *Climate Change and the Course of Global History*.

13 The same argument is briefly made in Graham, *Science Before Socrates*, 28.

14 Stancliffe, "The Thirteen Sermons." 165.

their being."[15] The Earth, therefore, can be seen as acting under the impulse of this divine force, and while the effects of gravity, heat, light, and so on are felt, they are not forces in themselves, but rather agents of the primary force. God and the physical world are not strictly distinguished, an attitude inherited by the early Middle Ages from antiquity. Boethius expressed this clearly in his *Consolation of Philosophy*: "The generation of all things [*omnium generatio rerum*] and the development of things that change and move [*cunctus mutabilium naturarum progressus*] take their order and forms and causes [*ordinem, formas, causas*] from the unchangeable mind of God [*ex diuinae mentis stabilitate*]."[16]

In associating *natura* with a progenerative and divine God, Isidore and Boethius followed Neoplatonic tradition.[17] Neoplatonic thought was based on the ideas developed by Plato in the *Timaeus*, and by Aristotle (Plato's student) in the *Categories*. Among those Neoplatonists who exercised the most influence on early medieval ideas of nature were Plotinus (d. 270), and through him, Augustine (d. 430) and Boethius (d. 524/5). Boethius not only translated Aristotle's *Categories*, *On Interpretation* and *Prior Analytics*, and Porphyry's *Isagoge*—an introduction to the *Categories*—but also wrote several highly influential works on music (*De institutione musica*) and philosophy (*De consolatione philosophiae*). The translation and commentary on the *Timaeus* by the fourth-century philosopher Chalcidius, the fifth-century commentary on Cicero's *Dream of Scipio* (*Somnium Scipionis*) by Macrobius, and Martianus Capella's fifth-century poem *On the Marriage of Philology and Mercury* (*De nuptiis Philologiae et Mercurii*) also helped to transmit Neoplatonic ideas in the early Middle Ages. These ideas encompass a rich and diverse tapestry of meaning, function on a grand scale as a synthesis of almost the entire Hellenic intellectual tradition and are too extensive to be properly summarized here. (The word "Neoplatonic" itself, coined in the 1830s, was not used in antiquity.) We can, however, trace two key Neoplatonic ideas that had an impact on early medieval thought about nature: the idea of an unlimited single being, a divine "One," from whom reality proceeds; and the Aristotelian categories or divisions of knowledge, which are used to divide and classify reality.[18]

The Neoplatonic idea of the One was particularly influential. Although Plotinus' original description of the One was not the same as the Christian understanding of a triune God, it helped to articulate Christian belief, and had been thoroughly absorbed into Christian philosophy—particularly through the works of St. Augustine—by the early Middle Ages.[19] The Christian focus was, however, not on creation itself as divine, which was the Neoplatonist view, but on the divine Creator, from whom the natural

15 Isidore, *Etymologiae* 11.1.1.

16 Boethius, *The Consolation of Philosophy* 4:6. Trans. Slavitt, *The Consolation of Philosophy*, 131; Latin from Boethius, *Theological Tractates*, trans., Stewart, Rand, and Tester, 340.

17 Natural and extraordinary generation has been covered for the central Middle Ages in Lugt, *Le ver, le démon et la vierge*.

18 Marenbon, *Early Medieval Philosophy*; Wildberg, "Neoplatonism."

19 For an introduction, see O'Meara, ed., *Neoplatonism and Christian Thought*.

world derived its origin. In his commentary on Genesis, the eighth-century scholar and teacher Alcuin restated the position of the Church on this, which had been articulated early on by Augustine and others. Alcuin explained why God did not give mankind his laws to be written down in the beginning, as he later did to Moses:

> The first men kept the law of good nature [*lex bonae naturae*] for a long time; but when the natural law [*naturalis lex*] vanished, caused by the habit of sinning, the written law [*lex litterae*] was given by means of Moses, that man might have the authority of the good things to know, and that these, that had begun to be hidden, would be made manifest; and so that the fear of punishment would correct offenders, and restore the faithful to God.[20]

Here the natural was equated with virtue and described as something internal and instinctive, that nevertheless weakens over time and requires correction to be restored.[21] This is faith—upheld by the written word—by means of which the human soul finds God. Thus the Creator is the essence of both nature and virtue, as the ultimate law and the only progenerative being. Alcuin's emphasis on the need for correction bestowed a moral aspect on Creation, which was a reflection of the Creator and so of human salvation. The natural law was a philosophical concept that had wide-ranging implications for medieval jurisprudence, but its inclusion in Alcuin's commentary on Genesis also indicates that it was made part of an approach to nature that focused on its morality, as we shall see in Chapter 4.

Categorizing Nature

Ultimately, the term "natura" wasn't really used to discuss the environment. It was a tool of logical and philosophical discourse, recognized by the educated elite as having its roots in ancient ideas. The same was true for the word *physica*, which had its roots in Ciceronian rhetoric. In the dialogue *Disputatio de rhetorica et de virtutibus*, written for Charlemagne, Alcuin applied the traditional division of philosophy into physics, ethics, and logic, and divided physics, in turn, into arithmetic, astronomy, astrology, mechanics, medicine, geometry, and music.

The philosophical definition of nature in the early Middle Ages was therefore both dominant and highly theoretical. It does, however, highlight the extent to which "nature" was associated with God: a seemingly simple idea which, as we shall see throughout this book, had complex consequences. In his major work *Periphyseon*, also known as *On the Division of Nature*, the ninth-century philosopher John Scottus Eriugena described *natura* as "the general term for all things that are and all things that

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20 "Quia in hominibus primis diu lex bonae naturae seruabatur; at ubi naturalis lex euanuit, oblata consuetudine peccandi, data est lex litterae per Moysen, ut bona quae sciebantur auctoritatem haberent, et quae latere coeperant, manifestarentur; et ut terror disciplinae corrigeret delinquentes, et fidem reformaret in Deum." Alcuin of York, *Interrogationes et responsiones in Genesin*, PL 100.518.

