

**The influence of historical science on the
interpretation of Genesis 1-11 from 1650 to 1910**

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Abstract

From the days of Christ till the turn of the nineteenth century, the first eleven chapters of the Bible were interpreted by most commentators as literal history. But from 1650 to 1910, there was a hermeneutical revolution in the interpretation of Genesis 1-11. An analysis of 193 commentaries from Philo to Skinner, comprising 177 commentators from 20 centuries, suggests that this critical turning point in history was the year 1830. After 1830, Genesis 1-11 finally succumbed to the epistemic authority of the historical sciences which had been recast by the zeitgeist of the Enlightenment into a naturalistic mould. The literal interpretation of Genesis gave way to a plethora of hermeneutical innovations including the postulation of pre-Adamites, partial and placid flood theories, the gap theory, day-age theory and vision-day theory. There were also efforts to re-genre Genesis 1-11 as allegorical, apocalyptic, anthropomorphic, poetic, or parabolic. Eventually, Genesis history became Genesis myth. This dissertation explores why Genesis 1-11 lies at the heart of the Enlightenment struggle and how the historical sciences played a critical role in the reinterpretation of these eleven chapters.

Keywords: Genesis, science, Enlightenment, Darwin, hermeneutic, history, commentary

Samevatting

Sedert Christus tot die draai van die negentiende eeu is die eerste elf hoofstukke van die Bybel deur die meeste kommentators as letterlike geskiedenis geïnterpreteer. Maar vanaf 1650 tot 1910 was daar 'n hermeneutiese revolusie in die interpretasie van Genesis 1-11. 'n Ontleding van 193 kommentare vanaf Philo tot Skinner, wat bestaan uit 177 kommentators oor 20 eeue heen, suggereer dat hierdie kritieke keerpunt in die geskiedenis die jaar 1830 was. Ná 1830 het Genesis 1-11 uiteindelik gekapituleer tot die epistemiese gesag van die historiese wetenskappe wat deur die tydsgees van die Verligting in 'n naturalistiese vorm gegiet is. Die letterlike interpretasie van Genesis het plek gemaak vir 'n verskeidenheid hermeneutiese innovasies, insluitende die daarstel van hipoteses rakende pre-Adamiete, plaaslike and wêreldwye vloedteorieë, die gapingsteorie, die dag-erasteorie en die visioendagsteorie. Daar was ook pogings om die genre van Genesis 1-11 te klassifiseer as allegories, apokalipties, antropomorfies, poëties, of paraboolies. Uiteindelik het Genesis-geskiedenis Genesis-mite geword. Hierdie proefskrif ondersoek hoekom Genesis 1-11 in die hart van die Verligtingstryd lê en hoe die historiese wetenskappe 'n kritieke rol gespeel het in die herinterpretasie van hierdie elf hoofstukke.

Sleutelwoorde: Genesis, wetenskap, Verligting, Darwin, hermeneutiek, geskiedenis, kommentaar

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Chapter 1. Introduction

1.1 Introducing the problem

From the mid-seventeenth century a formidable shift in philosophy and the sciences gave birth to a period in history now known as the Enlightenment (Hoffecker, 2007:240-243). The term was invented to complement and emphasise the so-called “Dark Ages” which preceded it. By such means, those who opposed Christianity propagated the notion that science was finally freeing herself from the shackles of Scripture (Stark, 2003:123). Many philosophers and scientists were thereby compelled to construct a natural history of the world, thus providing “a replacement of Genesis” (Manuel, 1965:4). This enterprise, in turn, excited a growing interest in historical science.¹ Genesis 1-11 could no longer wield its magisterial authority over the history of the world. In this dissertation, the purpose is to ascertain in how historical science definitively shaped the reinterpretation of these eleven chapters after 1650.

1.1.1 Background to the problem

In 1854, Marcus Dods (1834-1909), a Scottish preacher and biblical scholar, completed his commentary on Genesis. In the very first lines of the opening paragraph, capturing the spirit of the age, Dods (1854:1) writes the following disclaimer:

If any one is in search of accurate information regarding the age of this Earth, or its relation to the sun, moon, and stars, or regarding the order in which plants and animals have appeared upon it, he is referred to recent text-books in astronomy, geology, and palaeontology. No one for a moment dreams of referring a serious student of these subjects to the Bible as a source of information.

Five years later Charles Darwin (1809-1882) published *Origin of species*. The relationship between science and Scripture has never been the same since. But can we attribute this epistemological revolution in academia entirely to Darwin? Ernst Mayr (1904-2005), amongst others, has argued no. He writes, “Curiously, it was theology, in the form of natural theology, which prepared the way for evolutionary thinking to a far greater degree than philosophy” (Mayr, 1982:309).

The theological climate of England had been prepared for Darwin by churchman who had allowed the historical science of their day to shape the exegesis of Genesis 1-11. As the notable Darwinian historian, Janet Browne (2006:2), relates, by the time Darwin set out to write his great book, “Few people, even then, believed in the Garden of Eden as a real place.” Browne (2006:86) adds, “[s]urprising as it may seem, there was little sustained opposition to Darwin’s book on the grounds that it directly challenged the account of creation in Genesis.” It was *not* surprising, therefore, that Darwin’s ideas took the world by storm.

¹ See section 1.4 for definitions of key terms.

Reviewing other Genesis commentaries from this period exposes a similar capitulation. One Jewish scholar, Marcus Kalisch (1828-1885) (1858:32), describes Scripture as “mental darkness” when compared with the certainty of science. William Henry Hoare (1809-1888), writing in 1860, makes a similar concession in his discussion on the possibility of pre-Adamite races. In his treatment on the veracity of Genesis,² he warns his readers not to impose their “particular dogmas” upon the matter but rather “follow in a more philosophical spirit the researches of science and the path by which it leads them” (Hoare, 1860:229). More conservative commentators, however, became wary of this growing conflict. Edward William Lane (1801-1876)(1860:xxiii-xxiv), writing on the subject of creation in 1860, observes:

In the present day, however, men of science and learning, as apologists for the Bible, have laboured under *another* prejudice... and hence they have generally been led, in some way or other, to strain those passages of Scripture which they would accommodate to acknowledged scientific or historical facts.

As my preliminary literature review will illustrate later, the trend to favour historical science over Scripture can be seen to continue in subsequent commentaries.

1.1.2 The main problem

It is the purpose of this study, therefore, to investigate in what manner the interpretation of Genesis 1-11 has been shaped by popular scientific opinion from 1650 to 1910. The research proposal can be summarised as follows:

Topic	Genesis and science
Research Problem	The influence of historical science on the interpretation of Genesis 1-11.
Goal	A descriptive study to determine how and why historical science has influenced the interpretation of Genesis 1-11 from 1650 to 1910.
Research Question	How and why has historical science shaped the interpretation of Genesis 1-11 during the period 1650 to 1910?

Table 1.1 – Summary of the main problem

1.1.3 Key research questions

The main research problem can be subdivided into five questions:

- 1) How did the evolving intellectual climate of the mid-seventeenth century to the early twentieth century discourage the literal interpretation³ of Genesis 1-11 in favour of non-literal methodologies?

² i.e. *The veracity of the book of Genesis with the life and character of the inspired historian* (1860).

³ By “literal interpretation” I do not mean literalistic interpretation as championed by some fundamentalists but rather the kind of interpretation that follows the plain sense of the text as befitting to its literary genre. For further clarification see section 1.4.

- 2) In what manner was Genesis 1-11 interpreted and understood in commentaries prior to the mid-seventeenth century?
- 3) How can Genesis commentaries from 1650 to 1910 be categorised in terms of the varied stances taken on the relationship between Genesis 1-11 and historical science?
- 4) What determines whether a text in Genesis 1-11 has a high susceptibility to the influence of historical science?
- 5) Why did the historical science of the nineteenth and early twentieth centuries have such a definitive impact on the interpretation of Genesis 1-11?

1.2 Aims and objectives

To answer these key research questions and thereby address the central research problem, the following aims and objectives are apportioned to each chapter of this dissertation according to the structure outlined below:

Chapter 1: introduction	
Chapter 2: the relationship between Genesis and science prior to the eighteenth century	How did the intellectual climate of the sixteenth and seventeenth centuries discourage the literal interpretation of Genesis 1-11?
Chapter 3: the relationship between Genesis and science in the eighteenth century	How did the intellectual climate of the eighteenth century discourage the literal interpretation of Genesis 1-11?
Chapter 4: the relationship between Genesis and science in the nineteenth century	How did the intellectual climate of the nineteenth century discourage the literal interpretation of Genesis 1-11?
Chapter 5: analysis of Genesis 1-11 before 1830	How were Genesis commentaries prior to 1830 shaped by historical science?
Chapter 6: analysis of Genesis 1-11 after 1830	How were Genesis commentaries after 1830 shaped by historical science?
Chapter 7: deriving a rationale for the epistemic conflict between historical science and the historic interpretation of Genesis 1-11	How and why did the historical sciences from 1650 to 1910 have such a definitive impact on the interpretation of Genesis 1-11 from 1650 to 1910?
Chapter 8: conclusion	

Table 1.2 – Structure of the dissertation

1.3 Delimitations of the study

According to Israel (2001:3-7; 2013:vi) the Radical Enlightenment spans the period from 1650 to 1750, with the High or Late Enlightenment beginning in 1750 and ending with the French Revolution in 1789.

The year 1650 also coincides with one of the last significant literal expositions of Genesis 1-11 in the work of James Ussher's (1581-1656) *Annales veteris testamenti, a prima mundi origine deducti* (first published in 1650). In 1910, following the Darwinian Revolution or the "age of intellectual iconoclasm", John Skinner (1851-1925) wrote his commentary on Genesis for the prestigious ICC series⁴ which, although published more than a century ago, is still rated today amongst the top fifty commentaries written on Genesis (Dyer, 2023). Longman III (2013:24) claims that Skinner's treatment "represents the best of the turn-of-the-century critical thought." Gordon Wenham (1987:xix, 12, 16, 27, 33, 56, 75, 80, 83, 95, 97, 104, 113, 141, 143, 154, 179, 181, 189, 190, 202, 203, 222, 228, 250, 266, 277, 285, 286, 289, 297, 326), whose two volume set is still regarded as the best commentary on Genesis to date, cites Skinner repeatedly throughout his exposition of the first fifteen chapters of Genesis (Dyer, 2023). For these reasons this research will be focussed on the period from Ussher in 1650 to Skinner in 1910.

The analysis and argument developed in my thesis will not contend for or against the correct exegesis of Genesis 1-11, although I believe that it has interesting implications for a historical-grammatical approach to the text. Instead, I will endeavour to explore the qualitative and quantitative impact which historical science has had on its interpretation.

