The Influence of Irish Learning on Bede’s Cosmological Outlook

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The Venerable Bede has been rightly lauded for his original and defined cosmological outlook. In this paper, I will look at how traditions from Irish learning influenced the development of Bede’s celebrated ‘scientific achievement’.¹ Bede’s attitude towards the Irish people and the Irish church has been explored in depth and there can be little doubt that it was a positive one. In the *Historia ecclesiastica gentis Anglorum*, he portrayed the Irish missionaries to Northumbria as Christian exemplars and he smoothed over and explained away their heterodoxy—a contrast to the attitude taken by others in the contemporary Northumbrian church.² With this in mind, what can we say of Bede’s attitude to Irish learning and his use of the same? Ireland in the seventh and early eighth centuries was a producer of grammatical texts, Saints’ Lives, scientific treatises and biblical commentaries, many of which made their way to Anglo-Saxon

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England and to Bede’s monastery of Jarrow. I hope to show how Bede’s worldview was a deftly constructed patchwork of influences and traditions of thought, in which he brought together information gleaned from many different sources to create the wide-ranging, but completely orthodox, outlook on Creation that we find in his writings. Within this framework, cosmological ideas from an Irish learned background were an important influence on the development of Bede’s cosmological understanding.

ATTITUDES TOWARDS IRISH LEARNING

Two writers provide us with evidence of attitudes to the learned culture of Ireland as seen from Anglo-Saxon England in this period: these are Bede and the slightly earlier monk, abbot and scholar, Aldhelm of Malmesbury. From the references in the Historia ecclesiastica, Bede clearly understood there to be a vibrant learned culture in Ireland. He tells us throughout the Historia of Englishmen who went to learn there. There is a particularly evocative example in book three, chapter twenty-seven:

Erant ibidem eo tempore multi nobelium simul et mediocrium de gente Anglorum, qui tempore Fiani et Colmani episcoporum, relictæ insula patriæ, uel diuinae lectionis uel continentioris uitae gratia illo secesserant. Et quidam quidem mox se monasticæ conversationi fideliter mancipauerunt; alii magis circuendo per cellas magistrorum lectioni operam dare

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gaudebant. Quos omnes Scotti libentissime suscipientes, uictim eis cotidianum sine pretio, libros quoque ad legendum et magisterium gratuitum praebere curabant.⁴

We can even name a prominent individual who benefited from Irish learning: the Northumbrian King Aldfrith (fl. 685–704/5) was described by Bede as being ‘in insulis Scottorum’⁵ and ‘in regionibus Scottorum’⁶ for the love of learning (a statement which may disguise the political reasons behind such a sojourn).⁷ The Irish annalistic

⁴ Bede’s Ecclesiastical History of the English People, ed. and trans. B. Colgrave and R. A. B. Mynors, Oxford Medieval Texts (Oxford, 1969) iii.27, pp. 314–5: ‘At this time there were many in England, both nobles and commons, who, in the days of Bishops Finan and Colman, had left their own country and retired to Ireland either for the sake of religious studies or to live a more ascetic life. In course of time some of these devoted themselves faithfully to the monastic life, while others preferred to travel round to the cells of various teachers and apply themselves to study. The Irish welcomed them all gladly, gave them their daily food, and also provided them with books to read and with instruction, without asking for any payment’. All references in this article to Bede’s Historia ecclesiastia are taken from Colgrave and Mynors’ edition, hereafter referred to as HE. Cf. HE iv.4.


This movement to Irish territories in pursuit of learning was also alluded to by Aldhelm in two letters. But Bede’s overwhelmingly positive attitude to Irish learning is seemingly at odds with the sentiments expressed by the abbot of Malmesbury. The latter, in a letter to his pupil Heahfrith, decries the esteem in which Irish scholars are held. Heahfrith, it is related in the letter, had just returned from Ireland, where he had spent six years ‘uber sofiac sugens’.

But Aldhelm is unhappy with this emphasis on Irish learning; ‘cur ... Hibernia, quo catervatim istinc lectitantes classibus adventi confluunt, ineffabili quodam privilegio efferatur’ he asks, when in Britain there exist excellent scriptural teachers from Greece and Rome. Here he has in mind Theodore and Hadrian in Canterbury, whose learning he compares to the brightness of the sun and the moon; the Irish scholars, on the other hand, are simply twinkling stars. Aldhelm is even more forceful in his condemnation of Irish learning in a letter to Wihtfrith, another student of his. In this case, Wihtfrith is not returning from Ireland but is planning to

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11 Ibid, p. 492: ‘why ... is Ireland, whither assemble the thronging students by the fleet-load, exalted with a sort of ineffable privilege?’, p. 163.

12 Ibid.
journey there soon. Aldhelm opines, ‘absurdum enim arbitror, spreta rudis ac veteris instrumenti inextricabili norma per lubrica dumosi ruris diverticula, immo per discolos philosophorum anfractus iter carpere seu aporriatis viteorum fontium limpidis laticibus palustres pontias lutulentasque limphas siticulose potare, in quis atra bufonum turma catervatim scatet atque garrulitas ranarum crepitans coaxat’.\(^{13}\) Not only is the type of study Wihtfrith might pursue in Ireland maligned as muddy and dark when compared with the clear springs of English learning, Aldhelm also implies that it has a secular and worldly bent, and goes on to harshly condemn any such scholarly interest in Greek and Roman pagan culture. As Lapidge and Herren have noted, this charge is an odd one and does not reflect what is known of Irish intellectual interests in the period.\(^{14}\)

This difference of opinion is curious because we know that Aldhelm, despite positioning himself as a critic of Irish learning, was actually, to some extent, a product of it.\(^{15}\) Malmesbury itself was an Irish foundation (founded by the Irish monk, Maeldub)\(^{16}\) and it produced glossaries which show clear Irish influence.\(^{17}\) Aldhelm may have received his earliest instruction from Maeldub himself;\(^{18}\) he

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\(^{13}\) Aldhelm, Letter 3, p. 479: ‘I think it absurd to spurn the inextricable rule of the New and the Ancient Document and undertake a journey through the slippery paths of a country full of brambles, that is to say, through the troublesome meanderings of the (worldly) philosophers; or surely, (it is absurd) to drink thirstily from briny and muddy waters, in which a dark throng of toads swarms in abundance and where croaks the strident chatter of frogs, when there are clear waters flowing from glassy pools’, *Aldhelm: The Prose Works*, trans. Lapidge and Herren, p. 154.