21 Alcuin's sources here are unclear. The phrase *lex naturalis* may derive from Augustine; Chroust, "The Fundamental Ideas," 68–69. The phrase *lex litterae* may derive from an Irish source; Wright, *The Irish Tradition*, 14. Both phrases were used by Stoic philosophers such as Gaudentius of Brescia, but Stoic writings were not read in the early Middle Ages; Lapidge, "The Stoic Inheritance," 83.

are not" (*Periphyseon* I.441a). His four categories for nature were based on whether it created or was itself created, a division that echoes Augustine (*De civitate Dei* V.9), among others:[22]

1. That which creates and is not created.
2. That which is created and creates.
3. That which is created and does not create.
4. That which is neither created nor creates.

Nevertheless, *natura* was also a single entity: u*niversitas rerum*, "the sum of all things" or the one God, who is Beginning, middle and End (*Periphyseon* I.11). By categorizing nature in this way, Eriugena also followed the pre-Socratics, who understood nature as origin (*ἀρχή*), as a process of development, and as the final end. Eriugena's work is testament to a continuing and sophisticated philosophical tradition in the early Middle Ages, but it is also among the most advanced such texts in the West in this period. It was not much read by other Carolingian intellectuals, though there is evidence that Eriugena's fellow Irishmen Martin of Laon and Sedulius Scottus knew it.[23] The exact number of manuscripts in circulation is difficult to judge, as in 1225 Pope Honorius III ordered all extant copies to be brought to Rome and burned as a heretical work, due to a new hostility associated with Aristotelian ideas.[24] The influence of the *Periphyseon* and its ideas of nature are, however, discernible in glosses on the word *natura* in Bede's *De natura rerum*, which was a popular early medieval school text.[25]

Aristotle's *Categories* was also significant for the early medieval understanding of *natura*. After the sixth century, it was Boethius' translation of and commentary on Aristotle's *Categories*, and a summary of it called the *Ten Categories* (*Categoriae decem*), together with a composite translation, that were the principal texts for the study of logic. Together with grammar and rhetoric, logic was a component of the trivium and so a key part of early medieval education.[26] Alcuin's work is once more an apt illustration of this, as he wrote a poem for Charlemagne introducing the *Ten Categories*. This text provides a supplemented explanation of Aristotle's logical categories, which it lists as substance (*ousia*), quantity, relation, quality, action, passion, situation, place, time, and condition.[27] Like other Platonic texts and ideas, the *Ten Categories* informed early medieval theology and were debated in anonymous texts such as the *Dicta Albini*

22 Moran, "John Scottus Eriugena"; Eriugena, *Periphyseon*; Augustine, *De civitate Dei. Book V*. See also Moran, *The Philosophy of John Scottus Eriugena*.

23 Marenbon, *From the Circle of Alcuin*, 111.

24 Otten, "Overshadowing or Foreshadowing," 211.

25 Petrov, "Karolingskiye schkolniye teksty."

26 Gracia and Newton, "Medieval Theories of the Categories." The *Categoriae decem* are also sometimes known as the *Paraphrasis Themistiana*, as the anonymous author cites Themistius, a fourth-century philosopher. On early medieval education, see Hildebrandt, *The External School*, and Sullivan, ed., *The Gentle Voices of Teachers*.

27 For a fuller summary of the contents, see Gersh, *Concord in Discourse*, 74–75.

and the *Dicta Candidi Presbyteri de imagine Dei*, as well as in the first book of the *Periphyseon*. Alcuin's poem, which imbues the text with Christian authority by ascribing it to Augustine, was reproduced in many of the manuscripts of the *Ten Categories*. It begins by describing the proper application of Aristotle's categories for the logical understanding of reality:

> This little book contains ten words of nature
> amazing words which by their power represent every property of things,
> which can be perceived by our minds.
> Let him who reads it praise the marvelous learning of the ancients,
> and let him strive to exercise his own with the same diligence,
> adding praiseworthy honors to his allotted lifespan.[28]

These phrases make two important points: Firstly, in this poem *natura* is "every property of things which can be perceived by our minds"—that is, the physical world as we understand it with the bodily senses, and through them with the mind; and secondly, the study of nature is directly linked to education, and consequently to living a good life. Both of these points derive from antiquity, during which the study of philosophy—the knowledge of all things—was essential to good education and consequently to civic life.[29] These ideas became enshrined in Western monastic education in the early Middle Ages, and continued at least into the twelfth century, when the *studia naturalium*, also called the *studia philosophiae*, were a standard (if advanced) part of the schooling of Dominican friars.[30]

Following Augustine, the *Ten Categories* were read in the early Middle Ages as a commentary on God's substance or *ousia*.[31] Like many other Neoplatonic texts that circulated in Western Europe from the seventh century, they were used for the study of Christian theology, and the metaphysical philosophical principles that helped to shape and inform that theology. In large part, this was a program of reading that the early Middle Ages had inherited from late antique didactic practices grounded in the liberal arts and informed by the principles of monastic life and learning. These were enshrined in monastic rules and guides to education such as Cassiodorus' *Foundations of Divine and Secular Literature* (*Institutiones divinarum et saecularium litterarum*) and the Rule of St. Benedict, both composed in the sixth century. In so far as nature is mentioned in these traditions, it is never articulated as an independent concept, and relies on inherited ideas: those that derive from Greek philosophy on the one hand,

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28 "Continet iste decem naturae verba libellus / Quae iam verba tenent rerum ratione stupenda / Omne quod in nostrum poterit decurrere sensum / Qui legat, ingenium veterum mirabile laudet / Atque suum studeat tali exercere labore / Exornans titulis vitae data tempora honestis." Minio-Paluello, ed., *Aristoteles latinus*, lxxxvii. "He" has been used instead of "they," despite the ambiguous gender inherent in the Latin, to emphasise the individuality of the addressee and Alcuin's male-dominated intellectual context. My thanks to Evina Steinová for assistance with the translation.

29 On Creation and goodness, see Crouse et al., ed., *Divine Creation*; and Mähl, *Quadriga Virtutum*.

30 Teeuwen, *The Vocabulary of Intellectual Life*, 85n236, and 142.

31 Marenbon, *Early Medieval Philosophy*, 25.

and those that rely on the biblical hierarchy (in which nature is subordinated to God and man) on the other.