1.4 Definitions of key terms

To clarify my use of key terminology, I offer the following working definitions.

Genesis: references to "Genesis", without further qualification, will generally apply in a synecdochical manner to the first eleven chapters of that book unless otherwise stated. That said, often the treatment of these eleven chapters necessarily affects the whole, so that it is not possible for a commentator to reject the inspiration or inerrancy of Genesis 1-11 without rejecting the inspiration or inerrancy of Genesis itself.⁵

Exegesis: the task of interpreting Scripture to ascertain its "original, intended meaning." (Fee & Stuart, 1982:21).

Literal interpretation: any interpretation which follows the plain, straight-forward reading of a text (in which the words are understood according to their most common sense for the given context) without recourse to allegory, symbolism, myth, parable or scientific theories, unless these are suggested by the text itself. In the case of Genesis 1-11, I use the description "literal" to refer to a grammatical-historical interpretation⁶ which understands these chapters, in their natural sense, as historical narrative (as generally adopted for the remaining portion of Genesis, i.e. chapters 12-50). In practice, by "literal interpretation"

⁴ i.e. the International Critical Commentary series.

⁵ By extension, it is also logically impossible to deny the infallibility of Genesis 1-11 whilst at the same time affirming the infallibility of the Bible.

⁶ As explained by *The Chicago Statement on Biblical Hermeneutics*: "Article XV. WE AFFIRM the necessity of interpreting the Bible according to its literal, or normal, sense. The literal sense is the grammatical-historical sense, that is, the meaning which the writer expressed. Interpretation according to the literal sense will take account of all figures of speech and literary forms found in the text. WE DENY the legitimacy of any approach to Scripture that attributes to it meaning which the literal sense does not support." (ICBI, 1982:400)

of a biblical text, I refer to the exegetical exercise of ascertaining the authorial intent of the text (Piper, 2017:301).

Science: according to Wilson (1999:58), science is the “organized, systematic enterprise that gathers knowledge about the world and condenses the knowledge into testable laws and principles.” Conceived within a Christian worldview, science can be distinguished from theology in that, broadly speaking, science is the study of general revelation (God’s world) in the same manner that theology is the study of special revelation (God’s word).

Scripture: by “Scripture”, I refer to the sixty-six books of the Bible as stated in the first chapter of the Westminster Confession of Faith (McPherson, 1958:29-41).

Historical science: otherwise known as the science of origins, this is a scientific enterprise that seeks to answer historical questions concerning our origins by reference to astronomy, geology, palaeontology, archaeology and any other science⁷ that makes inferences about the past based upon physical phenomena in the present. According to Mayr (2000:80), in historical science, “one constructs a historical narrative, consisting of a tentative reconstruction of the particular scenario that led to the events one is trying to explain.”

Scientific eisegesis: any interpretation of Scripture which rejects the historical-grammatical reading of a text in favour of accommodating popular scientific opinion – especially in cases where there is an antithesis between the results of science and the results of biblical exegesis. In particular, it involves the unwarranted injection of scientific concepts and ideas *into* the biblical text, in contrast to deriving exegetical meaning *from* the text. By way of example, a scientific eisegesis of Matthew 28:1-10 might infer that Jesus’ resurrection was only a spiritual, not physical, event *because of* the scientific impossibility of physical resurrection itself.

Darwinian Revolution: the period during and shortly after Darwin in which his legacy contributed, in part, to a paradigmatic revolution in thinking, particularly in the historical sciences (Ruse, 1999:323; Kuhn, 1996:171-173).

1.5 Presuppositions of the researcher

As a Christian who subscribes to the Reformed tradition as expressed in the Westminster Confession of Faith, I presuppose the infallibility of divine revelation communicated by the verbal plenary inspiration of Scripture (Geisler & Nix, 1986:64). Accordingly, I believe that:

The infallible rule of interpretation of Scripture, is the Scripture itself; and therefore, when there is a question about the true and full sense of any scripture (which is not manifold, but one), it may be searched and known by other places that speak more clearly. (MacPherson, 1958:40; Frame, 2010:295)

⁷ For example, Mayr (2000:80) suggests that even biology can be considered a historical science if it is “evolutionary biology”.

I also believe that Genesis 1-11 should be read in its plain historical sense (in the same way that most commentators would interpret Genesis 12-50). Although this is a minority viewpoint today, it was the predominant interpretation for at least the first eighteen centuries after Christ.⁸ As I have established already, however, it will not be the purpose of my research to defend this position on exegetical grounds.

1.6 The value of the research

There are theological, philosophical and practical ramifications which motivate this study.

1.6.1 Theological value

This study should illuminate why non-literal interpretations of Genesis 1-11 gained popularity from 1650 to 1910. Depending on how Genesis 1-11 is understood exegetically, this study could be valued in one of two ways. Either it will show how theology owes a great debt to historical science for assisting us in understanding how to reinterpret Genesis 1-11 according to a more allegorical or symbolic framework, or it will show how the church allowed historical science to gain a greater epistemic authority than Scripture on the subject of origins.

1.6.2 Philosophical value

This research project also has epistemological implications. How does the magisterium of Scripture fare against the magisterium of science? To what extent should our understanding of general revelation (science) dictate how we ought to read special revelation (the Bible)? If historical science determines how we ought read Genesis 1-11, what epistemological grounds do we have to reject its presuppositional influence throughout the rest of Scripture? Or to put the question more provocatively: if it is scientifically inconceivable for a snake to talk in Genesis 3, what makes miracles like Jesus' resurrection more credible?

1.6.3 Practical value

If the hypothesis holds, this research will demonstrate quantitatively and qualitatively how biblical data have been ignored, denied or reinterpreted in order to accommodate popular science from 1650 to 1910. Depending on one's views of biblical inerrancy, this will have ramifications in apologetics and evangelism: should historical science dictate how Genesis should be read?

1.7 Preliminary literature review

In his study of "scriptural geologists" from the early nineteenth century, Terry Mortenson (2004:46) has tabulated how Genesis 1-11 fared during that period. His research looked at 16 commentaries from 1639 into the late 1830s. From Mortenson's table, it can be seen that most commentators, prior to the Darwinian Revolution, held to a more literal interpretation of Genesis 1-11 (see table 1.3).

⁸ See section 1.7 and chapter 5 for substantiation.

Name	Earliest known publication	Date of creation	Genesis 1:1	'day'	Sun on 4 th day	Flood
Ainsworth	1639	4004 BC	Day 1	24 hour	nc	global
Richardson	1655	4004 BC	Summary	24 hour	nc	global
Stackhouse/Gleig	1737	ages ago?	nc	24 hour	nc	global
Patrick	1738	4004 BC?	nc	24 hour	created	global
Gill	1763	4004 BC	Day 1	24 hour	created	global
Purver	1764	4004 BC	Summary	24 hour	nc	global
Dodd	1765	4004 BC	Day 1	24 hour	created	global
Henry/Blomfield	1765	~ 4000 BC	Day 1	24 hour	created	global
Brown	1777	4004 BC	Day 1	nc	created	global
Geddes	1792	ages ago	Summary	ages	appeared	myth
Priestley	1803	ages ago	nc	ages	appeared	global?
Fuller	1806	4004 BC?	nc	nc	created	global
Scott	1812	4004 BC	nc	24 hour	created	global
D'Oyly/Mant	1817	4004 BC	Summary	24 hour	created	global
Horne	1818	4004 BC	nc	Nc	nc	global
Clarke	1836	4004 BC	nc	24 hour	created?	global

Table 1.3 – Commentary comparisons⁹

This trend can be established, with few exceptions going back to Theophilus of Antioch (d. 185) who also maintained a straightforward literal interpretation of Genesis (Robbins 1912:36). Likewise, Basil of Caesarea (330-379) (1963:34) also held to the literal reading of the text as indicated by his reference to the days in Genesis as 24 hour periods. Other church fathers, identified by Mook (2008:23-51), that read Genesis 1-11 as history include: Justin Martyr (c. 100-165), Tertullian (115-222), Irenaeus (c. 130-202), Hippolytus (c. 170-225), Hilary of Poitiers (c. 291-371), Methodius (d. 311), Victorinus of Pettau (d. 304), Ephrem the Syrian (c. 306-373), Gregory of Nazianzus (329-389), Ambrose of Milan (338-397), Jerome (c. 340-420), and Procopius of Gaza (465-528).

Robert Letham (1999:149-174) has tried to show that the prevailing understanding of Genesis 1-2 over 1600 years of church history has not been the literal interpretation. But he can only find tenuous support for the non-literal interpretation of Genesis from two candidates: Origen (c.185-253) and Augustine (354-430). In fact, three of the patristic fathers of the Alexandrian school pursued an allegorical approach to Genesis: Clement (150-215), Origen and Augustine.¹⁰ Both Clement and Origen adopted an approach to Scripture which was determined to a large extent by the influence of the Jewish Platonist,¹¹ Philo (c.20 BC–AD c.50) (Herbert, 2004:39). In the 4th century, Ephrem the Syrian (c. 305-373), contended against such a hermeneutic, writing in his commentary on Genesis 1:

⁹ This table has been adapted from Mortenson (2004:46). NB: nc = “no comment”

¹⁰ Augustine ended up writing five commentaries on the early chapters of Genesis, and they became increasingly literal in their approach (see section 5.3.7). In *De civitate Dei contra paganos*, Augustine (1887:307) categorically rejects any allegorical interpretations of the Noachic deluge by commentators who doubt “that there could not be a flood so great that the water should rise fifteen cubits above the highest mountains”.

¹¹ Even Augustine, in his early years, was influenced by Neoplatonic thought via the teaching of Plotinus and Victorinus (Kelly, 2007:270).

So let no one think that there is anything allegorical in the works of six days. No one can rightly say that the things that pertain to these days were symbolic, nor can one say that they were meaningless names or that other things were symbolized for us by their names. (Ephrem, 1994:74.)

Centuries later, Luther's (1858:25) and Calvin's (1847:57) commentaries on Genesis also lent support to the reception of Genesis 1-11 as literal history. And following the Protestant Reformation, this interpretation of Genesis continued to prevail as dominant (Hall, 2008:66). Protestant theologians like Hugh Latimer (1483-1546), Wolfgang Musculus (1497-1563), Peter Martyr (1499-1562), Theodore Beza (1519-1605), Francois Hotman (1524-1590), Zacharias Ursinus (1534-1583), John Diodati (1576-1649), and James Ussher (1581-1656) all interpreted these chapters literally (Hall, 2008:66).