\(^{17}\) Herren, ‘Scholarly Contacts’, pp. 45–52.

enjoyed a close personal relationship with the scholar of Irish learning, King Aldfrith;\textsuperscript{19} he corresponded with an Irishman, Cellanus, who spoke of the fame of Aldhelm’s learning;\textsuperscript{20} and he was also familiar with computus material, grammar and poetry of Irish origin.\textsuperscript{21}

Perhaps the respective times of writing can account for the two authors’ differing viewpoints. Both of Aldhelm’s letters cited above have been tentatively assigned by Michael Lapidge to the period before Aldhelm became abbot of Malmesbury around the year 686.\textsuperscript{22} While Bede’s attitude towards the Irish, writing his \textit{Historia} at the start of the 730s, was an overwhelmingly positive one, Aldhelm’s letters were much closer in time to the Easter controversy and the divisive Council of Whitby (held in 664). Nevertheless, both writers let us know that there was a level of cross-cultural intellectual pollination at work throughout the late seventh and early eighth centuries. Alternately, the reason may be that Bede felt confident in the fame and position of Wearmouth-Jarrow as centres of learning, while Aldhelm felt a need to fight to establish Canterbury’s credentials in the face of ubiquitous Irish dominance in the 680s. In any event, Bede expresses no such qualms about the Irish schools in his \textit{Historia}. Instead, ever the diplomat, he lauds both the Irish authorities and the Canterbury school, describing Theodore and Hadrian in glowing terms: ‘Et quia litteris sacris simul et saecularibus, ut diximus, abundanter ambo erant instructi, congregata discipulorum caterua scientiae salutaris cotidie flumina irrigandis eorum cordibus

\textsuperscript{20} Aldhelm, Letter 4, pp. 480–6.
emanabant’. But to what extent is this positive attitude reflected in his own scholarship?

THE IRISH TEXTS USED AND BEDE’S METHODOLOGY

Although the Irish are frequent and celebrated guests in Bede’s histories and hagiographies, references to specific Irish texts in his works are less frequent (with the noted exception of Adomnán’s *De locis sanctis*). However, the efforts of scholars over the past century have gone some significant way towards shedding light on the wide array of Bede’s sources which were of Irish origin or came to him through Irish manuscripts.

Bede’s acquaintance with early Irish exegetical texts was referred to by Bernhard Bischoff in a groundbreaking study which identified the characteristics of the early Irish style of exegesis. This acquaintance has been shown quite conclusively by Bischoff’s student Robert McNally in the case of the Pseudo-Hilarian *Expositio in septicm epistolas catholicas*. This Irish commentary on the seven Catholic epistles was drawn on by Bede for his own *In epistulas septicm catholicas* (composed sometime after 708), though he was unimpressed with the pseudonymous author’s description of inspiration through the Holy Spirit as ‘more fistulae’.

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23 *HE* iv.2, pp. 332–3: ‘Because both of them were extremely learned in sacred and secular literature, they attracted a crowd of students into whose minds they daily poured the streams of wholesome learning’.


More recently, Jean-Michel Picard has demonstrated that Bede used the *Epitomae* of Virgilius Maro Grammaticus in the compilation of his *De orthographia* (although he appears to have missed the esoteric grammatical humour of many of the passages he quoted), while Damian Bracken has argued that the etymologies used by Bede in his *De temporum ratione* were also derived from Virgilius’ text. In addition, although Bede does not seem to have known Adomnán’s *Vita Columbae*, scholars agree that it certainly influenced the anonymous Lindisfarne *Vita Cuthberti*—this influence was then felt in Bede’s prose and metrical reworkings of the latter Life.

Quite apart from the many texts of Irish character known to Bede, he was familiar with texts from a variety of origins through the mediation of Irish copies and compendia. A number of the books of the Bible, for instance, were known by Bede through Irish exemplars, including the Psalms, the Catholic Epistles and Revelation. The important work of Charles W. Jones and Dáibhí Ó’Cróinín has demonstrated that much of Bede’s computistical lore came via Irish scholarly activity. In 1937, Jones showed that Bede’s computus drew heavily on the lost exemplar of a family of manuscripts known as the Sirmond group, after its most prominent example, Oxford, Bodleian

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Library, Bodleian 309 (Vendôme, s. xi), 62r–73v.\(^\text{32}\) This Sirmond computus material, originally compiled in Ireland, was a collection of numerous texts related to paschal reckoning and likely formed the basis of Bede’s computistical library. Ó’Cróinín later posited that this work was compiled in southern Ireland in 685, before travelling to Northumbria.\(^\text{33}\) The Sirmond exemplar contained, amongst much other computus-related material, the *Argumentum titulorum paschalium* of Dionysius Exiguus, whose method for Easter reckoning was adapted and popularised by Bede. There was also material related to Victorius of Aquitaine’s competing method of calculation. Significantly, all the material included is related to the Alexandrian nineteen-year cycles and not the incorrect eighty-four-year cycle which Bede associates with the northern Irish and which was still in use in Iona until 715.

As well as these various compiled sources, the Sirmond exemplar also included three items of Irish authorship which Jones referred to collectively as the ‘Irish computus’. These items, a prologue and *capitula* (62r–v), *Sententiae sancti Augustini et Isidori* (62v–64v, also known as *De computo dialogus*) and *De divisionibus temporum* (64v–73v), are all anonymous and, although the Sirmond material is


\(^{33}\) Ó’Cróinín, ‘Irish Provenance’.
extant at its earliest in an eighth-century Frankish recension, they represent a pre-Bedan computus source. The Irish Computus (and surrounding compilatory material) was consulted by Bede and was drawn on extensively in his works on the reckoning of time.