In the early Middle Ages, then, the natural world, as represented by the concepts of *natura* and *physica*, seems to become fully amalgamated into the Christian philosophical tradition. Moreover, these concepts existed within the narrow boundaries of the liberal arts curriculum, which meant that they were learned only by a small proportion of the educated elite, and then in order to train the mind rather than for any broader purpose related to knowledge about the physical world. In this form, knowledge about nature was both theoretical, and recognized to be an inheritance of the past.

Since the early medieval natural world is not to be found through the term *natura*, it is set aside in this book. This "natural world"—also referred to here as the "physical world" and as "nature"—is not quite what we would call the environment, which implies ecological systems. Early medieval people engaged with these as well (see below), but in more pragmatic ways. The natural world discussed here is an intellectual concept, forged gradually and repeatedly out of inherited texts. It is, as stated at the start of this chapter, a human construct. I offer a preliminary set of features of this "natural" or "physical" world as it may have been imagined by those early medieval people who were responsible for the compilation, dissemination, and local use of *Physiologus* miscellanies in the Conclusion to this book.

Manuscript Compilations and Early Medieval Innovation

Although the early Middle Ages and their contribution to our understanding of nature have been neglected, the medieval natural world nevertheless has a long historiography. Some historians have viewed the interaction of nature and humanity in the early Middle Ages as inherently antagonistic. This was the case with the influential article published in 1967 by Lynn White Jr., in which he argued that nature was a space of exploitative, violent human dominion until the advent of St. Francis of Assisi. Thirteen years later, David Herlihy rejected this view, instead outlining four attitudes to nature that chronologically succeeded each other in importance: the eschatological, adversarial, collaborative, and recreational.[32]

In this model, the adversarial attitude is particularly typical of the early medieval period, which is characterized by fear of the hostile monsters and beasts that populate the natural world. But the more nuanced view put forward by Herlihy did not challenge the statement made explicit by Lynn "that some essential feature of Western thinking created the precondition for an assault on the natural world."[33] Other scholarship of the late twentieth century also took up the idea of an opposition between humanity and nature in the early Middle Ages. One work claimed, for example, that "change in the external world and one's appreciation of it were separated by an unbridgeable gulf. The result was anxiety, lack of comprehension and a whole range of compensa-

32 White, "The Historical Roots"; Herlihy, "Attitudes Toward the Environment." See also the introduction in Arnold, *Negotiating the Landscape*, and White, *Medieval Religion and Technology*.

33 Bruce, "Introduction: Hoffmann in the Historiography of Environmental History," 15.

tory techniques. For, if the hard facts of life could not be altered, at least they could be fitted into a system of belief that made them understandable and acceptable."[34]

However, although the metaphor of an opposition between nature and culture, particularly in studies on medieval wilderness, continues to exert influence, more recent work has moved the study of nature in the Middle Ages away from the paradigm of conflict.[35] Scholarship across a range of disciplines has shown that attitudes to nature in early medieval sources were much more diverse and complex than they have been portrayed. They include subordination to humanity, but also resistance to anthropocentrism.[36] The medieval built environment (sometimes called the anthroposphere) has also been examined in terms of integration rather than conflict.[37] All of these studies together demonstrate conclusively that early medieval intellectual responses to the natural world were not delineated merely by the paradigm of nature versus culture.[38]

Nevertheless, the way in which modern historians have engaged with the natural world as a cultural and intellectual phenomenon in early medieval Western Europe has meant that it has been incorporated into histories of the environment or of a more general idea of "nature" in the ancient and medieval worlds.[39] The message in these histories has been—either implicitly or explicitly—that the early medieval natural world was a theoretical idea. It had no relationship to the external world, since it did not rely on scientific observation (although this wasn't quite true, as we shall see), and it was expressed through philosophical terms such as *natura* and *physica*.

Such a lack of intellectual engagement with the physical world is all the more puzzling in the light of the close *practical* relationship between early medieval communities and the land on which they lived. Early medieval people knew about crop cultivation and rotation, including complex farm system management and the care of delicate plants such as peach trees.[40] They knew how to care for and manage woodland and farmland, and the associated wild animals and livestock.[41] This extended to the adjustment of various rents and other payments as required in line with seasonal

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34 Stock, *The Implications of Literacy*, 473.

35 Le Goff, "The Wilderness"; White, "The Forms of Wildness." The revisionary studies include Whitney, *Paradise Restored*; Whitney, *Medieval Science and Technology*; Hoffmann, "Homo et Natura, Homo in Natura"; Hoffmann, *An Environmental History*. On Hoffmann's impact on the field, see also Bruce, ed., *Ecologies and Economies*.

36 Dale, *The Natural World*; Estes, *Anglo-Saxon Literary Landscapes*; Squatriti, *Water and Society, Landscape and Change*, and *Weeds and the Carolingians*; Siewers, *Strange Beauty*; McCracken, *In the Skin of a Beast*.

37 See, for example, Blair, *Building Anglo-Saxon England*, and Bintley, *Settlements and Strongholds*.

38 Jones, *The Medieval Natural World*, 3.

39 Le Roy Ladurie, *Histoire du climat*; Glacken, *Traces on the Rhodian Shore*; Coates, *Nature*; Whited et al., eds., *Northern Europe*; Behringer, *Kulturgeschichte des Klimas*.

40 Blan, "Charlemagne's Peaches."

41 Salisbury, *The Beast Within*; Squatriti, *Landscape and Change*; Williamson, *Environment, Society and Landscape*.

yields.[42] Similarly, people were aware of the interconnectedness of water systems, and adjusted their use (or risked diverse penalties for over-use) of these systems in order to ensure sustainability and continuity in terms of landscape.[43] Climate change and natural disasters were a related and key concern in the early medieval period, although the terminology used to discuss these phenomena was quite different to that used today.[44]

However, the same—usually small and local—communities which managed and cared for early medieval landscapes rarely recorded their thoughts. Much of what we know about the practical aspects of early medieval life comes from archaeological and palaeoenvironmental studies that supplement textual sources. For this reason, until very recently, it has been assumed that there exists no evidence for the development of "living" thought about the natural world in the early Middle Ages, and that it was represented by the antique concept of *natura*. The early medieval copies of the *Physiologus*, within their manuscript context, provide precisely the kind of evidence that has been missing from this story.