Roughly a century after the start of the Reformation, many leaders of the Dutch Reformed Church held a National Synod in Dordrecht from 1618 to 1619. Although the synod was not convened to decide on matters pertaining to the early chapters of Genesis, extant documents from the synod further support the fact that Reformed theologians and scholars alike continued to maintain the literal interpretation of the creation story (Hall, 2008:65). A few decades later, following Dordt, the Church of England convened for what became known as the Westminster Assembly (1643-1649). At least 23 of the Westminster Divines at this assembly explicitly or implicitly indicated their support of the straightforward, literal interpretation of Genesis (Hall, 2008:70).

Amongst the following British Puritans, Genesis was also accepted as literal history¹² (Hall, 2008:67-73). And up until the early nineteenth century, Hall (2008:73-77) and Mortenson (2004:46) have identified many other commentators who continued to advocate a literal interpretation of Genesis.¹³ Hall (2008:77) concludes:

All these commentators held to a literal six-day creation about 4000 B.C. and a global Flood at the time of Noah. English commentaries did not abandon this view until about 1845, by which time Lyell's uniformitarian framework for interpreting the rocks was in complete control of geology.

Therefore almost two millennia worth of commentaries on the book of Genesis bear witness to the fact that the orthodox interpretation has been the straightforward, literal approach to the text, taking the creation narrative as history. As Hall (2008:54) and Berkhof (1976:153) have observed, "it is a very difficult task to reproduce pre-1800 Christian literature that both employs rigorous exegetical methodology and that defends something other than a literal interpretation of Genesis 1-11."

From the mid-seventeen century, however, the literal interpretation of Genesis 1-11 was challenged in increasing measure. By the turn of the nineteenth century, it had become largely discredited (Hall,

¹² In particular: William Ames (1576-1633), William Perkins (1558-1602), Henry Ainsworth (1571-1622), Gervase Babington (1550-1610), Andrew Willet (1562-1621), John Richardson (1580-1654), Lancelot Andrewes (1555-1626), John Owen (1616-1683), Thomas Vincent (1634-1678), Thomas Manton (1620-1677), Thomas Watson (1620-1686), Francis Turretin (1623-1687), Thomas Boston (1676-1732), William Beveridge (1637-1708), Thomas Ridgely (1667-1734), Ezekiel Hopkins (1633-1689), Francis Roberts (1609-1675), George Hughes (1603-1667), and John Trapp (1601-1669).

¹³ Specifically: John Wesley (1701-1791), Thomas Horne (1780-1862), Thomas Scott (1747-1821), George D'Oyly (1778-1846), Adam Clarke (1762?-1832), John Gill (1697-1771), Andrew Fuller (1754-1815), and Matthew Henry (1662-1714).

2008:54). To explore this moment in history further, I have adapted and extended Mortenson's classification scheme, analysing 21 Genesis commentaries from 1820 to 1872. A summary of my results are tabulated below in tables 1.4 and 1.5.

Date	Author	Interpretive approach to Genesis 1-11	Scientific Authorities cited	Scientific interaction	Mentions evolution?	Age of the earth
1820	Horsley	literal	None	no	no	nc
1827	Whittaker	literal	None	no	no	nc
1836	Fuller	literal	None	no	no	nc
1838	Bush	eclectic literal interpretation	None	geology, astronomy	no	nc
1843	Clarke	literal	Herschel, Lalande, Ray, Newton, Priestley, Woodward	astronomy, physics	no	4004 BC
1854	Dods	accommodation, spiritual interpretation	Huxley	astronomy, geology, palaeontology	yes	millions of years
1855	Bohlen ¹⁴	myth	Agassiz, Pye Smith, Baron Humboldt	palaeography, geology, zoology	no	nc
1858	Kalisch	spiritual interpretation, inspired Hebrew legend	Herschel, Laplace, Kepler, Tycho, Cuvier	geology, astronomy	no	vast ages
1859	Origin of Species					
1860	Hoare	accommodation, gap theory, progressive creation, mystic vision	Lyell, Whewell, Herschel, Sedgwick	archaeology, geology, astronomy	yes	vast ages
1860	Lane	visions, figurative interpretation	None	geology, zoology, astronomy, ethnology, botany	no	"unnumbered ages"
1861	Groves	gap theory, progressive creation	Agassiz, Cuvier, Herschel	geology, palaeontology, astronomy	no	vast ages
1864	Crosse	literal	None	no	no	nc
1864	Henry	literal	None	no	no	nc
1867	Jacobus	gap theory	Huxley, Herschel, Agassiz, Darwin, Owen, Cuvier, Lyell, Wallace, Humboldt	geology, astronomy, palaeontology	yes	vast ages
1868	Candlish	gap theory	None	no	no	vast ages
1868	Conant	figurative interpretation		geology	no	vast ages
1869	Lange	day-age theory	Cuvier, Whewell, Herbert, Comte, Darwin	astronomy, geology, palaeontology	yes	nc
1870	Thompson	progressive creation/evolutionary	Guyot, Dana, Agassiz, Huxley, Darwin, Carl Vogt, Owen, Humboldt, Lyell	geology, astronomy, palaeontology, philology	yes	vast ages
1870	Warington	spiritual interpretation, theistic evolution	Darwin, Herschel, Lyell	geology, astronomy	yes	vast ages
1870	Kurtz	partial day-age theory	Herschel, Humboldt, Schubert, Wagner, Bessel, Steffens, Agassiz	geology, astronomy, palaeontology	yes	millions or billions of years
1872	Alford	symbolic parable	None	geology, palaeontology, astronomy	no	vast ages

Table 1.4 – Genesis Commentaries from 1820 to 1872

¹⁴ I later discovered that the original commentary, *Die Genesis historisch-kritisch erläutert*, was first published in 1835. See section 6.2.2.

Date	Author	"day"	Sun & Stars	Two trees	Adam & Eve	Serpent	Cain's wife	Genealogy	Flood	Tower of Babel
		Gen 1	Gen 1	Gen 2	Gen 1-3	Gen 3	Gen 4	Gen 5	Gen 6-8	Gen 11
1820	Horsley	24hr	created	literal	first humans	literal	nc	nc	nc	nc
1827	Whittaker	24hr	nc	nc	first humans	symbolic	nc	nc	nc	literal
1836	Fuller	24hr	created	literal	first humans	literal	his sister	literal	global	literal
1838	Bush	ages	appeared	literal	first humans	literal	nc	literal	global	literal
1843	Clarke	24hr	created	literal	first humans	uncertain	nc	literal	global	literal
1854	Dods	24hr	nc	symbolic	nc	symbolic	nc	nc	local	nc
1855	Bohlen	24hr	created	mythical	mythical	mythical	nc	mythical	mythical	mythical
1858	Kalisch	24hr	appeared	nc	first humans	nc	his sister	literal	local	nc
1860	Hoare	ages	appeared	nc	first humans (pre-adamites possible)	nc	nc	literal	global	nc
1860	Lane	ages	nc	nc	pre-adamites	nc	pre-Adamite	numbers are not reliable	local	nc
1861	Groves	ages	appeared	literal	first humans	literal	his relative	literal	uncertain	literal
1864	Crosse	nc	nc	nc	first humans	nc	nc	literal	nc	literal
1864	Henry	24hr	nc	nc	first humans	literal	nc	literal	global	literal
1867	Jacobus	24hr	appeared	literal	first humans (pre-adamites possible)	literal	his relative	literal	global	literal
1868	Candlish	24hr	created	literal	first humans	literal	nc	literal	global	literal
1868	Conant	ages	created	uncertain	first humans	uncertain	nc	literal	uncertain	literal
1869	Lange	ages	appeared	uncertain	first humans (pre-adamites possible)	uncertain	his sister	literal	local	literal/symbolic
1870	Thompson	ages	appeared	nc	uncertain (pre-adamites possible)	nc	his sister or pre-adamites	not literal	nc	uncertain
1870	Warington	divine days	appeared	nc	uncertain, possibly evolved	nc	nc	nc	nc	nc
1870	Kurtz	ages/24hr	uncertain	literal	first humans	literal	his relative	literal	global	literal
1872	Alford	figurative	uncertain	allegory	uncertain	allegory	uncertain	uncertain	global	literal

Table 1.5 – Commentary analysis for Genesis 1-11

1.8 The hypothesis

What this preliminary research suggests is that the literal interpretation of Genesis 1-11 was largely abandoned in favour of a scientific hermeneutic¹⁵ during the early nineteenth century. If the trend holds, further investigation should indicate a strong correlation between commentaries that depart from a literal interpretation of Genesis 1-11 and those that also favourably cite scientific authorities and/or their scientific insights (i.e. from the historical sciences). Thus, the largescale rejection of Genesis 1-11 as literal history could be attributed, on historical grounds, to the increasing acceptability scientific eisegesis in these chapters. In particular, it is proposed that the susceptibility of Genesis 1-11 to scientific eisegesis came about because of a high esteem for historical science. I anticipate that an analysis of commentaries from this era will reveal that commentators who favoured science over Scripture, as a greater or more appropriate authority on the subject of origins, *also* embraced a scientifically-informed hermeneutic.

¹⁵ This is not to negate the value of science in assisting the historical-grammatical method. Instead, I use "scientific hermeneutic" to refer to a method of interpretation that gives science greater epistemic authority than Scripture on matters of interpretation.

Given the early influence of uniformitarianism, popularised by Charles Lyell (1797-1875) (1881:234), I also propose that the greatest malleability of interpretation in Genesis 1-11 will be found in Genesis 1 concerning the days of creation.

At this stage in the research, a few general observations can be made:

1. The tendency to not interpret Genesis 1-11 according to a literal hermeneutic correlates strongly with an equal tendency to defer explicitly to historical science and prominent scientists.
2. After 1836, the tendency to interpret the “days” of Genesis 1 in a non-literal manner correlates well with commentaries which accommodate more scientific data in their interpretation.
3. William Herschel and Louis Agassiz feature most prominently as scientific authorities in the commentaries (followed by Charles Darwin, Charles Lyell, Georges Cuvier and Alexander von Humboldt).
4. Of all the historical sciences: geology and astronomy are referred to most in the commentaries surveyed.
5. Prior to 1854, all of the 5 commentaries surveyed adopted a literal approach to the text.
6. After 1854, only 2 of the 16 commentaries surveyed adopt a literal approach to the text.