There has never been any question that Bede drew upon a text called *De ordine creaturarum*. However, this work was long considered a composition of Isidore and only relatively recently, in 1953, was it assigned a seventh-century Irish provenance. Bede’s use of this text began in the very earliest stages of his development as a thinker; *De ordine creaturarum* was used in his scientific treatise *De natura rerum*, dated to about 703. Both Jean-Michel Picard and Marina Smyth have discussed in detail the debt Bede’s work owed to *De ordine creaturarum*—many chapters quote verbatim from or deftly rearrange the explanations found in the Irish work. Many of the ideas which Bede drew from *De ordine creaturarum* ultimately derive from *De

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35 These two Irish computus texts were printed by J. P. Migne in *Venerabilis Bedae, Anglo-Saxonis presbyteri: Opera Omnia*, PL 90 (Paris, 1861), 647–65, but this does not represent the earliest and most complete forms of the text. A short title-description of the texts in Bodleian 309 was printed in Jones, *Bedae opera de temporibus*, pp. 393–4.


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mirabilis sacrae scripturae, a mid-seventh-century work by Augustinus Hibernensis, the ‘Irish Augustine’, and are original to this tradition. In other words, Bede could not have found these interpretations elsewhere and his use of *De ordine creaturarum* was a critical point which ensured the transmission of these concepts into the mainstream of medieval science.

Lastly is a source which, along with its author, was explicitly discussed by Bede in the pages of his *Historia*.\(^{40}\) *De locis sanctis*, by Adomnán of Iona, is a travelogue of the Holy Land written in the late seventh century supposedly relayed to Adomnán by a Frankish bishop called Arculf, who had travelled there.\(^{41}\) Again, we know that Bede used this work from the earliest stages of his career and, moreover, that it continued to exert an influence throughout his career. He wrote his own summary of *De locis sanctis* in 702/703, adding material from Pseudo-Eucherius, Hegesippus and other sources.\(^{42}\) He then referenced it in a number of his homilies, which have been dated to the 720s.\(^{43}\) And, at the very end of his career, he excerpted a few chapters from the work in the fifth and final book of his *Historia ecclesiastica*.\(^{44}\) Adomnán and *De locis sanctis* also represent the

\(^{40}\) *HE* v.15, pp. 506–8.


\(^{43}\) *Homiliae evangeli*, ed. D. Hurst, CCS 122 (Turnhout, 1955), i.7, i.10 and ii.10.

\(^{44}\) *HE* v.16–17, pp. 508–12.
clearest evidence we have of the transmission of Irish learned works to Northumbria. We know that Adomnán travelled to Northumbria on diplomatic missions and possibly at other times as well. The *Vita Columbae* mentions two such visits, one in 686 and another two years later. On one of these visits he presented the king with a copy of *De locis sanctis* which, Bede tells us, the king had copied and distributed: ‘Porrexit autem librum hunc Adamnan Aldfrido regi, ac per eius est largitionem etiam minoribus ad legendum contraditus’.\(^{45}\) In this way an Irish work was transmitted to Jarrow and in to Bede’s hands; through his adaptation it went on to enjoy no little popularity in medieval Europe.\(^{46}\)

This raises the question of how Bede approached these various texts of Irish provenance. His positive depictions of Irish learning in the *Historia ecclesiastica* do little to indicate what kind of study he associated with the Irish monasteries, apart from the fact that it was religious in nature. Neither can we be sure that Bede knew the provenance of the Irish works he consulted. The exception is *De locis sanctis*: Bede certainly knew of Adomnán’s background and thus of the Irish nature of the work he was using. He also had a high opinion of the abbot of Iona, saying of him: ‘Erat enim uir bonus et sapiens et scientia scripturarum nobilissime instructus’.\(^{47}\) With regard to the rest of the works, there is no evidence that Bede knew of their Irish character. It is difficult to imagine that Bede would not have considered any of the texts he used, with the exception of one work from Iona, to have an Irish background. Regardless, we cannot know with any certainty from where Bede saw these works as originating, nor whether it would have made any difference to him. We must take the presence of these works in Bede’s library, therefore, as indicating

\(^{45}\) *HE* v.15, pp. 508–9: ‘Adomnán gave this book to King Aldfrith and, through his kindness, it was circulated for lesser folk to read’.


\(^{47}\) *HE* v.15, pp. 507–8: ‘He was a good and wise man with an excellent knowledge of the scriptures’.
the inter-related nature of Irish and Northumbrian learned culture at the time, rather than anything specific about Bede’s attitude towards Irish scholarship (which nevertheless, seems to have been positive).

In Bede’s time, both *De ordine creaturarum* and the Sirmond computus material would have circulated anonymously (anonymity and pseudonymity were common traits of Irish works of the time). How would this have affected their authority in Bede’s eyes? It is my view that although a work ascribed to an *auctoritas* such as Augustine or Gregory would doubtless hold more weight for Bede, his intellectual curiosity led him to give equal consideration to all his sources, no matter their background. Even if he was not always of the opinion that a source was unquestionable, he was still happy to use it in part. In his opinion, not even the works of the Church Fathers were immune to the possibility of error and he possessed the intellectual confidence to disagree with them on matters of theology. As Roger Ray has remarked with regard to Bede’s attitude to Jerome, ‘[he] did not hesitate to raise his voice against the translator of the Vulgate, of which he was a champion throughout his career.’

Famously, he seems to have had an uneasy relationship with the works of Isidore of Seville. As recounted by Cuthbert, one of Bede’s last projects was a refinement of the works of the Spanish bishop that would correct some of the mistakes found therein. Nevertheless, he

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48 *De ordine creaturarum* was later wrongly ascribed to Isidore of Seville, but this was not until later in the eighth century. Díaz y Díaz, *Liber de Ordine Creaturarum*, pp. 16–18.