In recent years, Carine van Rhijn and others have demonstrated the value of pastoral compendia—the kinds of manuscripts within which the early medieval *Physiologus* was copied—for studying the spiritual and intellectual life of the anonymous majority of the early medieval population.[45] Such compendia have the potential to transform our understanding of what pastoral care and education for both priests and the communities that they served looked like in the early Middle Ages. Unlike normative and prescriptive texts such as capitularies, penitentials, and canons, pastoral compendia were compiled by and for local people. They therefore reflect pastoral and educational practice at a localized level in all its diversity.

These compendia have been very easy to overlook, not only because they consist largely of short texts and excerpts that many older catalogues frequently simply described in batches, but also because these texts are very numerous and appear to be rather basic: regardless of their genre (liturgical, educational, penitential etc.), their contents are generally short and comprehensive, or address a very specific point. Explanations of the Mass or the Lord's Prayer are common, for example, as are computistical tables and short sermons or sermon models. The impression that these manuscripts were *ad hoc* compilations has only begun to be dispelled in the past few decades, particularly with the advent of the idea of the archaeology of the book. Deceptively simple in content, these compendia are frequently complex in terms of their codicological structures. By mapping the copying of their texts onto their suc-

42 Kreiner, *Legions of Pigs*.

43 Squatriti, *Water and Society* and *Landscape and Change*; Guillerme, *The Age of Water*; Hoffmann, "The Protohistory of Pike"; Oosthuizen, "Anglo-Saxon Fields," 382–85, *Tradition and Transformation*, and "Recognizing and Moving On"; Küster, *Geschichte der Landschaft*.

44 Palmer, "Climates of Crisis." See also Devroey, *La nature et le roi*.

45 Burridge, *Carolingian Medical Knowledge and Practice*; van Rhijn, *Leading the Way to Heaven*; Patzold and Van Rhijn, eds., *Men in the Middle*; Patzold, *Presbyter*; Waagmeester, "Pastoral Works." See also Keefe, *Water and the Word*, and *A Catalogue of Works*.

cessive layers, we can see the thought and planning that went into their creation.[46] They were among the most innovative kinds of written sources produced in the early Middle Ages.

Until now, the most comprehensive studies of these novel sources, by van Rhijn, Patzold, and Keefe, have focused on pastoral and baptismal manuscripts. The set of codices in which the *Physiologus* is found is a much narrower sample, but it does take us beyond these categories, and raises the question of classification. Thus far, I have used the word "compendium," but a long list of terms has been used to describe such miscellaneous books: among them *collectaneum*, collection, commonplace-book, compilation, dossier, handbook, miscellany, reader, *recueil*, *Sammelhandschrift*, scrapbook, sourcebook, and vademecum. To avoid the problem of genre, Rosamond McKitterick has coined the term "glossary chrestomathy" to describe those books that contain collections of glossaries.[47] Similarly, Susan Keefe, in describing the different kinds of credal texts, has labelled them "EF" for "explanations of the faith," "PF" for "professions of the faith" and "DF" for "defense of the faith."[48] The diverse nature of the compilations in question requires diverse language and diverse reactions: there can be no catch-all solution. I have stated that the *Physiologus* was copied in pastoral compendia; strictly speaking, van Rhijn's definition excludes bishops' handbooks from this category. Yet the *Physiologus* is found in at least one compilation that was demonstrably used within the circle of an early medieval bishop (Bern, Burgerbibliothek, MS lat. 611 + Paris, Bibliothèque nationale de France, MS lat. 10756). For the purposes of this study, therefore, I shall not attempt to categorize early medieval compilations. Instead, I treat them first and foremost as local books, produced by and for regional communities, and I attempt to take into account their unique features and contexts, in so far as they are apparent. I will use generic terms, including compilation and miscellany, to describe these manuscripts.

Early medieval miscellanies tell a completely new story about the early medieval natural world. The copies of the *Physiologus*, within their individual codicological and textual contexts, show how early medieval scholars and compilers used new grammatical and allegorical strategies to create connections: between the different understandings of the physical world local to individual communities, and the intangible, aspirational world of Heaven as presented in the Bible and authoritative works. The constant recopying and correction of texts in miscellanies, and the judicious textual selection and juxtaposition, created a kind of contemporary dialogue around these themes. The precise mechanisms for this are discussed in Chapters 3 and 4. And this was not just an eighth- and ninth-century phenomenon. There is evidence that both the *Physiologus*, and the treatment of the natural world in miscellanies, were part of a

46 I have written about the historiography and codicological specificities of such compendia extensively elsewhere. See Dorofeeva, "Reading Early Medieval Miscellanies," "Strategies of Knowledge Organisation," "Visualizing Codicologically and Textually Complex Manuscripts," and "What is a Vademecum?".

47 McKitterick, "Glossaries and Other Innovations."

48 Keefe, *A Catalogue of Works*, 10–11.

wider early medieval desire to write an all-encompassing spiritual explanation of the physical world.

A New Cosmography

The early Middle Ages had not inherited many texts from antiquity that explained the unity, order, and reason of natural things, from everyday plants and animals to the movement of celestial bodies, in Christian terms. Only a very few of these even touched on these themes. They included Boethius' *De consolatione philosophiae* (*The Consolation of Philosophy*), Martianus Capella's *De nuptiis Philologiae et Mercurii* (*On the Marriage of Philology and Mercury*), and Prudentius' *Psychomachia* (*Battle of the Soul*): works that became part of the early medieval literature canon. The *Physiologus* was among these few inherited texts on these topics. But additional works seem to have been needed. From around the seventh century, a range of cosmographic texts were written. Two of the earliest of these were composed in Ireland: *De mirabilibus sacrae scripturae*, attributed to a writer known as the Irish Augustine (Augustinus Hibernicus), and the pseudo-Isidorean *De ordine creaturarum*, which took *De mirabilibus* as its source. *De mirabilibus sacrae scripturae* was composed around 655 and was unusual in that it saw biblical miracles as "natural events of such magnitude that they were recorded in the scriptures."[49] For example, when explaining the ways by which salty water can be made sweet and vice versa, the Irish Augustine states:

> For waters have within themselves, by their very nature, this ability to change into one another and they show it much faster at the command of the creator than through the careful efforts of men or even through ministration by things...Now the creator and ruler of all creation can reveal in all things that hidden nature which would normally be manifested through the agency of some other thing.[50]

For the Irish Augustine, Creation was a landscape of hidden natural functions, which we understand slowly over time, and which only the Creator can reveal instantaneously through miracles. He used direct observation of natural phenomena to show this in his examples. For instance, he is credited with being the first known writer to explain the presence of large mammals on the island of Ireland by the existence of land bridges, which gradually disappeared—a hypothesis which we now know to have been correct, and which was not put forward again until the nineteenth century. The systematic application of direct observation is a unique feature of this text, but direct observation of natural phenomena in general was not uncommon in the early Middle

49 Moriarty, "The Early Naturalists," 72. Michael Gorman argued that this text needed further study as it may have been composed well before the seventh century, on the basis that it ignores the Vulgate, takes nothing from Isidore, and cites Augustine's *De Genesi ad litteram*. Gorman, "A Critique of Bischoff's Theory," 192n29. For a bibliography of the wide-ranging response to Gorman's theory, see Flechner and Meeder, eds., *The Irish in Early Medieval Europe*. According to Marina Smyth, however, it does date to the later seventh century; Smyth, "The Word of God," 114, 125.

50 Smyth, "The Seventh-Century Hiberno-Latin Treatise," 144.

Ages, as numerous studies of science in this period have demonstrated.[51] It is only that direct observation, however accurate the knowledge it imparted, was not considered in literate monastic circles to be especially useful for really understanding the natural world.[52] Early medieval geographers, for example, believed that the tangible and visible world had "no self-sufficient and true reality."[53] For many early medieval thinkers both in Ireland and in mainland Europe, such reality existed only in God.

It is for this reason that texts such as *De ordine creaturarum*, composed in Ireland around the third quarter of the seventh century, methodically make the link between God and the physical world by describing the universe in Christian terms. In *De ordine creaturarum*, the universe—in accordance with the Greco-Roman worldview—consists of "the supercelestial waters, the firmament, the sun and the moon, the higher space of air (and the celestial Paradise where the souls of the truly good await the final resurrection), the lower space of air immediately above the earth (the domain of the fallen angels), the layer of water, the earth (where humans once dwelt in the garden of Eden), and finally Hell (where the souls of the truly evil are punished immediately after death)." The text also clarifies the key points of doctrine, including the Trinity, redemption and sin.[54] *De ordine creaturarum* had very limited circulation, particularly outside Ireland, though it was one of the sources of Bede's *De natura rerum*.[55] But the fact that such texts were produced, and that they attempted to explain the structure of the universe in an ordered way, shows that there was a growing desire in the early medieval West to arrange the available knowledge about the natural world into a distinctive scheme. This desire elevated the understanding that nature was God's Creation—an idea that had long ago been expressed by Church Fathers such as Origen—to a model or paradigm that, taken up many times by different thinkers, became part of a uniquely medieval cosmography.

Two other seventh-century texts, Isidore of Seville's *De natura rerum*, and Bede's reworking of it, were also written to explain the structure and operation of the physical world for Christians. Isidore's treatise was composed at the request of King Sisebut of Spain, as a response to seemingly superstitious ideas arising among both the clergy and the wider population, prompted by the unusually frequent solar and lunar eclipses of 611–612 CE.[56] Isidore certainly knew the first-century BCE work *De rerum natura* by Lucretius, which he cited and whose title he adopted for his own text, but his more major sources were Virgil and Lucan.[57] He divided his text into three principal parts: a

51 Among them: Eastwood, *Ordering the Heavens*, and *The Revival of Planetary Astronomy*; Flechner and Meeder, eds., *The Irish in Early Medieval Europe*; Kelly and Doherty, eds., *Music and the Stars*; Lozovsky, *The Earth is Our Book*; Ramírez-Weaver, "Carolingian Innovation and Observation," and *A Saving Science*.

52 Crane, *Animal Encounters*, 82.

53 Lozovsky, "Carolingian Geographical Tradition," 35 and 42.

54 Smyth, "The Seventh-Century Hiberno-Latin Treatise," 138.

55 Smyth, "The Seventh-Century Hiberno-Latin Treatise," 156.

56 Isidore of Seville, *On the Nature of Things*, trans. Kendall and Wallis, 16–17.

57 On Lucretius, see Butterfield, *The Early Textual History*.

hemerology, or explanation of time, a cosmography, or explanation of the structure of the universe, and a discussion of meteorology, or the weather.[58] The cosmographical and meteorological parts of the text derived from antique texts (including Aristotle's *Meteorologica* and book two of Pliny's *Natural History*) and presented essentially the same model as in *De ordine creaturarum*: a universe starting at the "top" with the heavens, followed by the atmosphere and the earth. Each topic was given allegorical meanings: for example, the stars were understood to be holy men (*De natura rerum* 24.2). Bede did not significantly alter this structure in his adaptation of Isidore's work, supplementing it with Pliny's *Natural History* and with *De ordine creaturarum*. His text covered "the four basic elements—earth, air, fire, and water, the heavenly bodies and their orbits, meteorological phenomena like thunder and lightning, rainbows, hail and snow, apparent disruptions of the natural order like eclipses, earthquakes and volcanoes, and plagues, and the fact that the earth is a globe, and its zones and climates."[59] Bede did, however, separate Isidore's hemerology, turning into a separate book, *On Times*: a deeply original and important mathematical and computistical work. He also excised Isidore's allegorical interpretations, apparently because he intended both his works to be textbooks for helping his students understand physical phenomena and so correctly work out the ecclesiastical calendar.[60] (The importance of this task is also embodied by the nocturnal, or *horologium nocturnum*, a device for measuring time at night using the stars, allegedly invented in the eighth or ninth century by Pacificus of Verona to maintain the canonical liturgy at night.)[61]

From around the seventh century, then, there emerged new texts that amalgamated the Christian worldview with explanations of the structure and function of the physical world.[62] Iconographic and diagrammatic representations of this Christian universe also abounded. Among them were medieval *mappae mundi*, such as the ninth-century map of the Holy Land in Paris, Bibliothèque nationale de France, MS lat. 11561 (fol. 43v), and T-O or Y-O-shaped maps that originated with Isidore of Seville in his *Etymologies* and *De natura rerum* (for example, in the ninth-century manuscripts St. Gallen, Stiftsbibliothek, MS 236; and St. Gallen, Stiftsbibliothek, Cod. Sang. 237, pp. 1 and 219).[63] More famous later medieval examples include the Hertford and Ebstorf *mappae mundi*. Such maps were not intended as accurate representations of the Earth, but rather as schematic visions of a Christian world, often with Jerusalem or Eden in the centre or at the top. Early medieval wind diagrams had an analogous function.[64]

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58 Isidore of Seville, *On the Nature of Things*, trans. Kendall and Wallis, 14.