The aforementioned hypothesis also finds support from several commentators who make explicit statements showing the influence of historical science on their exegesis. For example, in his discussion on the days of creation, Hoare (1860:152-153) writes,

It is the conclusion of the most eminent geologists, founded, as they consider it, on the *undoubted indications of nature*, that there have been successive epochs of creation, separated by indefinite intervals of time... (emphasis mine)

Warrington (1870:134-135) and Jacobus (1867:63) also leave ample room for historical science to dictate the meaning of the text. Other commentators take this line of reasoning further. In his introductory remarks on Genesis 1:1-2:3, Bohlen (1855:4) admonishes his readers with this exhortation: “Let us not however strive, as many naturalists and geologists have done to wearisomeness, to verify minutely a simple and childlike myth”. It is evident thus far that the overall portrayal of Genesis 1-11 as anything less than historical narrative stems from the difficulty commentators face when trying to reconcile the text with historical science. Kalisch (1858:13) writes,

[I]f we reflect on all these circumstances, there seems indeed to be no alternative left, but honestly to acknowledge *the immense difference existing between the Biblical conceptions and the established results of the natural sciences*. (emphasis mine)

Likewise, Dods (1854:3) who states:

[Genesis] is irreconcilable with the teachings of science.

Warrington (1870:2-3) concedes that there must be “scientific errors” in the Genesis record because of these discoveries. For reasons such as these, commentators appear eager to find alternative methods of reading Genesis 1-11. Lane (1860:17), for one, denies the six days of creation because “no sound

geologist” would allow for so recent a past. Thus, in many cases commentators restrict the epistemic authority of Genesis to spiritual matters in order to accommodate the tenets of historical. Extracts from the commentaries of Bush, Lange and Thompson help us understand why:

It is unquestionable that the Scriptures generally describe the phenomena of the natural world as they appear, rather than according to strict scientific truth. (Bush, 1838:35).

We can thus speak of a *scientific imperfection* of Biblical Chronology, which is perfectly consistent with its religious perfection, and which on this very account is of great service to the chronology of general history. (emphasis mine, Lange, 1869:12).

I make no pretension to being a man of Science; but as an interpreter of the Bible, *I am as much beholden to any fact of Science as the most accomplished scientist*. We are not warranted in pitting Science and the Scriptures one against the other. (emphasis mine, Thompson, 1870:94)

It appears that the exegetical case for interpreting Genesis 1-11 as literal history carried less weight than the scientific case against it. Evidently, commentators did not reject the literal interpretation of Genesis 1-11 for purely exegetical reasons. It was rejected because of inferences made from scientific data. Thus, the proposed hypothesis finds tentative support from this preliminary literature survey.

1.9 The research methodology

To pursue this investigation further, the central research question will be based on an analysis of prominent scientists and philosophers from 1650 to 1910, followed by an extensive literature review of Genesis commentaries going back to the first century to explore how commentators handled the first eleven chapters. After this analysis, I will synthesise my findings using and extending the framework provided in Terry Mortenson’s table (Mortenson, 2004:46). Then I will establish, with discussion and argument, whether the proposed hypothesis adequately answers my central research question.

1.9.1 The data

The primary data for this dissertation comprises 193 Genesis commentaries from Philo through to Skinner. The bulk of these commentaries will fall in within the designated research period: 1650 to 1910 (see appendix A).

1.9.2 The method

I first plan to explore in greater detail the intellectual climate of the early seventeenth, eighteenth and nineteenth centuries to determine any extrabiblical influences that would have had an impact on those writing commentaries during this period. Included in this preliminary investigation will be an analysis of any significant philosophical and theological treatises which contributed towards the revolution in thinking concerning how Genesis 1-11 was understood.

This will be followed by an extensive analysis of Genesis 1-11 in commentaries prior to 1650 in order to establish how these chapters were interpreted before the era leading up to the Early and Late

Enlightenments and the Darwinian Revolution. This will give me some indication of how the historical sciences were esteemed by theologians and biblical scholars prior to the “hermeneutical revolution”¹⁶ which reshaped how Genesis would be read for the next three centuries.

Then I will review commentaries from 1650 to 1910 and look for references to scientific theories, ideas, and authorities to evaluate how they influenced the commentators’ exegesis. The 1830s, as my preliminary literature survey has shown, seem to mark the critical turning point in how Genesis 1-11 was traditionally understood.

In the final synthesis, I will tabulate and present these findings in tables and charts (extending Mortenson’s model) and look for trends and correlations in the data which support or contradict my hypothesis. Specifically, if it is discovered that many commentators advance nonliteral interpretations of Genesis 1-11 without any recourse to historical science or prominent scientists, the hypothesis will be refuted. Conversely, if the progress and promulgation of the historical sciences correlates closely with a sudden proliferation of new nonliteral interpretive approaches to the text, the hypothesis will be sustained. This will help me ascertain and argue for or against any susceptibility in Genesis 1-11 to historical science during the late eighteenth and early twentieth centuries. Finally, I will try and derive a rationale for how Genesis 1-11 was shaped by science during the period 1650 to 1910.

¹⁶ I use this expression merely to denote the critical period in which the prevailing literal interpretation of Genesis 1-11 was abandoned in favour of various non-literal approaches.

Chapter 2. The relationship between Genesis and science prior to the eighteenth century

2.1 Introduction

Prior to the mid-seventeenth century, hardly any commentators treated Genesis 1-11 as anything other than historical narrative.¹ After 1650, however, the tendency to read these chapters in a more figurative, less-than-literal manner steadily gained popularity. But to understand the inception of this hermeneutical revolution, the investigation needs to begin with the medieval separation of theology from philosophy in the late 11th century.

2.2 The medieval separation of theology from philosophy²

From the early years of the High Middle Ages (1000-1250) into the Late Middle Ages (1250-1500), European intellectuals regarded theology as indispensable and foundational to philosophy (Leithart, 2007:140). Philosophy and theology were inextricably connected; and many of the notable philosophers from this period like Duns Scotus (c. 1266-1308) and William of Ockham (c. 1287-1347)³ were, first and foremost, theologians (Leithart, 2007:143). In fact, most medieval European scientists⁴ from the Early Middle Ages till the end of the Late Middle Ages were professing Christians.⁵ In many cases these scientists were also serious theologians or prominent church leaders.⁶ As Frame (2015:123) points out, “From Augustine until the mid-seventeenth century, Christianity was the strongest influence on

¹ I substantiate this in the following chapters.

² A portion of this chapter has been adapted, with permission, from the second chapter of my previous dissertation on the historical origins of Charles Darwin’s *Origin of species* (Duboissee de Ricquebourg, 2011).

³ The last clause of Ockham’s Razor is often ignored: “For nothing ought to be posited without a reason given, unless it is self-evident or known by experience *or proved by the authority of Sacred Scripture*” (emphasis mine; Spade, 2006:104).

⁴ Although the label “scientist” was only coined by William Whewell (1794-1866) in 1833, it amply describes these men who were devoted to the study of natural phenomena (Hannam, 2011:346).

⁵ The fourth century saw a revolutionary change in the empire’s attitude towards Christianity, resulting in two historic edicts: the Edict of Milan (313), and the Edict of Thessalonica (380). As the subsequent centuries reflect, this resulted in a largely unimpeded Christianising of Europe. Even by 2010 – about 1700 years later – according to the Pew Research Center (2015:147), 74.5% of Europeans were still predominantly affiliated to Christianity.

⁶ Anatolius of Alexandria (c. 230-283) was not only “a man of wonderful learning in arithmetic, geometry, astronomy, grammar, rhetoric, and dialectic”, he also was the bishop of Laodicea in Syria and wrote a treatise on the Passover (Jerome, 1892:377). Nemeseius of Emesa (fl. c. 390) was both a bishop and psychologist, breaking new ground in an anthropological treatise entitled, *On the nature of man* (Oden, 1987:230-231). John Philoponus (c. 490-570) not only wrote many theological works, but also excelled in the physical sciences, producing one of the earliest theories of inertia (Wallace, 1981:41, 110-111). The Venerable Bede (c. 673-735), being “the most learned man of his age, not only in the British Isles, but in all Western Europe”, and “the first British writer to apply scientific method to geographical subjects”, devoted eighty percent of his writings to the study of Scripture (Sutcliffe, 1935:300; Anderson, 1975:224; Galli & Olsen, 2000:341). Hrabanus Maurus (c. 776-856), was not only “one of the most prominent teachers and writers of the Carolingian age”, famous for his encyclopaedia, *De rerum naturis*; he was also the archbishop of Mainz (Chiselm, 1910c:842; Ziolkowski, 2006:333). Leo the Mathematician (c. 790-869), “who wrote extensively on science and mathematics and constructed an optical telegraph... was archbishop of Thessalonica” (Brown, 1988:52). Gerbert of Aurillac (c. 946-1003) who was regarded as “the leading mathematician and astronomer of his day” became the first French Pope in 999: Pope Sylvester II (Brown, 2010:x; Hannam, 2011:17).

philosophy in the West.” But during the High Middle Ages,⁷ the epistemic bond between theology and philosophy began to weaken (Leithart, 2007:145).

2.2.1 Abelard’s scholasticism

One of the key proponents for this separation was Peter Abelard (1079-1142) who sought to “harmonize faith and reason” (Leithart, 2007:152).⁸ Departing from Anselm’s (c. 1033-1109) “faith seeking understanding”, Abelard believed that understanding should precede faith⁹ (Leithart, 2007:153; Chavalas, 1993:149). His concern was to establish rational grounds for specific theological beliefs. To this end he introduced a new method of questioning in his theology and treated theological enquiry itself as a separate discipline (Leithart, 2007:154). Thus, scholasticism found its roots in the gradual shift that took place as Abelard’s method of questioning led to a greater emphasis on philosophical argument than biblical exegesis¹⁰ (Leithart, 2007:155; Chenu, 1997:295).

2.2.2 Lombard’s sentences

This scholastic trend, however, was hampered to some extent by Abelard’s student, Peter Lombard (c. 1096-1160). Unlike his teacher, Lombard did not subjugate the authority of Scripture to philosophical reasoning. Following the Venerable Bede (c. 673-735), Lombard (1971:391, 406-416) believed in a literal twenty-four hour, six-day creation; and the historicity of Adam and Eve. Being critical of both Aristotelian and Platonic philosophies of origin,¹¹ Lombard treats the doctrine of creation as matter to be determined pre-eminently by revelation instead of reason (Zimmerman, 2019:90). Thus, as Rosemann (2004:63) points out, “In the twelfth century, the transition from *sacra pagina*¹² to theological science stalled, in part due to the influence of Peter Lombard” because he “wanted to keep theology closer to its roots in Scripture and in reasoning from authority.”

That said, this did not stop Lombard from adapting Abelard’s *Sic et non* (c. 1120) to construct his own *Libri quattuor sententiarum*¹³ (c. 1223-1227) which “consolidated theology in an Aberlardian key” (Leithart, 2007:155). The *Sentences* were immensely popular. For three centuries, Lombard’s *Sentences* served as the theological textbook of that age (Rosemann, 2004:3; Leithart, 2007:155). According to one estimate, at

⁷ i.e. the High Medieval Period (1000-1250)

⁸ Leithart (2007:145) identifies Abelard his chief “villain” behind the separation of philosophy and theology during the High Middle Ages.