49 The leading study here is R. Ray, ‘Who Did Bede Think He Was?’, in *Innovation and Tradition in the Writings of the Venerable Bede*, ed. S. DeGregorio, Medieval European Studies 7 (Morgantown, 2006), 11–35.

50 Ray, ‘Who Did Bede Think He Was?’, p. 233.


drew widely on Isidore for scientific writing, exegesis, grammar and rhetoric throughout his career. He was happy, then, to draw on parts of a work, while also excising useless or incorrect information found in the same source; his approach was to strip-mine texts for relevant information, discarding that which he did not need. A look at the composition of two of Bede’s works—*De natura rerum* and *De locis sanctis*—will demonstrate how Bede worked with anonymous Irish sources.

For *De natura rerum*, Bede relied heavily on three main sources: Isidore of Seville’s work of the same name, Pliny’s *Historia naturalis* and *De ordine creaturarum*. Throughout the work, Bede drew equally on all three, sometimes privileging the Irish treatise, sometimes his continental sources. For instance, the chapters on rain, hail and snow in *De natura rerum* all draw on chapter seven of *De ordine creaturarum*. Bede artfully rearranged the facts he had gleaned from the Irish work, fitting them to a chapter-structure taken from Isidore’s *De natura rerum*. He then added further information drawn from Isidore and Pliny. Discussing rains (*imbres*), Bede begins, ‘*Imbres ex nubium concreti gutulis, dum in maiores stillas coeunt, aeris amplius non ferente natura, nunc uento impellente, nunc sole dissolvente pluuialiter ad terras dilabuntur*’, a rearrangement of the information

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55 DLSB.

56 As demonstrated by Picard, ‘Bede and Irish Scholarship’, pp. 141–2.

57 DNR 33, pp. 221–2: ‘Rains are formed from the little drops of the clouds. As they coalesce into bigger drops, no longer supported by the nature of the air, sometimes driven by the wind, sometimes dissolved by the sun, they fall down in the form of rain to the earth’, p. 93.
he found in *De ordine creaturarum*.\textsuperscript{58} He follows this with a sentence derived from Isidore’s *Etymologiae*: ‘Sed pluias uocamus lentas et iuges, nimbos autem repentinos et praecipites’.\textsuperscript{59} The next chapter (*De grandine*) opens with another fact drawn from *De ordine creaturarum*—‘Grandinis lapilli ex stillis pluiae, frigoris et uenti rigore conglaciati, in aere coagulantur’,\textsuperscript{60} and supplements it with further information, this time drawn from Pliny: ‘sed citius niue soluuntur, et interdiu saepius quam noctu decidunt’.\textsuperscript{61} At times an explanation for a natural event from *De ordine creaturarum* is privileged above the information he found in these other sources; at other times Bede prefers to use the interpretations found in his continental material. Throughout, there is no sense that the *De ordine creaturarum* is treated differently because of its Irishness or lack of attributed author. It is another source from which information can be gleaned, neither more nor less worthy than the Plinian and Isidorean material.

\textsuperscript{58} DOC vii.5, p. 130: \textquote{cum uexante uentu illae guttulae in maiores stillas coeunt, aeris amplius natura non ferente, pluialiter imbres ad terram dilapsi cadunt} (‘But when, tossed about by the wind, these small particles gather into bigger drops which can no longer be borne up by the nature of air, they fall to the earth as pouring rain’, p. 181).

\textsuperscript{59} DNR 33, p. 222: ‘But we call gentle and steady rains “showers” and sudden and violent ones “storms”’, p. 93; cf. Isidore, *Etymologiae*, XIII.x.3.

\textsuperscript{60} DNR 34, p. 222: ‘Hailstones are coagulated in the air from drops of rain, and frozen by the harshness of cold and wind’, p. 93; cf. DOC vii.6, p. 130: ‘Si uero ipsas quas praedixi stillas, uentu in mausculas moles coagitante, conlatas antequam deorsum pluant gutu in nubibus arripuerit, in grandinis lapillos coagulatas frigoris uiolentia constringit’ (‘On the other hand, if those drops of which I spoke are tossed together by the wind into somewhat larger masses, and frost seizes them in the clouds after they have been brought together but before they pour down, the violence of the cold forces them to harden into the stones of hail’, p. 181).

\textsuperscript{61} Ibid, p. 222: ‘But they are melted more quickly than snow, and they fall more often during the day than at night’; cf. Pliny, *Historia naturalis* ii.60, in *Naturalis historiae libri* XXXVI, ed. L. Ian and C. Mayhoff, 5 vols. (Leipzig, 1892–1909), I, 97–8.
In *De locis sanctis*, the main source for the title, much of the information and the basic structure is an Irish work by the abbot of Iona. Again, however, Bede does not privilege this work, nor does he denigrate it. He splices Adomnán’s narrative with information drawn from Hegesippus, Pseudo-Eucherius and Jerome’s works on Hebrew etymology. His admiration for Adomnán’s learning is clear but this does not stop him from adding to it from his own vast library. However, in adapting *De locis sanctis* Bede modified Adomnán’s style, which he describes as *lacinioso* (‘wordy’ or ‘convoluted’). Furthermore, it is his own edited version of the text, rather than Adomnán’s original, from which Bede quotes in the *Historia ecclesiastica*; in the latter work he also says that he kept the meaning intact ‘sed breuioribus strictisque comprehensa sermonibus’. This is as far as Bede goes towards a criticism of Adomnán—and it shows his willingness to take the best from his sources and discard that which he found to be extraneous (i.e. Adomnán’s wordy prose style).