59 Bede, *On the Nature of Things and On Times*, 3.

60 Bede, *On the Nature of Things and On Times*, 12. On Bede's understanding of nature, see Ahern, *Bede and the Cosmos* and MacCarron, *Bede and Time*.

61 St. Gallen, Stiftsbibliothek, Cod. Sang. 18, 43r (https://www.e-codices.ch/en/list/one/csg/0237).

62 A wide range of additional examples of such medieval texts is provided in Goetz, *Gott und die Welt*, chap. 3.

63 For an introduction to medieval maps, see Scafi, *Mapping Paradise*.

64 Obrist, "Wind Diagrams."

More complex T-O maps did exist, however, showing various relationships between the Christian world and the physical one: in London, British Library, MS Harley 3017, fol. 135r (second half of the ninth century and first quarter of the tenth century), the T-O map is surrounded by wheels showing the moon phases, and the association between the lunar cycle and the tides. Similarly, the Cloth of the Ewaldi found at Cologne, which may have been used as an altar-cloth before the tenth century, depicts the zodiac, the day and night, the year, personifications of ocean and earth, and the words "The entire nation, which looks upon the product of art." Here, "the product of art," in the words of the art historian Benjamin Anderson, has a double meaning: it is "the ordered universe, shaped by the divine art of its creator," as well as the Cloth of the Ewaldi itself.[65] The eighth-century Horologium of Willibrord goes beyond computistical use by—among other things—charting the different positions of the sun at different times of the year, as if following the heavenly sphere, and by furnishing the four compass points with etymological glosses linking them to various aspects of humanity.[66] A more symbolic Christian cosmography is represented in the meditative *carmina figurata* created by Hrabanus Maurus in the ninth century for his set of poems entitled *Veneration of the Holy Cross* (*De laudibus sanctae crucis*). One poem, for example, depicts wheels or rings enclosing verses on the four seasons, elements, parts of the world, and quadrants of the natural day.[67] There are many other examples of both texts and images that describe or depict such a Christian view of the world; they cannot be exhaustively listed here. The full evidence for this clearly intense interest in the manifestation of God through the natural world remains to be gathered and examined.

The early medieval emphasis on a meaningful world may, in part, derive from the rich tapestry of beliefs and ideas about nature that circulated in the post-Roman Latin West. These were not necessarily rooted in "paganism," a notion that in any case fails to convey adequately the complexity of the contemporary religious landscape or the variety inherent within Christianity itself. Rather, early medieval monastic teachers faced the challenge of integrating a plurality of views about the physical world, among them a plurality of Christian views. Well-known examples of this are the ninth-century Merseburg charms and the Trier blessings from the late tenth or early eleventh century, which invoke divine power for the healing of horses and the obedience of bees.[68] The principal challenge faced by the early medieval Church was not to root out ideas

65 "Populus qui conspicit omnis arte laboratum"; Anderson, *Cosmos and Community*, 76–77. The Cloth of the Ewaldi is kept as part of the relics of the two Saints Ewald at the Church of St. Kunibert in Cologne.

66 Paris, Bibliothèque nationale de France, MS lat. 10837, fol. 42r (https://archivesetmanuscrits.bnf.fr/ark:/12148/cc72512p).

67 Vienna, Österreichische Nationalbibliothek, MS 652, fol. 12v. Sears, "Word and Image."

68 "Merseburger Zaubersprüche," Merseburg, Domstiftsbibliothek, MS 136, fol. 85r (https://archive.thulb.uni-jena.de/korax/receive/Korax_cbu_00000880); "Trierer Segenssprüche," Trier, Stadtbibliothek, MS 40/1018 8°, fols. 19v and 36v–37v. On the context of these charms, see Schulz, *Beschwörungen im Mittelalter*; Embach, "Trierer Zauber- und Segenssprüche"; and Haeseli, *Magische Performativität*.

and practices that it labelled "pagan" or "heretical"—though it did this too—but to systematize the faith and unify the faithful. Even populations regarded by ecclesiastical authorities as converted were liable to develop local forms of religion, which were sometimes not in harmony with Church teaching, and required correction. That this was the case is evident, among other sources, in early medieval works such as the *Duplex legationis edictum* and the *Homilia de sacrilegiis*, which forbade divination using the Psalter, Gospel and other sacred texts, and in lists such as the *Small Index of Superstitions and Paganism*.[69]

Many of the important early medieval cosmographical works represent efforts at systematic explanation of the world in response to such heterodox ideas, from Isidore's *De natura rerum* in the seventh century to Agobard of Lyon's long treatise on hail and thunder in the ninth century—both written to combat popular attributions of natural phenomena to agents other than God.[70] The natural world therefore came to play an important role in the teaching of orthodox belief in the early Middle Ages.

It is within this context of continuous Christian teaching of the general population, for the sake of its salvation but also within an institutional framework of ideological control, that the *Physiologus* took its place. Its vision of the natural world was steeped in biblical allegorical imagery, and perfectly suited the correction of faith and knowledge that was a defining characteristic of the Carolingian cultural and intellectual renewal. One of its essential functions, therefore, was to spread and reinforce a Church-sanctioned view of the physical world.