⁹ In his *Dialogus inter philosophum, Judaeum, et Christianum* (1120-1140), Abelard (2009:363) states, “in any battle of disputation, a declared truth of reason is stronger than pointing to an authority... Many questions come up about the words of the authority itself, so that one must judge *about* them before judging *by means* of them.” (emphasis in original)

¹⁰ As evident from Abelard’s supposedly literal exposition of Genesis 1 (see section 5.4.5).

¹¹ Two centuries later, Lombard’s treatment of philosophy earned the praise of Martin Luther (1483-1546). In the prologue of his commentary on the *Sentences*, Luther writes, “Although I feel that the spoils of philosophy are not to be entirely rejected as of advantage to sacred theology, nevertheless the prudent restraint and unsullied purity of the Master of the *Sentences* wins my strongest approval in the fact that in every respect he so relies on the lights of the Church and especially Augustine, whose radiance is the most brilliant and whose praise is never sufficient, so that he seems to hold in suspicion whatever is anxiously explored but not yet known by the philosophers” (cited by Murphy, 1976:55). There is some paradox in this, as Rosemann (2004:210) points out, owing to the fact that it was Lombard’s *Sentences* that had precipitated “the greatest textbook of Scholastic theology”: Aquinas’ *Summa theologiae*.

¹² i.e. “sacred page” – referring to the text of Scripture.

¹³ i.e. “The four books of sentences”, referred to hereafter just as the *Sentences*.

least 1407 commentaries were written on the *Sentences* during this period (Rosemann, 2004:3). Rosemann (2004:3) claims that, “there is no piece of Christian literature that has been commented upon more frequently—except for Scripture itself.” But this success anticipated something more sinister. The phenomenal popularity of Lombard’s *Sentences* “made it possible to foresee already how the questions would eventually become more important than the texts being commented upon” (Chenu, 1997:295). So although, on the one hand, “the writings and influence of Peter Lombard’s *Sentences* attest to the pervasiveness of a medieval acceptance of the literal sense of Genesis 1 and 2”, on the other hand, his Abelardian manner of systematising of theology, along with the subsequent popularity of the *Sentences*, foreshadowed how human reasoning would one day exert a magisterial authority over the interpretation of Scripture (VanDoodewaard, 2015:21-50).

2.2.3 Maimonides’ naturalistic allegorisation of Genesis

Moses ben Maimon (1135-1204), otherwise known as Maimonides, also sought to systematize his Jewish theology within an Aristotelean framework¹⁴ (Rudavsky, 2010:31). In doing so, he reinterpreted miracles, prophecies and other supernatural phenomena recorded in the Torah to suit a more naturalistic worldview (Maimonides, 1951:224, 236-237; Rudavsky, 2010:32). This meant that the literal interpretation of Scripture was often deemed untenable, especially in Genesis 1-3, which he calls “most absurd in its literal sense” (Maimonides, 1951:217). In his famous treatise to sceptics, *דלאלת אלהאירין* (c. 1190),¹⁵ Maimonides (1951:5, 10, 158, 162) actively promoted the allegorical reading of Genesis on the grounds that it led to less contradiction with science and philosophy. For example, because Aristotle believes that the “spheres are animated and intellectual beings”, Maimonides (1951:158-159) asserts that *tohu* and *bohu* in Genesis 1:2 should be taken to mean “mourning and crying” so that the heavens and earth can be suitably personified. Likewise, the celestial objects created in Genesis 1:18 are treated as celestial beings (Maimonides, 1951:159). Even Aristotle’s belief in an eternal universe, whilst critiqued, is not completely rejected (Maimonides, 1951:144-154, 178). In the end, Maimonides (1951:178, 191, 199-201) affirms his belief in *creatio ex nihilo*, but only tentatively, and not without first stressing his conviction that there can be no definitive proof for or against this dogma.

Although Maimonides (1951:209, 231, 381) did not reject the historicity of Adam and Eve, the flood, and the dispersion of nations from Babel, believing the world to be six thousand years old; his naturalistic allegorisation of Genesis 1-3 greatly undermined the literal interpretation of the Mosaic account. These hermeneutical preferences were amplified by a reputation garnered in theology and philosophy that substantially outlived him (Seeskin, 2005:1; Rudavsky, 2010:vii). Most notoriously, perhaps, his method inspired Spinoza,¹⁶ the “heir apparent”, to embark on his own “fully-fledged naturalistic interpretation of

¹⁴ Maimonides (1951:18, 195) has a high regard for Aristotle, referring to him as the greatest and “chief of philosophers”. In exposition of Scripture and theological discussion, he draws upon Aristotle’s insights repeatedly (Maimonides, 1951: 68, 103, 121, 135, 145, 158-163, 173-200, 215, 226, 272-273).

¹⁵ i.e. “the guide for the perplexed”.

¹⁶ See section 2.6.6 for the discussion on Spinoza.

Scripture” (Rudavsky, 2010:x; Seeskin, 2005:9). Both Charles François Dupuis¹⁷ (1872:226-227) and Thomas Paine¹⁸ (1908b:37-38) also found support from Maimonides in their rejection of the historicity of Genesis 1-11.

2.2.4 Aquinas separates philosophy from theology

Aquinas, like Maimonides, having encountered the works of Aristotle (384-322 BC) via Averroes’s¹⁹ (1126-1198) commentaries, tried to construct a fusion of Aristotelian philosophy and theology (Shields, 2007:401; Fakhry, 2008:139-164). And so, from 1265 to 1274,²⁰ Aquinas (1225-1274) wrote *Summa theologiae*,²¹ now regarded as “one of the most influential works of Western literature” (Ross, 2003:165).

In the *Summa*, Aquinas (1920:18; 1922a:274, 240; 1922b:263-264, 279; 1921b:278) readily asserts the literal historicity of Genesis;²² that the six days of creation were natural twenty-four days; that God made light three days before he made the sun, moon and stars; that Adam was created from the dust of the earth, and Eve from his rib; and that the serpent in Genesis 3 was a real animal. Aquinas (1922a:221) believes that the early chapters of Genesis are more authoritative than the “most exalted human intellect.” And in the opening paragraphs of the *Summa*, he insists that the claims of scientists should be rejected wherever they contradict the inspired text because “Scripture... has no science above itself” (Aquinas, 1920:10, 13).²³ That said, Aquinas does provide room for science to shape how Scripture is read. This is evident from his discussion on Genesis 1:6 where he claims that Moses accommodated his account to the intellectual capacity of “ignorant people” with very little scientific knowledge (Aquinas, 1922a:225). Aquinas may not have used such grounds to depart from the plain sense of the text, but subsequent commentators did.

The most enduring legacy of Aquinas’s thought, however, in terms of Genesis and science, comes from the manner in which he framed his *Summa*. From the very first article, Aquinas (1920:3) begins by arguing for a distinct separation of philosophy from theology in that “philosophical science” is based on reason

¹⁷ For more on Dupuis, refer to section 3.21.

¹⁸ See section 3.19 for the discussion on Paine.

¹⁹ It is evident that Averroes was more enamoured with Aristotle than Aquinas. In his praise of Aristotle, he writes, “How superior is Aristotle’s thought to that of all the others and how far are they all from his understanding... how limited is everyone’s understanding compared to his understanding” (cited by Glasner, 2009:5). For Averroes (1921:26-27), wherever “rational investigation” conflicts with “the Law” (i.e. the Qur’an), philosophy trumps revelation. He advises that the Qur’an be reinterpreted to conform to science and not vice versa. For reasons such as these, Gilson (1939:37) identifies Averroes as the first herald of modern rationalism, predating, yet anticipating the Renaissance.

²⁰ As these dates suggest, Aquinas died before he could finish his *Summa*. He had in fact ceased from writing in the penultimate year of his life, having come to a point where he regarded his work as “straw” (Davies, 1993:9). The circumstances which precipitated such a crisis in his life abound with speculation and are not fully understood.

²¹ Strangely enough, Aquinas’s *Summa* only replaced Lombard’s *Sentences* in the sixteenth century (Rosemann, 2004:3).

²² Aquinas (1920:18) maintains, “it is plain that nothing false can ever underlie the literal sense of Holy Writ.”

²³ In his comparison between revelation and reason, Aquinas (1920:7) explains why he gives precedence to the former: “this science [referring to inferences made from Scripture] surpasses other speculative sciences; in point of greater certitude, because other sciences derive their certitude from the natural light of human reason, which can err; whereas this derives its certitude from the light of the divine knowledge, which cannot be misled: in point of the higher worth of its subject-matter, because this science treats chiefly of those things which by their sublimity transcend human reason; while other sciences consider only those things which are within reason’s grasp.” This maxim can also be found in his sermon on Matthew 7:15-16: “Faith is capable of much more than philosophy is. Hence, if philosophy is contrary to faith, it must not be accepted.” (Aquinas, 2010:203)

whereas “sacred science” is based on revelation.²⁴ The general acceptance of Ptolemaic astronomy and Aristotelian physics invited a synthesis between Greek philosophy and Scripture (Copleston, 1993:1-8). Aquinas evidently believed that such a synthesis was possible. The *Summa* was the result – a systematic theology that demonstrated how theology could be accommodated to Aristotelian categories. Thus, by “assuming an Abelardian separation of form and substance”, Aquinas gave his theology a philosophical shape (Leithart, 2007:165). This effectively allowed an “onto-theology” to develop – a style of theology which was “subordinated to and constrained by philosophical commitments from outside theology” (Leithart, 2007:144).

So, although in principle Aquinas maintained a high view of the Bible, in practice he failed to derive his epistemology from Scripture (Frame, 2015:151). He inadvertently advanced a foundation upon which mainstream intellectual thought would finally assume an autonomy from the Bible (Schaeffer, 2007:18; Leithart, 2007:157). As Amos (2007:209) relates, this allowed the Bible to lose its “unique authoritative position in theology”, as philosophy began to gain ascendancy in the church and popular culture.

Both Duns Scotus and William of Ockham disapproved of this new direction in theology, perceiving Aquinas’ appeal to philosophy to be a threat. But in their efforts to protect and purify theology from outside influences, they also inadvertently reinforced the autonomy of philosophy by encouraging an equivalent epistemic separation between the two (Leithart, 2007:169). Thus, as the rift between philosophy and theology grew, so did the rift between reason and revelation (Amos, 2007:213).