**THE INFLUENCE OF IRISH SOURCES ON BEDE’S COSMOLOGY**

What can we say of the influence these works exerted on Bede’s developing cosmology, one of the most celebrated and coherent worldviews of the early Middle Ages? It is important to remember that, for Bede, exegesis, history and hagiography were not isolated from what we would now distinguish as his scientific writing. Nevertheless, some of Bede’s writings divulge more about his cosmological thinking than others. I shall be focusing on five works: his twin treatises on natural science and time-reckoning, *De naturae rerum* and *De temporibus*; his expanded work on time, *De temporum ratione*; the *Historia ecclesiastica gentis Anglorum*; and his commentary on

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62 *DLSB* xix.4, p. 280.

63 *HE* v.17, pp. 512–3: ‘but put more briefly and concisely’.

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Genesis. Explicit evidence of the Irish influence can be most clearly apprehended in the earliest of these texts but it continues throughout his life.

I have detailed above the specific arguments made by scholars for Bede’s use of Irish works; with regard to the wider influence these works had on the evolution of Bede’s scientific thought, Faith Wallis has provided the most comprehensive comments in her discussion of Bede’s computus.\(^{65}\) Immo Warntjes has made the point that Bede’s reputation as an innovator has led to a downplaying of the Irish contribution to the field of computus.\(^{66}\) As I shall argue below, I believe that we can extend this point to his cosmological and geographical works as well. In her study of Irish scientific works of this period, Marina Smyth described Bede as ‘the high point of a tradition of learning which was already well advanced in Ireland in the middle of the seventh century’.\(^{67}\) In order to explore whether we can place the monk of Jarrow in this continuum of learning, as argued by Smyth, I will examine three streams of Irish learning from which Bede drew—De ordine creaturarum, the Irish computus and De locis sanctis—and discuss in turn the influence they exerted on his cosmological outlook.

De ordine creaturarum

Bede wrote De natura rerum shortly before De temporibus, a text which we know was completed in 703.\(^{68}\) I have looked above at Bede’s use of De ordine creaturarum in his composition of the chapters in De natura rerum on rain and hail,\(^{69}\) but there are a number of other

\(^{65}\) Wallis, ‘Si Naturam Quaeras’, pp. 86–8; and see especially her introduction and notes to her translation of De temporum ratione: Bede: the Reckoning of Time (Liverpool, 1988), pp. xxii–xxvi, lxxii–lxxviii and lxxxv.


\(^{67}\) Smyth, Understanding the Universe, p. 304.

\(^{68}\) Kendall, Bede: On the Nature of Things, pp. 2 and 188–90.

\(^{69}\) See above, pp. 69–70.
examples of ideas and theories lifted by Bede from *De ordine creaturarum*, such as the idea that the waters above the firmament mentioned in Gen. 1:6–7 were used in the Flood.\(^{70}\) Its influence is most readily apparent in his early writings, particularly *De natura rerum* where direct quotations abound, but the particular marriage of Christian theology and scientific learning present in the Irish work had more far-reaching effects on Bede’s corpus as a whole.

Isidore and Pliny provided much scientific information otherwise unavailable to Bede; their contribution to his intellectual growth should not be underestimated. Bede’s *De natura rerum* obviously owes a huge debt to Isidore’s work of the same name, a text that provided the basic model on which Bede built. However, Bede changed considerably the main thrust of Isidore’s treatise. Wallis has made the following important point: the structure of the original work was basically the same as a secular work of classical science. To be sure, the information included was that which had been deemed not in conflict with Christian beliefs, but the basic structure was unchanged. Bede’s text has a shift in emphasis. He begins with ‘The Fourfold Work of God’ and the creation of the world, working downwards through the heavens and the heavenly waters, the stars and the planets, the winds, the Ocean and the earth. It is very much a Christian work.\(^{71}\)

As Wallis has observed, Bede ‘reconceptualized the notion of Christian cosmography. Where Isidore was content to tack biblical parallels onto essentially Graeco-Roman material, Bede wanted to demonstrate how the Christian understanding of creation and classical science constituted a coherent account of a created

\(^{70}\) *DOC* iii.5, pp. 102–4; Bede repeats this idea in *DNR* 8, pp. 198–9.

I would argue that a major inspiration for this Christianized take on classical natural science was *De ordine creaturarum*. *De ordine creaturarum* was part of a tradition of Irish texts which understood the natural world through the lens of Created and Creator (‘in creaturis et creatore’, as *De ordine creaturarum* explains in its opening line). This tradition was concerned with showing the glory of God through exploring His creation and information was culled from Pliny, Augustine, Jerome and Isidore and used towards this goal. The resulting works were, in the words of Clare Stancliffe, ‘theology and cosmology rolled into one’. A celebrated example of this outlook is the work of the ‘Irish Augustine’, whose *De mirabilibus sacrae scripturae* took as its starting point the idea that the miracles of scripture did not operate outside of the laws of nature laid down by God at Creation. There was no division between the natural and the super-natural; instead, all of creation was seen as a miraculous creation. According to Augustine of Hippo, miracles within creation were caused by hidden but inherent *seminalae* (‘causes’ or ‘seeds’) in

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nature. The Irish Augustine pursued this idea to its fullest extent, discussing the way in which scriptural miracles were in line with natural laws. For instance, he considered the miracle in which Moses turned his staff into a snake to be an accelerated version of the natural process by which serpents were produced from rotting wood. 

*De mirabilibus sacrae scripturae* was, in a sense, a work of natural science but all of creation was interpreted first and foremost in a religious context.

*De mirabilibus sacrae scripturae* was a major influence on the author of *De ordine creaturarum* and the structure of the latter work reflects this influence, being laid out according to a deliberate plan. Opening with creation, *De ordine creaturarum* then describes in turn the celestial realm, the waters above the firmament, the firmament itself and the earthly world, ending with a discussion of the ‘new heaven and new earth’ (Rev. XXI:1) to come (which the author sees as the current universe reborn, rather than a completely new one). In exploring God’s creation from the top down, the author was engaged in a thoroughly Christian exercise, albeit one which still drew on the indiscriminate fact-gathering of the encyclopaedists. These early scientific Hiberno-Latin texts represent the beginnings of a tradition of learning which was original to the Christian Middle Ages. Knowledge gleaned from classical and Late Antique authorities was boldly reformatted to fit the needs of a new Christian intellectual approach. Where continental Christian intellectuals of Late Antiquity such as Isidore were content to allow scriptural and classical learning...