Allegory, Etymology, and the Emblematic Worldview

The new works of Christian cosmography produced in the early Middle Ages emerged out of different cultural and intellectual contexts, at different times, pursued different aims, and sometimes operated at the margins of canonical texts or mainstream social groups. As a result, they did not always transmit the same message. To some extent this is true of each of the copies of the early medieval *Physiologus*, as we shall see in later chapters. Neither were these works new in the sense that they were wholly original: all relied to some degree on inherited knowledge, particularly the Greco-Roman conceptualization of the universe as layers of spheres around the Earth, and the fourfold Aristotelian scheme of elements.[71] Late antique geographical texts, such as the *Cosmographia* of Julius Honorius, were also popular in the early Middle Ages and occupied a similar niche in the intellectual landscape of the time.

But all these works were also part of a new focus on biblical learning, which had become concentrated in key monastic centres across the early medieval West from around the fifth century. These centres began to exercise their own wide-ranging intel-

69 *Indiculus superstitionum et paganiarum*, extant in Vatican City, Biblioteca Apostolica Vaticana, MS Pal. lat. 577, 7r (before 800). McNeill and Gamer, ed. and trans., *Medieval Handbooks of Penance*, 419–21. See also Filotas, *Pagan Survivals*, 246.

70 Agobard of Lyon, *Liber contra insulsam vulgi opinionem de grandine et tonitruis*, PL 104.147.

71 Obrist, "Wind Diagrams," 35.

lectual influence from around the seventh century. Among the more famous were the school of Theodore and Hadrian at Canterbury, Bobbio in Italy, Luxeuil in France, and Iona off the coast of Scotland, but there were many others. A century and a half later, the Carolingian project took place: large-scale reforms (or attempts at reform) of coinage, education, law, liturgy, and monastic life; a re-shaping of the rhetoric of kingship along Christian lines; an ambitious building program; the association of a new and more legible script with the written output of the empire; and the promotion of scholarship. Early medieval thought about the natural world was fundamentally affected by this activity, which revolved around all aspects of the written word: language and grammar, script, Christianity as a religion of the book, documentary exercise of power, and monastic reading or *lectio divina*.[72] The seeds of this attention to the written word were sown in the classroom. In a dialogue on the eight parts of speech, for example, two pupils are described as entering the "thickets of grammatical density" ("spineta grammaticae densitatis"); and when asked by their school-master where they should begin, they reply: "Where else but at the letter?" ("Unde nisi a littera?").[73] In a tenth-century manuscript, grammar, dialectic, and rhetoric are depicted as schoolroom teachers, highlighting the close link between language and monastic education.[74] As Martin Irvine has shown, this special focus on language arose out of the view by antique and late antique writers that grammar—in the sense of *grammatica* or "an art based on universal and systematic principles capable of being reduced to formal rules"—was the entry-point to all the liberal arts, and from the use of grammatical methods of interpretation by Church Fathers. This meant that readings of texts that focused on their *grammatica*—as exemplified in the terms exegesis or "leading out of the text," and *enarratio* or "from the narrative"—became a key feature of Christian interpretation. As a result, grammar also became a key feature of understanding and interpreting the natural world. The two fundamental components of this interpretative technique were allegory—in the sense of *allegoria*, a kind of metaphor assumed in ancient grammar and rhetoric to be an invariable component of understanding texts—and etymology.[75]

As well as being a component of grammar, and therefore of the trivium, in the ancient world, allegory was adopted by early medieval exegetes. It quickly became one of three levels of interpretation, perhaps under the influence of Neoplatonic ideas such as Plotinus' three-fold division of reality into three hypostases (substances or essences): Soul, Intellect, and One. The third-century Church Father Origen used three levels of interpretation for scriptural reading: the flesh, the soul, and the spirit (that is, the literal, moral, and spiritual). It is debated whether or not Origen (together with his contemporary exegete Clement of Alexandria) was influenced by Platonism or

72 Robertson, *Lectio Divina*.

73 Alcuin, *Dialogus Franconis et Saxonis de octo partibus orationis*.

74 Paris, Bibliothèque nationale de France, MS lat. 7900A.

75 Irvine, *The Making of Textual Culture*, 63–66, 244–45. See also Law, *The Insular Latin Grammarians*. On Christian grammar in the classroom in antiquity, see Nelson, "The Classroom of Didymus the Blind," and Stefaniw, *Christian Reading*.

Neoplatonism—and his use of this exegetical method was unsystematic, fluctuating between two, three, and four levels—but the idea that there are several possible levels of interpretation is undeniably common to both traditions, and it permeated the hermeneutics of thinkers such as Gregory the Great, whose work was widely read in the early Middle Ages.[76] The many illustrations of the Stuttgart Psalter, created ca. 820 at St. Germain-des-Prés in Paris, also provide historical, spiritual, and moral readings.[77] In Ireland, literal exegesis was more common, but allegorical and spiritual meanings are also attested. In the Litany of the Trinity, for example, Christ is man, lion, calf, and eagle, corresponding to the four Gospels and their interpretations of Christ as Lion of Judah, servant, sacrifice, and God. The Christian levels of interpretation were eventually formalized and set at four—the literal, allegorical, spiritual (anagogical), and moral or figurative (tropological). These four levels were also influenced by antique reading practices: for the first-century BCE Roman scholar Marcus Terentius Varro, for example, grammar could be divided into *lectio* (reading), *enarratio* (exposition), *emendatio* (correction), and *iudicium* (critical assessment).[78] The fourfold method of exegesis continued well into the central and late Middle Ages. Its order was memorized by monks, as we know from the mnemonic rhymed distich by the Dominican monk Augustine of Dacia (d. 1282):

> The literal sense teaches us what happened, the allegorical what to believe
> The moral how to act, the anagogical what to hope for.[79]

Allegorical exegesis or allegoresis was therefore part of a widespread hermeneutic method from the early Middle Ages onwards in the Latin West. As we shall see in later chapters, allegorical exegesis shaped the meaning of both the *Physiologus* and the other texts with which its copies were collocated and had wide-ranging implications for the understanding of nature.

In addition to allegory, etymology was a key component of interpretation based on *grammatica*. Although etymology was not unknown to late antique Christian grammarians and scholars such as Cassiodorus, it was Isidore of Seville who popularized it in the *Etymologiae*. The impact of this encyclopedia on early medieval thought was so extensive that it has not yet been fully assessed.[80] It was re-worked by the impor-

76 Origen's trichotomy ultimately derives from St. Paul; Chadwick, "Origen," 183. Origen's levels of interpretation, and their later development, are examined in Lubac, *Histoire et esprit*, 139–49. Robertson, *Lectio Divina*, 16–19, summarizes and assesses Lubac's study. Gregory the Great discusses the different levels of scriptural interpretation in *Moralia in Iob*, *Ad Leandrum* 4, 173–78 (CCSL 143.6). See also Collins, *The Carolingian Debate*.