2.3 The theological roots of science and the Protestant Reformation

Aristotle’s popularity persisted from the mid-thirteenth century well into the seventeenth (Dod, 1997:73; Lohr, 1997:96). As Jones (1897:92) laments, “in the Middle Ages, Aristotle was not only king, but tyrant, over men’s minds.” But with the Renaissance (c. 1300-1600), his intellectual reign was eventually challenged (Copleston, 1993:217-220). Notwithstanding the critical role that Aristotle had played in the development of philosophy and science during the late Middle Ages, his writings eventually succumbed to a self-inflicted redundancy as Aristotelean reasoning gradually eroded “Aristotelian certainties” (Trueman, 2007:202).

Accompanying the decline of Aristotle, prominent humanists²⁵ including the likes of Brunetto Latini (1220-1294), Francesco Petrarca (1304-1374), Pier Paolo Vergerio (1370-1444) and Leonardo Bruni (1370-1444) invigorated a fresh interest in other classical writers and texts. The dominant mood which ensued, epitomised by the cry of “*Ad fontes*”, thereby encouraged a closer examination of ancient sources, including the Bible (Trueman, 2007:181-182).

²⁴ Aquinas (2010:179) makes the same assertion in his sermon on Luke 14:16, “This is the difference between the teaching of Sacred Scripture and that of philosophy: the teaching of philosophy is from creation, but the teaching of Sacred Scripture is from inspiration.”

²⁵ Trueman (2007:179) defines humanism as a “cultural attitude based on the reappropriation of classical literature.” Humanism was popular in Europe from 1200 to 1400.

2.3.1 Luther challenges Aristotle's reign

By the fifteenth century, humanism's intellectual trajectory "bore philological fruit" in the writings of Marsilio Ficino (1433-1499) and Desiderius Erasmus (1466-1536) (Trueman, 2007:180). Ficino's interests were mainly astrological, but Erasmus was a Bible scholar. In 1516, Erasmus finished his first critical edition of the New Testament in Greek and Latin. To the hegemony of Aristotelianism and medieval Roman Catholicism, "Erasmus' New Testament was a ticking bomb" (Reeves, 2011:28). The publication of this critical text led to a dramatic increase in vernacular editions of the Bible across Europe including those of William Tyndale (1494-1536) in England and Martin Luther (1483-1546) in Germany (Trueman, 2007:185). Thus armed with a greater understanding of the Scriptures, Luther (2006:269-270) denounced Aristotelianised theology:

43. It is a wrong thing to say that a man cannot become a theologian without Aristotle (against the generally accepted opinion).

44. The truth is that a man cannot become a theologian unless he becomes one without Aristotle...

50. In short, compared with the study of theology, the whole of Aristotle is as darkness is to light (against the scholastic theologians).

For Luther (1915a:346), philosophy and human reason have a higher epistemic authority: Scripture.²⁶ Upon this conviction he argues that all higher education should be theologically grounded, such that "the foremost and most general subject of Schools study, both in the higher and the lower schools, should be the Holy Scriptures" and "universities ought to turn out only men who are experts in the Holy Scriptures" (Luther, 1916:151, 152-153). Although Luther retained a ministerial place for reason, his conscience was "ultimately bound by Scripture, not reason" (Amos, 2007:214). It is not difficult to see, therefore, how the principle *sola scriptura*,²⁷ as a Reformation slogan, would be adopted by Luther's disciples many years later. In the latter regard, Luther's "epistemological elevation of Scripture" provided one of the key ingredients for the Protestant Reformation (Amos, 2007:214).

2.3.2 Calvin, Copernicus and the Scientific Revolution

Whilst Luther supplied the confrontation necessary to precipitate a reformation, John Calvin (1509-1564) provided its consolidation (Frame, 1995:40). The expression of Calvin's theology is best captured in his magnum opus, *Institutes of Christian religion* (1559). In this work, Calvin (2006:79) argued strongly, *pro* Luther, for the authority of Scripture over human reason, stating, "the testimony of the Spirit is more excellent than all reason." Calvin (1848:145) also saw science as subservient to the word of God, arguing that it "must occupy the place of a handmaid, not of a mistress."²⁸ This kind of sentiment has led some

²⁶ In his treatment on the eucharist, Luther (1916:194) maintains, "Even though philosophy cannot grasp this, faith grasps it, and the authority of God's Word is greater than the grasp of our intellect."

²⁷ It is worth noting that the specific expression and concept of *sola scriptura* does not originate with Luther (Posset, 2006:123-127).

²⁸ This quotation comes from Calvin's commentary on 1 Corinthians 4:19.

historians to argue that both Luther and Calvin held back the progress of science. To sustain such an indictment, they cite Luther's 1539 "table talk" denunciation of Copernicus as a fool,²⁹ and claim, on similar grounds, that Calvin once said, "Who will venture to place the authority of Copernicus above that of the Holy Spirit?" (White, 1896:126,127; Rosen, 1960:431). But both these quotations, with their extrapolations, suffer from severe anachronism and deliberate misrepresentation. The Calvin quote, on Rosen's (1960:441) assessment, is apocryphal because it is unlikely that Calvin had even *heard* of Copernicus, let alone read any of his writings. But even if he had and we assume the quotation to be genuine, Calvin's implicit theological contribution to the progress of science in the seventeenth and eighteenth centuries far outweighs any negative impact he may have made through such an ill-conceived comment. Thus Merton (1938:459) argues, "the religious ethic which stemmed from [Calvin] inevitably inspired the pursuit of natural science." The Luther quote also suffers from a poor appreciation of the relevant *Sitz im Leben*. Luther's comment was made four years *before* Copernicus finally published his work in 1543. Moreover, Norlind (1953:274) contends that Luther, at the time of this quote, "had studied logic and psychology, spherical astronomy, metaphysics, mathematics and arithmetic, was well acquainted with the theory of music and perspective, natural and moral philosophy, politics and economics". Even Luther's protégé, Philip Melancthon (1497-1560), being "the first systematic theologian of the Protestant Reformation", was theologically motivated to write various treatises on botany, astronomy, physics, geometry, geography, arithmetic and anatomy (Manschreck, 1965:vii; Engelland, 1965:xxvi-xxvii).

In fact, the reason why Luther's cosmology clashed with Copernicus was, ironically, because of his dependence upon Aristotle and Ptolemy (Pelikan, 1961:468; Norlind, 1953:274). While Luther was vehemently opposed to Aristotle's influence in theology, the ground he had acceded to him in the sciences inevitably undermined the scientific accuracy of his cosmological views. In this regard, despite his repeated denunciation of Aristotle, even Luther could not escape Aristotle's monumental influence. It is with this in mind that Pelikan (1961:468-469) adds, "the Aristotle who had been a bridge between theology and science became a barrier instead." Stark (2003:154) states the case even more bluntly:

Greek learning was a barrier to the rise of science! It did not lead to science among the Greeks or the Romans, and it stifled intellectual progress in Islam.

But with Luther, Calvin and the Protestant Reformation, the movement away from the hegemony of the Roman Catholic Church and Aristotle meant a move towards empirical science. As Stark (2003:149) demonstrates historically, "science arises as the handmaiden of theology." And even more poignantly, within this new era, Genesis 1-11 was not seen in opposition to science, but as the basis for science.³⁰ Harrison (2006:130) argues the literal interpretation of the creation story had a "major impact on the

²⁹ Luther (1915b:104) comments on Copernicus: "The fool wants to change the whole science of astronomy. But the Holy Scripture clearly shows us that Joshua commanded the sun, not the earth, to stand still."

³⁰ As Hannam (2011:348) points out, "The starting point for all natural philosophy in the Middle Ages was that nature had been created by God." The necessity of this metaphysical presupposition for science will be shown in the sections that follow.

development of experimental science in seventeenth-century England.”³¹ In support, Snobelen (2004a:2) writes:

Recent work on early modern science has demonstrated a direct (and positive) relationship between the resurgence of the Hebraic, literal exegesis of the Bible in the Protestant Reformation, and the rise of the empirical method in modern science. I’m not referring to wooden literalism, but the sophisticated literal-historical hermeneutics that Martin Luther and others (including Newton) championed.

Thus a positive correlation between the success of the Protestant Reformation and the subsequent fruits of the Scientific Revolution³² cannot be avoided. Nevertheless, it can be grossly overstated in at least two ways. In the first instance, the contrast of post-Reformation science with pre-Reformation science needs to be informed by a fair appraisal of medieval science. As Hannam (2009:3) has argued, the Middle Ages saw great progress in science and technology and in many ways laid the foundation for the Scientific Revolution. It is therefore fallacious to ascribe to the “Scientific Revolution” the notion that science emerged victorious from the shackles of religion (Finocchiaro, 2007:132; Pannenberg, 2006:106). This false perception is “an invention of later historians” (Cohen, 1985:106). Historically, there have been two main sources of this mischaracterisation, both written during Charles Darwin’s era: John Draper’s *History of the conflict between religion and science* (1875), and Andrew White’s *A history of the warfare between science with theology in Christendom* (1896). In these influential books, Draper (1875:304, 367) and White (1896:394-396) allege that the church blindly held back the progress of science during the Middle Ages by suppressing and oppressing the likes of Copernicus, Galileo and Kepler – and all because of a literalistic reading of the Bible (Huxley, 1859:8; Einstein, 1940:181; Lisonbee, 1965:200-201). This pseudohistorical perspective, which was readily promulgated by other critics of Christianity, has in recent times been largely abandoned.³³ Credit needs to be given to the many capable medieval scientists who prepared the way for Copernicus (Hannam, 2011:1-351). The Scientific Revolution was built upon their backs.

The second error to avoid in recognising the valuable contribution of the Reformation to science, is to ignore prominent Catholic scientists. For example, the case made by Robert Merton (1910-2003) in 1938 that the rise of a Protestant ethic (specifically through seventeenth-century English Puritanism)³⁴ encouraged the progress of science, should be mitigated by important caveats (Stark, 2003:159; Hannam, 2009:227). As Stark (2003:161, 198-199) has shown from an analysis of 52 “scientific stars” from this era, exactly half of the scientists who made significant contributions to science were Catholics. This shows,

³¹ The rationale provided for this claim looks at how an “allegorical reading of Scripture” had encouraged a similarly-minded “symbolic reading” of nature, thereby hindering science (Harrison, 2006:122). Thus, the Protestant reformers, by encouraging a more literal approach to the Bible consequently promoted a more rigorous approach to the sciences.

³² Traditionally, this label describes the time period from Copernicus to Newton (Hannam, 2011:350). Despite Shapin’s (1998:1) claim that “There was no such thing as the Scientific Revolution”, many historians still find value in retaining the label because great scientific progress did take place during those years (Hannam, 2011:350).