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to co-exist without fully integrating them, these early Hiberno-Latin authors created a thoroughly synthesized meeting of the two. The Bible was the ultimate authority through which the world must be understood and, as such, knowledge gleaned from classical works had to be bent to fit this shape, or else discarded.

Of Bede’s three major sources for *De natura rerum*, therefore, *De ordine creaturarum* is the only one in which the inherited learning of the classical world had been reformatted into an inherently Christian work. More specifically, it is also the only source which portrays the world through the lens of God’s creation. Indeed, over six decades ago George Boas listed it (under the misapprehension that it was an Isidorean work) as one of the important texts in the development of the Primitivist image of the current world as a degeneration from the perfection of creation. De ordine creaturarum’s influence on Bede is most keenly felt in the deeply Christianised approach to cosmic knowledge exhibited in *De natura rerum*.

Later in Bede’s career, this way of approaching natural science through the narrative of the creation came to the fore in his commentary on Genesis, where the perceived imperfection of the physical world was explicated as a direct result of the spiritual Fall. Another later work, Bede’s celebrated *De temporum ratione*,80 owes its discussion of the world to come after Judgement Day to *De ordine

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77 See, for instance, Wallis’ comments on Isidore in ‘Bede and Science’, pp. 116–7, and Inglebert’s comments on the same in *Interpretatio Christiana*, pp. 47–8, n. 79.


creaturarum. He follows the Irish work in envisioning this post-Apocalyptic world as a reborn and improved version of the current universe.\textsuperscript{81} Even though direct citations from \textit{De ordine creaturarum} fall away in Bede’s work after \textit{De natura rerum} in 703, its influence on his thought was formative. The hexaemeral and eschatological bent of Bede’s scientific thought owes its origins to this influence.

\textit{The Irish computus}

In terms of Bede’s computus, the influence of the Sirmond material was considerable. We have seen how Bede came to know the work of Dionysius Exiguus, among other important sources, through the mediation of the Irish compilation. The material included which was of Irish authorship (\textit{De divisionibus temporum} and \textit{Sententiae sancti Augustini et Isidori}, collectively designated the ‘Irish computus’) was also instrumental throughout his career. Bede followed these sources in the structure and much of the content of his computistical works. He drew on them in the composition of \textit{De temporibus}, in 703, and its expanded sequel, \textit{De temporum ratione}, in 725.

The genre of the computus textbook was one which, unlike works of natural history or geography, was original to the Christian Middle Ages. The impetus behind its formation lay in the religious importance of Easter to Christianity; the specific time and place of Jesus’ Passion and humanity’s salvation was theologically significant—it was the axis around which all of history rotated. Furthermore, this religiously-motivated genre was an Irish innovation; in the seventh and eighth centuries, a group of Irish computistical textbooks were created around the kernel of the chapters on time-reckoning from Isidore’s \textit{Etymologiae} and supplemented with material from Macrobius, Dionysius Exiguus and others.\textsuperscript{82} As well as the two texts from the Sirmond manuscript, there are three extant works—the \textit{Computus Einsidlensis}, the Munich Computus and \textit{De ratione


\textsuperscript{82} Warntjes, \textit{The Munich Computus}, p. liii.
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computandi—all of which represent a pre-Bedan computus tradition which arose in an Irish context in the seventh and early eighth centuries. The deep importance of correct Easter-reckoning in the insular world at this time was not simple disagreement over differences in practice, but a question which was of central importance to Christian cosmology and theology. The universe and time had been laid out by God, as demonstrated in the Computus Einsidlensis by a quotation from the Book of Wisdom: ‘You have arranged all things in measure, number and weight’. Computus, then, had a calendrical function but also a deeper cosmological one.

The structure of De divisionibus temporum and Sententiae sancti Augustini et Isidori is similar to these other Irish computistical works of the period in organizing the chapters according to divisions of time in ascending order of magnitude. These same divisions are used in the first sections of De ratione computandi, the Computus Einsidlensis and the Munich Computus. They are based on the divisions found in Isidore’s De natura rerum; Isidore’s scheme has been expanded,

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86 See the clear discussion in Graff, ‘The Recension of Two Sirmond Texts’, pp. 117–125.

87 On the common use of this scheme in these three Irish computus textbooks cf. Warntjes, The Munich Computus, pp. cvii–cviii.
however, from nine to fourteen divisions of time. Thus, the *Capitula* preserved on fol. 62 of Bodley 309 and reproduced by Jones in the Appendix to his *Bedae opera de temporibus* gives a breakdown of *De divisionibus temporum* which begins with a chapter on the atom (the smallest division of time) and moves upwards through chapters on *momenta* (‘moments’, a quarter of a minute), minutes, *puncti* (‘periods’), hours, *quadrantes* (‘quarters’), days, weeks, months, seasons, years, *aetas* (‘ages’), *saecula* (a period of generations) and *mundus* (the world/cosmos). This tradition is certainly the inspiration for Bede’s own divisions of time in *De temporibus* and *De temporum ratione*, although Bede has his own take on the breakdown advanced by the author of *De divisionibus temporum*. Bede begins with ‘De momentis et horis’ (‘On moments and hours’) in *De temporibus* and ‘De minutissimis temporum spatiis’ (‘On the smallest intervals of time’) in *De temporum ratione*.90

As with *De ordine creaturarum*, these computistical works reformatted the structure and chapter divisions they found in Isidore’s *De natura rerum* and his *Etymologiae* into a model which was of more use to the Christian monastic culture of the insular world. The conception of *De natura rerum* and *De temporibus* as separate texts has generally been seen by scholars as a Bedan innovation, dividing the chapters of Isidore’s *De natura rerum* to create two individual works.91 However, as we have seen, this is in effect what the Irish works read by Bede had already done—the computistical works inheriting the chapters on the divisions of time, *De ordine creaturarum* the chapters on

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88 Graff, ‘The Recension of Two Sirmond Texts’, p. 120.
89 It should be noted that the Munich Computus (and subsequent computistical texts influenced by it) presents these divisions of time in a slightly different order, switching the positions of *aetas* and *saecula*.
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the universe, the earth and celestial and natural phenomena. It must have seemed quite natural for Bede to split his books in this way, as this is what his sources did.