77 Stuttgart, Württembergische Landesbibliothek, MS Bibl. fol. 23 (https://digital.wlb-stuttgart.de/index.php?id=6&tx_dlf%5Bid%5D=8680&tx_dlf%5Bpage%5D=1).

78 Diomedes, *Ars grammatica*: "Grammaticae officia, ut adserit Varro, constant in partibus quattuor, lectione enarratione emendatione iudicio"; Keil, "Diomedes. Ars grammatica," 426.

79 "Littera gesta docet, quid credas allegoria / Moralis quid agas, quo tendas anagogia." Parmentier, *L'Écriture vive*, 40–42. See also Michaud, "Des quatre sens." This distich is often attributed to Nicholas of Lyra (d. 1349).

80 There exists no comprehensive study of Isidore's encyclopedia and its impact on the early

tant early medieval scholar and exegete Hrabanus Maurus, who added allegorical interpretations to Isidore's etymological ones. According to Natalia Lozovsky, "Hrabanus, quite in the Isidorean tradition, treats the created world as a text, but whereas Isidore focuses on its grammar, Hrabanus tries to uncover its symbolical meaning."[81] Yet Isidore also looked for the symbolic meaning inherent in the things he described. He merely used a different tool for doing this, etymology, which he raised to a level beyond that of simple grammar. In his work, as Jacques Fontaine noted, "l'étymologie… est devenue la démarche essentielle de toute connaissance."[82] Isidore stated this in a much-quoted passage in the *Etymologiae*: "Letters are the tokens of things, the signs of words, and they have so much force that the utterances of those who are absent speak to us without a voice, for they present words through the eyes, not through the ears."[83] This function of letters and words makes etymology—in the Isidorean sense, as a means of discovering a higher truth—a tool of allegoresis. But the function of written words and signs as visual symbols of a hidden meaning is so embedded in the presentation and interpretation of texts in the early Middle Ages that etymology is made equal in importance to allegory. Language itself becomes symbolic: things are known through signs, that is words, and are lost without them.[84] This, in turn, makes language the means by which the created world, and therefore God, are understood. As Stephen Harris argued, language "was considered an orderly natural phenomenon, like the disposition of the stars or the manifold variety of animals."[85] The written word is a particularly special component of language, since its meaning, like the meaning of the visible world, is accessed using the eyes. This idea permeated early medieval texts and guided not only their composition, if they were new, but also their selection and collocation, if like the *Physiologus* miscellanies they were copies of works composed in the past.

Allegory and etymology transcended *grammatica* as a simple schoolroom component of the trivium. They underpinned early medieval thought about nature, in ways

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medieval cultural and intellectual worlds, although Evina Steinová has recently completed a project on Isidore's *Etymologiae* in the Carolingian period: "Innovating Knowledge: Isidore's *Etymologiae* in the Carolingian Period," Netherlands Organisation for Scientific Research Veni grant 2017–2021. This includes a manuscript database (https://innovatingknowledge.nl/?page_id=33). The seminal work on Isidore of Seville remains the three-volume study by Fontaine, *Isidore de Séville et la culture classique*. See also Fontaine, "Aux sources de la lexicographie médiévale," *Tradition et actualité*, and *Isidore de Séville: genèse et orginalité*; Henderson, *The Medieval World*, and "The Creation of Isidore's *Etymologies*." A review of the twentieth-century literature on Isidore up to 1975 was published by Hillgarth, "The Position of Isidorian Studies."

81 Lozovsky, *The Earth is Our Book*, 111.

82 "Etymology has become the essential starting point for all knowledge"; Fontaine, *Isidore de Séville et la culture classique* 1, 41.

83 "Litterae autem sunt indices rerum, signa verborum, quibus tanta vis est, ut nobis dicta absentium sine voce loquantur. Verba enim per oculos non per aures introducunt"; *Etymologiae* 1.3.1.

84 Irvine, *The Making of Textual Culture*, 223.

85 Harris, "Anglo-Saxon Ciphers," 75.

that will be explored in the remainder of this book. Their effect can be described as a novel emphasis on symbolism through language, and a multiplicity of interpretations. There was no one truth, or rather, it was already known to be God; to attain that truth, one sought the array of meanings inherent in every created thing. This attitude, compounded from a set of partially integrated inherited traditions and the need to reconcile them, was something quite new. In its flexibility and variety, it paralleled what William Ashworth, writing about the Renaissance, termed the emblematic worldview: "The belief that every kind of thing in the cosmos has myriad hidden meanings and that knowledge consists of an attempt to comprehend as many of these as possible."[86]

Conclusion

The natural world in the early Middle Ages can seem muddled because it is just one aspect of a general cultural attitude which had to embrace and assimilate a diversity of complex ideas and beliefs. Culturally and intellectually, early medieval Europe was undeniably an enormously intricate and surprising landscape. The *Physiologus* transmitted a view of the world influenced by Greco-Roman ideas, and it does not seem to have circulated in Islamic or Jewish textual contexts, which exerted their own cultural influence in the early medieval period, particularly in the Iberian Peninsula. These different beliefs and traditions highlight that understanding of the natural world in the early medieval West was far from uniform. The *Physiologus* can give us only a narrow view of this diverse setting. It seems clear, however, that the early medieval natural world was not one of dichotomies such as "us and them," "good and evil," or even "adversarial and harmonious," though we have been occasionally prone to interpret it in this way. Rather, the many possible meanings inherent in Creation were a pathway for approaching God. For those trained in this way of thinking in the early Middle Ages—both lay and Church people—this was done by means of the written word and the visible world, which were connected through Scripture.[87] With this in mind, the following chapters examine how writing and nature were integrated in the *Physiologus*: the works with which it was copied, the arrangements of its chapters, the presentation of its text, and its materiality.

86 Ashworth, "Natural History," 312.

87 Lozovsky, "Carolingian Geographical Tradition," 36.