³³ Butterfield’s (1957:7) appraisal of the Scientific Revolution typifies the kind of overstatement that recent scholarship is contesting: “Since that revolution overturned the authority in science not only of the middle ages but of the ancient world – since it ended not only in the eclipse of scholastic philosophy but in the destruction of Aristotelian physics – it outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes, mere internal displacements, within the system of medieval Christendom.”

³⁴ Although Merton’s research is limited to Puritan protestants, a cursory survey of prominent non-Puritan protestant scientists from this period would suggest that the intellectual impact of the Reformation can be measured meaningfully here too. For further substantiation, see Stark (2003:158-166).

prima facie, that scientific progress was not exclusively a Protestant phenomenon.³⁵ But what remains incontrovertible is the fact that, following the Reformation, the troubled relationship between science and theology began to enjoy a new period of reconciliation. Science flourished in these fertile soils.³⁶ A theologically-starved academy could now be inspired by a more rigorous biblical worldview. A golden era of science had begun. And in order to trace this revolution in science from its seed, it will be necessary to look at the life and legacy of Nicholas Copernicus (1473-1543) in more detail.

2.4 The relationship between theology and science during the Copernican Revolution

In 1543, only 26 years after Luther challenged the known world with his ninety-five theses, Copernicus published *De revolutionibus orbium coelestium*.³⁷ He had, in fact, written the manuscript 34 years before this time but had been reticent to publish it because of “the scorn which I had to fear on account of the newness and absurdity of my opinion” (Copernicus, 1993:506). In this treatise, Copernicus presents a cosmology which challenges the prevailing paradigm crafted by Ptolemy in the early second century. Not unlike many other scientists of his generation, he had become increasingly dissatisfied with the inadequacies of the old system. Under this new scheme, Copernicus argued instead for a heliocentric model of the universe. Thus began, as the story goes, the aptly-named “Copernican Revolution” in science (Kuhn, 1996:8). This moment in history is sufficient for Russell (1947:547) to attribute the “creation of science” to four men, the foremost being Copernicus.³⁸ Despite this egregious exaggeration, Copernicus is prominent enough to warrant further investigation into the theological underpinnings of his science.

Those³⁹ who favour the iconic “conflict paradigm” between religion and science have tended to portray Copernicus as merely the scientist, giving little interest to the theological presuppositions which made astronomy meaningful to him.⁴⁰ On the other side, there have been those⁴¹ who have accepted Galileo’s account of Copernicus – where, in his zeal to show harmony between theology and science, once portrayed Copernicus as a “devout priest” of the Catholic church (Galilei, 1957:178). Rosen (1958:324-325) has shown why this claim is dubious, whilst conceding that Copernicus did serve as a canon in the church and dedicated his magnum opus to Pope Paul III.⁴² Galileo also states that *De revolutionibus* was readily accepted and read by the church, “without the faintest hint of any objection ever being conceived

³⁵ That said, as Merton (1938:446) points out, “Puritanism differed from Catholicism which had gradually come to tolerate science, in demanding, not merely condoning, its pursuit.” To state the case more strongly, there were some prominent Catholic luminaries whose efforts in the sciences were directly hampered by the Catholic church (see section 2.4).

³⁶ Examples provided in section 2.5.

³⁷ i.e. On the revolutions of the celestial spheres (hereafter referred to as *De revolutionibus*)

³⁸ Russell’s (1947:547) four founders of science are Copernicus, Kepler, Galileo and Newton.

³⁹ Admittedly, there are not many who still take this stance; but examples of those that do include Darwin (1872:143), Foote (1889:4), Huxley (1915:278, 326), Draper (1875:167-168), White (1896:370; 1910:22, 123-124) and Leveille (2011:1).

⁴⁰ Thereby ignoring Copernicus’s (1993:510) own words in the opening paragraph of *De revolutionibus*: “For the divine Psalmist surely did not say gratuitously that he took pleasure in the workings of God and rejoiced in the works of His hands, unless by means of these things as by some sort of vehicle we are transported to the contemplation of the highest Good.”

⁴¹ Rosen’s (1958:635-661) examples include Adrian Krzyżanowski (1788-1852), Jan Czyński (1801-1867), Francois Arago (1786-1853), Ferdinand Hoefer (1811-1878), Louis Figuier (1819-1894), Pierre Larousse (1817-1875), and Camille Flammarion (1842-1925).

⁴² In 1533, Pope Clement VII had also favourably received Copernicus’s theories when they were presented to him (Stachiewicz, 1972:73).

against its doctrines” (Galilei, 1957:178-179). Yet, as Rosen (1958:324-325) argues, this is also factually incorrect. In their loyalty to Aristotle, Julius Scaliger (1484-1558) and Francesco Maurolico (1494-1575) – both prominent Catholics – despised Copernicus for his ideas. Even the famous Danish astronomer, Tycho Brahe (1546-1601), who rejected the Ptolemaic “immutability of the heavens”, refused to accept the Copernican model (Hannam, 2009:291). In this case, although Brahe’s rejection of Copernicus was primarily based on empirical evidence, he did not hesitate to use the Bible as a reason to reject heliocentrism (Blair, 1990:255, 362-364). It is therefore unreasonable to completely dismiss the “conflict thesis” propounded by the likes of White (1896) and Draper (1875). At times, the religious establishment, supported by misguided readings of Scripture, have indeed hampered the progress of science. Copernicus (1993:509) anticipates this exact problem in his preface to *De revolutionibus* where he writes:

But if perchance there are certain “idle talkers” who take it upon themselves to pronounce judgment, although wholly ignorant of mathematics, and if *by shamelessly distorting the sense of some passage in Holy Writ to suit their purpose*, they dare to reprehend and to attack my work; they worry me so little that I shall even scorn their judgments as foolhardy. (emphasis mine)

But the popular account of Copernicus, as told by White, unhelpfully exaggerates elements of the story in order to portray the alleged conflict between theology and science more starkly (Lindberg & Numbers, 1986:339). White (1896:121) asserts that Copernicus was the first to propose that the “sun and planets do not revolve around the Earth.”⁴³ But this is not true. In the opening preface and dedication to Pope Paul III, Copernicus (1993:508) himself admitted that Hicetas of Syracuse⁴⁴ (c. 400-335 BC), Plutarch (45-127) and others had already suggested heliocentricity centuries before. As Stark (2003:136-138) has shown, there were a number of scientists who had already worked out and provided the essential elements for Copernicus’s heliocentric model. Among his great predecessors were Jean Buridan (ca. 1295-1358) who proposed that the earth rotated on its axis; Nicole d’Oresme (1325-1385) who strengthened this hypothesis with further evidence; and Nicholas of Cusa (1401-1464) who questioned the fixity of the earth in space, observing that the perception of motion was determined by one’s reference point.

It is highly probable, therefore, that Copernicus derived most of his ideas from the professors he studied under in the universities of Cracow, Bologna, Padua and Ferrara. Stark (2003:138-139) argues that Copernicus actually contributed very little to the existing knowledge of his day, developing a model which was in many respects wrong: having circular orbits instead of ellipses and disproportionate distances between planets and the sun. While trying to break free of the Ptolemaic paradigm, the legacy of Aristotle’s heavenly circles still hampered Copernicus. Nevertheless, Copernicus’s ideas did stimulate greater enthusiasm for a heliocentric cosmology because he was better able to defend the model by various mathematical arguments.

⁴³ White has also been credited with popularising the myth that in Columbus’s day the majority believed the earth to be flat. But Stark (2003:122) has illustrated with evidence that, “almost every word of White’s account of the Columbus story is a lie”.

⁴⁴ Here Copernicus (1993:508) misspells his name as “Nicetas” (cf. Gassendi & Thill, 2002:110).

2.4.1 Galileo and the separation of theology from science

By the time Galileo Galilei (1564-1642) appeared on the scene, the Jesuit astronomers⁴⁵ of his day were already avid Copernican followers (Schirmacher, 2000:92). Thus armed with a Copernican cosmology and the newly-invented telescope,⁴⁶ Galileo was able to explain stars and planets from a fresh perspective. In 1610, Galileo published his *Sidereus nuncius*⁴⁷ in which he showed, *contra* Aristotle, that the moon was not a perfect sphere. This established Galileo as a competent scientist and drew the interest of the Catholic church. Initially, this made him a hero amongst the Jesuits, and he was favourably received in Rome the same year (Hannam, 2009:313). Koestler (1959:426) recounts that even “Pope Paul V received him in friendly audience, and the Jesuit Roman College honoured him with various ceremonies which lasted a whole day.” But this popularity did not make Galileo immune to the tyranny of Popes and councils. In 1613 he wrote a letter to Benedetto Castelli (1578-1643), in which he stated that although “Holy Scripture can never lie or err... nevertheless some of its interpreters and expositors can sometimes err in various ways” (Galilei, 1989:49). His primary concern in this matter was for how the Bible was being used in the sciences. He argued passionately against the wooden literalism which typified how the church had come to marry Ptolemy to Scripture. Instead of allowing room for the new science to inform the interpretation of the text, Copernicus had been silenced. Galileo concluded,

Thus given that in many places the Scripture is not only capable but necessarily in need of interpretations different from the apparent meaning of the words, it seems to me that in disputes about natural phenomena it should be reserved to the last place. (Galilei, 1989:50)

These sentiments, along with the rest of the letter, were copied and circulated freely (Langford, 1992:55). Unfortunately for Galileo, one of his readers, Niccolò Lorini (b. 1544), saw his views as heretical. The Council of Trent (1545-1563) had explicitly forbidden the “private interpretation of Scripture” (Langford, 1992:56). Galileo’s letter exhibited a scandalous degree of “Protestant exegesis” (Langford, 1992:56). So a copy of the letter was sent to the Holy Office. Galileo learnt of these developments and quickly wrote off to Cardinal Bellarmine (1542-1621) to postpone judgment until he had revised and expanded the letter more substantially (Langford, 1992:58). From a letter sent to Paolo Atononio Foscarini (1565-1616), it is evident that Bellarmine would not tolerate any scientific viewpoint that opposed the Council of Trent or challenged an interpretation of Scripture advanced by the church fathers – specifically, the idea that “the sun really is fixed in the center of the heavens and only revolves around itself” (Langford, 1992:60). Bellarmine was adamant that Copernicus should only be entertained hypothetically.⁴⁸ And so the updated

⁴⁵ As Custance (1978:154) points out, “The Jesuits themselves were more Copernican than Galileo was; it is now well recognized that the reason why Chinese astronomy advanced more rapidly than European astronomy was simply because Jesuit missionaries communicated to them their Copernican views.” When Galileo first went to trial in 1615, it was on the basis of “expert evidence” from “leading Jesuit astronomers” that he was acquitted (Schirmacher, 2000:96).