The influence of Sententiae sancti Augustini et Isidori on the conception of De temporum ratione has been identified by Wallis, who sees its influence particularly in the conception of computus (ratio numerorum) as a discipline with metaphysical and theological resonances. The Irish tradition framed computus not as a dry, mathematical exercise, but as a deeply resonant genre in which was encompassed all of Christian space and time. Like De ordine creaturarum, the Irish computus material furnished Bede with verbal borrowings but also yielded more abstract inspiration—its unique blend of calendrical, encyclopaedic and theological concerns provided Bede with a model for his influential De temporum ratione, an overarching Christian take on time.

Smyth’s depiction of Bede as the ‘high point’ of a tradition of Irish learning is certainly true within the field of computistics, then. By the same token, Bede’s achievement was also reliant on the work done by these anonymous Irish computists. Works such as De divisionibus temporum, Sententiae sancti Augustini et Isidori, De ratione computandi, the Computus Einsidlensis and the Munich computus were the foundational texts of a tradition of which Bede’s works on time-reckoning represented simply the latest and grandest iteration.

De locis sanctis

As we have seen, De locis sanctis was drawn on by Bede from the beginning to the end of his career. Adomnán’s work was a geographical aid to the Holy Land to assist in exegesis and Bede’s own version happily takes on this mantle, mixing in further

93 Cf. Ó’Cróínín, De ratione computandi, p. 105.
94 A fact which has been overlooked due to an over-emphasis on Bede as innovator: Warntjes, The Munich Computus, pp. xlvi–xlviii.
information from Hegesippus, Pseudo-Eucherius and Jerome’s works on Hebrew etymology. Bede even went so far as to include extracts from De locis sanctis in the history of his church and people, the Historia ecclesiastica, completed circa 731. As has been convincingly argued by Thomas O’Loughlin, Bede’s attitude towards Adomnán was one of utmost respect and admiration. The reference to Adomnán’s lacinioso sermone is explained by the ‘schoolmaster tradition’ in which Bede was working—he wanted to produce a beginner’s text, ‘Adomnán at a glance’. Bede’s De locis sanctis is, in fact, a testament to his respect for Adomnán and his desire to spread his learned work. The same sentiment lies behind Bede’s inclusion of extracts from De locis sanctis in the Historia ecclesiastica and even explains his choice of passages. The extracts he includes are short descriptions of the Lord’s birthplace, the place of the Lord’s passion and resurrection, the place of the Lord’s ascension and Hebron and the tombs of the patriarchs. O’Loughlin identifies these as extracts which show off the information in De locis sanctis that ‘could be used in the solution of exegetical conundrums’. Bede, then, was displaying what he felt to be the strengths of Adomnán’s work. More than this, however, De locis sanctis provided Bede with geographical and theological material which he would use to bolster the Christian universalist narrative of the Historia ecclesiastica.

Adomnán’s De locis sanctis represents the view of the Holy Land, considered to be the centre of the world, from an island which was

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97 Ibid, p. 199.
imagined to be on the very periphery of the world. In the same way as the other Irish works we have seen, De locis sanctis fused knowledge and tropes which had come down from classical works with a Christianised worldview which had thoroughly absorbed biblical cosmology. The view of the islands of the North Atlantic as being on the very edge of the world was common in continental and insular texts of the period and is strongly felt in Adomnán. It arose from classical geography, which placed Ireland and Britain on the very edge of the orbis terrarum. This peripheral location was then understood in light of ideas about Christian universalism and the foreordained spread of the faith from the centre of the world, where it began (Jerusalem and the Holy Land), out to the very extremities, the ‘islands of the gentiles’ of Genesis X.5. This image of salvation

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98 This image of Iona is expressed in Adomnán’s Vita Columbae iii.23, in Adomnan’s Life of Columba, ed. and trans. A. O. Anderson and M. O. Anderson (London, 1961), pp. 540–1: ‘in hac parva et extrema ociani ... insula’ (‘in this small and remote island of the ... Ocean’).


spreading from the centre of the earth to the edges was a well-established trope and one which was popular with insular writers. According to this understanding, a meticulous and divine plan lay behind geography and history. The discerning Christian reader would be able to glimpse the outline of this plan in the details of the physical world—a providential plan which unfolded right up to Judgement Day, at which point the purpose of history would be fulfilled and the temporal world would give way to the eternal kingdom. As world geography was part of the same divine plan as time and history, Jerusalem became, for Adomnán, not only the spiritual centre of the world, but also the literal and physical centre; book one, chapter eleven describes a column in the centre of Jerusalem which, at midday on the summer solstice, casts no shadow. This image is rooted in the classical model of the world, which understood the earth as a globe, with the three continents (Asia, Africa and Europe) arranged in a circle of lands in the northern hemisphere. In the Christian era, this model was adopted and modified, and Jerusalem was envisioned as being situated at the very centre of this circle of lands, the inhabited world. For Adomnán, this story proved that Jerusalem was situated at the very centre of the orbis terrarum, using classical geographical knowledge to give literality to biblical images of the holy city. Adomnán links the story of the column to Psalm LXXIII.12,

103 DLSC, i.11, p. 56.
104 For an overview of medieval geographical ideas, see A. H. Merrills, History and Geography in Late Antiquity, Cambridge Studies in Medieval Life and Thought, 4th series 64 (Cambridge, 2005).
stating ‘unde et psalmigrafus propter sancta passionis et resurrectionis loca quae intra ipsam Heliam continentur uaticinans canit: Deus autem rex noster ante saeculum operatus est salutem in medio terrae’. He then goes on to say that Jerusalem is known as ‘umbilicus terrae’ (‘the navel of the world’), echoing a tradition which goes back to Jerome. The image Adomnán presents of Jerusalem at the very centre of the earth would be given visual form in the mappae mundi which came later in the medieval period.

O’Loughlin has recently described Bede as the discipulus to Adomnán’s magister, and the latter’s influence can certainly be strongly felt in Bede’s geographical understanding. Though he modified and added to Adomnán’s text, Bede’s De locis sanctis inherited the Irish abbot’s classico-Christian geographical sense. Like Adomnán, Bede viewed his own people and their geographical placement through the lens of Scripture—gentiles from the islands converted to the faith in accordance with the foreordained unrolling of history. The Holy Land again was seen as the centre from which Christian history emanated; in his commentary on the Song of Songs, Bede placed Britain on the edges of the world (‘extra orbem’), far from the first places of the world (‘in primis orbis partibus’). He followed Adomnán in the account of the shadowless column in Jerusalem, saying ‘putant ibi mediam esse terram et historice dictum: deus autem,

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106 DLSA i.11, p. 56: ‘Hence the psalmist, because of the holy places of the passion and resurrection, which are contained within the Helia itself, prophesying sings: “God our king before the ages hath wrought our salvation in the centre of the earth”’, Meehan, p. 57.

107 Jerome, Commentariorum in Hierarchiem libri XIV, in S. Hieronymi presbyteri opera, Pars I: Opera exegetica, ed. F. Glorie, CCS 75 (Turnhout, 1964), ii.5.


rex noster, ante saecula operatus est salutem in medio terrae’.\textsuperscript{111} For both writers, the world was seen as being imbued from the moment of Creation with a divine purpose. Both the Holy Land, at the centre of the earth, and the islands of Ocean, at its very edge, had a significant role to play in the unfolding of history. The Atlantic islands were identified in the \textit{Historia ecclesiastica} with the ‘multitude of isles’ of the Psalms, a correspondence which immediately sets Britain and Ireland within the narrative of salvation history.\textsuperscript{112} The islands of Ocean were a symbol in the Old Testament of the very edges of the world, where it was prophesied God’s power would extend. For Christian writers, and particularly for Bede, such passages referred clearly to the foreordained spread of the faith to Britain and Ireland.\textsuperscript{113}

The section in the \textit{Historia ecclesiastica} which drew on \textit{De locis sanctis} could quite easily be dismissed as being out of place, irrelevant to the main narrative of British Christianity, but Bede clearly felt it was worth including, stating that it would be useful for his readers.\textsuperscript{114}

It is for the reasons of providential history outlined above that the extract from \textit{De locis sanctis} in the \textit{Historia ecclesiastica} is so apt. Rather than an irrelevant, if learned, aside, it is a thematically appropriate section which further reinforces the message of the \textit{Historia}—that providence has ordained the spread of Christianity from the centre of

\textsuperscript{111} \textit{DLSB}, ii.76–81, pp. 258–9: ‘they reckon that the centre of the earth is at that spot and that literally true is the saying: But God our king, before the ages, effected salvation at the centre of the earth’, Foley, p. 10.

\textsuperscript{112} \textit{HE} v.23, p. 560; Ps. XCVI(XCVII).1.

\textsuperscript{113} O’Reilly, ‘Idols and Islands’, pp. 124–134.

\textsuperscript{114} \textit{HE} v.15, p. 508.
the earth to an island at the very edge of the world. Bede was concerned with preaching and the spreading of the gospel and the narrative of his history reflects this—the spread of the faith amongst the peoples of Britain stands as both a fulfillment and a microcosm of the universal spread of Christianity. And suitably, a work about the origin point of Christianity by an abbot on far-west Iona is used to lead up to the climax of the Historia ecclesiastica, namely the conversion of Iona to the true Easter rule by the Northumbrian Ecgbert in 716.

CONCLUSION

We cannot tell whether Bede knew anything about the background of the texts he used. Nevertheless, as I have argued above, his approach to the anonymous Irish texts would have remained intellectually open-minded. Indeed, as we have seen, he sometimes privileged information taken from these sources over other authorities. In the case of Adomnán’s De locis sanctis, we see that Irish background did not prejudice Bede’s use of the text. His diplomatic and positive depiction of Irish learning in the Historia ecclesiastica reflects a genuine intellectual curiosity and openness to ideas from different backgrounds. Bede was happy to take from Irish writers and use them in conjunction with his other sources—classical, biblical, patristic and

117 For the conversion of Iona as the narrative high point of the HE see, for example, Thacker, ‘Bede and the Irish’, p. 41–2.
contemporary materials—and forge his own unique works from them.

The three works of cosmology, time-reckoning and geography dealt with above had more influence on Bede than simple citation-counting might suggest. In all these works, inherited learning and scientific curiosity were melded and rearranged into an integrated, wide-ranging and, most of all, Christian take on the scientific textbooks of Antiquity. Bede has been rightly celebrated as a synthesizer of a great variety of sources, which were combined in his works to create a coherent and theologically sound worldview. Without wishing to devalue this achievement, I would also suggest that the seeds of this approach can be detected in his early use of these Irish sources. Two of Bede’s most celebrated works, both written near the end of his life, are *De temporum ratione* and the *Historia ecclesiastica*. *De temporum ratione* opens (after some chapters on technical preparations) with an Irish-influenced scheme of ascending divisions of time. It ends with a vision of the Eighth Age of the world to come, inspired by *De ordine creaturarum*. The *Historia ecclesiastica* uses Adomnán’s *De locis sanctis* to place the history of the British Isles within a grand cosmological narrative. Taken together, these two works give us an insight into Bede’s cosmological outlook. They also show that his cosmology was profoundly influenced by Irish scientific texts.