⁴⁶ Galileo developed his own version of the telescope one year after Hans Lippershey (1570-1619) had invented it (Rosen, 1951:180-182; Stokely, 1964:58).

⁴⁷ i.e. “the starry messenger”

⁴⁸ In one sense, this was reasonable because Galileo had not been able to produce any real proofs for the Copernican cosmology (Schirmacher, 2000:95; Koestler, 1959:464).

version of Galileo's letter, *A Letter to the Grand Duchess Christina* (1615),⁴⁹ largely fell on deaf ears. On the 24th of February 1616, at the Holy Office in Rome, the Sacred Congregation of the Index made the following pronouncement concerning Copernicanism:

All said that this proposition is foolish and absurd in philosophy, and formally heretical since it explicitly contradicts in many places the sense of Holy Scripture, according to the literal meaning of the words and *according to the common interpretation and understanding of the Holy Fathers and the doctors of theology*. (emphasis mine; Finocchiaro, 1989:146)

Thus the Catholic church cannot easily escape the charge of hindering the progress of science in the seventeenth century. The following day, Galileo was formally warned by the Inquisition to "abandon these opinions" under threat of imprisonment (Finocchiaro, 1989:147). This made *De revolutionibus* a banned book and Galileo could no longer align himself with Copernicus (Hannam, 2009:316). But in 1621, Bellarmine died and two years later Pope Gregory XV was replaced by Pope Urban VIII (Hannam, 2009:318). For a while this change in leadership gave Galileo greater freedom to express his ideas publicly. He was even allowed a brief audience with the Pope in Rome, in which they amicably discussed cosmology together. It looked as though science might be back on friendly terms with theology. Then in 1632, Galileo wrote *Dialogo sopra i due massimi sistemi del mondo*.⁵⁰ It was a popular piece designed to convince the layman of heliocentricity (Hannam, 2009:323). Problematically for Galileo, his not-so-subtle portrayal of Pope Urban VIII as *Simplicio* in the dialogue was not very flattering. Any papal privilege he had enjoyed till now was lost forever. The book was promptly banned and Galileo charged with heresy (Benedictus, 1744:200). Not being willing to die or face torture for his scientific beliefs, Galileo was quick to recant his Copernicanism (Hannam, 2009:327). The Inquisition sentenced him to life imprisonment which was eventually reduced to house arrest. Galileo, nevertheless, managed to publish one last work before he died: *Discorsi e dimostrazioni matematiche, intorno a due nuove scienze*⁵¹ (1638). In keeping with the sentence passed by the Inquisition, he refrained from any further mention of Copernicus, leaving a future generation to vindicate his ideas. The *Dialogue* remained a banned book from 1633 to 1835 (Mendham, 1840:iii). At the beginning of his own copy, Galileo issues a prophetic warning:

Take care, Theologians, that in wishing to make matters of faith of the propositions attendant on the motion and stillness of the sun and the Earth, in time you probably risk the danger of condemning for heresy those who assert that the Earth stands firm and the sun moves; in time, I say, when sensately and necessarily it will be demonstrated that the Earth moves and the sun stands still.⁵² (Galilei, 1970:554)

⁴⁹ i.e. Lettera del R.P.M. Paolo Antonio Foscarini Carmelitano Sopra l'Opinione de'Pittagorici e del Copernico, della Mobilità della Terra e Stabilità del Sole, e del Nuovo Pittagorico Sistema del Mondo (written in 1615 but only published in 1636).

⁵⁰ i.e. "dialogue concerning the two chief world systems" – hereafter referred to as *Dialogue*.

⁵¹ i.e. "discourses and mathematical demonstrations relating to two new sciences"

⁵² Translation provided by Pedersen (1985:96). Original: "Avvertite, teologi, che, volendo fare materia di fede le proposizioni attenenti al moto ed alla quiete del sole e della Terra, vi esponete a pericolo di dover forse col tempo condannar d'eresia quella che asserissero, la Terra star ferma muoversi di luogo il sole: col tempo, dico, quando sensatamente o necessariamente si fusse dimostrato, la Terra muoversi e 'l sole star fisso" (Galilei, 1970:554).

It is not surprising, therefore, that Galileo has been remembered as a martyr for science.⁵³ For those already looking for reasons to disbelieve Christianity altogether, the Galileo story would provide just the excuse needed to reject the Bible. For example, two centuries later, Thomas Huxley (1825-1895), in his defence of Charles Darwin, appeals to none other than Galileo. According to Huxley (1915:278), those who hope so salvage some scientific respectability for Genesis 1-11 do so with the “mistaken zeal of bibliolaters”. In a similar vein, George Foote (1850-1915), writes:

They did not understand [Darwin’s ideas] *any more than the Inquisitors who burnt Bruno*⁵⁴ *and tortured Galileo understood the Copernican astronomy...* The popular triumph of Darwinism must be the death-blow to theology. The Copernican astronomy destroyed the geocentric theory, which made the Earth the centre of the universe, and all the celestial bodies its humble satellites. *From that moment the false astronomy of the Bible was doomed, and its exposure was bound to throw discredit on ‘the Word of God’.* (emphasis mine; Foote, 1889:4)

But this popular portrayal of the Galileo affair has unhelpfully pitted the man against his own faith.⁵⁵ For although there is an obvious sense in which the religious establishment opposed his ideas, there is a far more important sense in which his own religious beliefs supported them. Despite the erroneous charges of heresy, Galileo remained a faithful Roman Catholic his entire life (Pedersen, 1985:92; Finocchiaro, 1989:12). It should be remembered that, when Galileo (1880:9) wrote the *Starry Messenger*, he freely gave glory to God for the grace which had enlightened his scientific mind. And in his *Letter to the Grand Duchess Christina*, Galileo did not espouse a low view of the Bible, but instead maintained, “in the first place that it is very pious to say and prudent to affirm that the Holy Bible can never speak untruth – whenever its true meaning is understood” (Galilei, 1957:181). Even his *Dialogue* – the book for which he was incarcerated – Galileo gave credit to God for the telescope and considered the human mind to be “one of [his] most excellent works” (Galilei, 1661:303, 87). It is therefore misleading and simplistic to construe the conflict between Galileo and the Catholic church as a conflict between science and Scripture.⁵⁶ As Jones (1897:92) points out:

Philosophers never tire of pouring contempt on the persecutors of those grand and noble men; but who were the persecutors? Not those who sat in Moses’ seat more than those who sat in Aristotle’s chair. Theology was a helpless captive, bound hand and foot to the Aristotelian philosophy. Far be it from me to hold the theologians guiltless; but let the blame be justly distributed.

⁵³ Thus Diderot writes, “in all ages priests have persecuted those who have been the first to give natural explanations of the phenomena of nature – as witness Anaxagoras, Aristotle, Galileo, Descartes...” (in a footnote of d’Holbach’s (1868:53; cf. 1868:171, 284) *Système de la nature*). [NB: This footnote can be seen to belong to Diderot, not d’Holbach, by comparing the 1836 edition of his book with the 1795 edition.] For other examples of Galileo being used as a martyr for science, see Paine (1908c:60-61).

⁵⁴ This claim is also in error. Bruno’s heresies related exclusively to his portrayal of the Incarnation and the Trinity. Durant (1961:623) tells us that no reference was made to Copernicus or his views during Bruno’s trial. Hannam (2011:313) concurs, pointing out that Bruno could not have been martyred for his cosmology because “Copernicanism was not declared a heresy until 1616”.

⁵⁵ For more examples of similar recent misappropriations of Galileo, refer to Dennett (2007:408; 1996:19), Hitchens (2007:255), Popper (2005:46), Russell (2008:207, 215, 534, 559), Smith (1979:114), and Witham (2002:9, 236).

⁵⁶ This common misinterpretation owes its popularity, in part, to the hagiographies written by several early biographers (specifically: Johannes Hemleben, Ernst Schmutzer and Wilhelm Schütz). Schirmacher (2000:91) has challenged this depiction of the Galileo affair arguing in 15 theses that, “both Galileo and the Copernican system were well regarded by Church officials. Galileo was the victim of his own arrogance, the envy of his colleagues, and the politics of Pope Urban VIII. He was not accused of criticising the Bible, but disobeying a papal decree.” Finocchiaro (2007:128) and Stark (2003:165) support this assessment.

That said, the notorious treatment of Galileo from this period juxtaposed against his scientific stardom⁵⁷ made him a rhetorical weapon in any future conflict between the interpretation of Scripture and the claims of scientists.⁵⁸ Several commentaries on Genesis from the middle to late 1800s illustrate his influence.⁵⁹ To highlight one example from this corpus, in his treatment on the first eleven chapters of Genesis, Huntingford (1891:213) writes:

The persecutors of Galileo were not only cruel but unreasonable when they appealed to the Bible to prove that the astronomer was contradicting a revealed truth, when he said that the Earth went round the sun in a year, and revolved once on its own axis in twenty-four hours. Shall we not be equally unreasonable if we attempt to refute the legitimate conclusions of the Evolutionist by the inspired but popular language of Holy Scripture?

Thus, wittingly or unwittingly, Galileo's opinions on how to interpret Scripture left a notable legacy. Most of his theological views can be found in the aforementioned letter to Christina. In this document, Galileo (1957:181) argues that if expositors constrained themselves to the "unadorned grammatical meaning" of a text, they "might fall into error." He asserts that God always communicates truth in such a way as to accommodate it to the "capacities of common people" (Galilei, 1957:181). In other words, Galileo argues that a correct approach to God's word needs to appreciate a principle of accommodation. As a hermeneutical insight, the idea was not original with Galileo,⁶⁰ but he helped inspire future generations of Genesis commentators to embrace it. Thus, one of the earliest commentators to deviate from a standard literal-historical approach to Genesis appealed to this principle of accommodation:

And here I observe, that the Scripture all along accommodates its self to the vulgar apprehensions of men, with relation to such points of natural philosophy⁶¹ as they were not able to comprehend; and in particular, with relation to the size, distance, magnitude, use, and motions of the heavenly bodies. (Whiston, 1737:17)

Galileo (1957:183) also maintains that the interpretation of the Bible needs to be informed by "any certainties in physics". In other words, science should be seen as the indispensable means by which "the true exposition of the Bible" is achieved. Citing Cardinal Cesare Baronius (1538-1607), he writes:

We must also take heed, in handling the doctrine of Moses that we altogether *avoid saying positively and confidently anything which contradicts manifest experiences and the reasoning of philosophy or the other sciences*. For since every truth is in agreement with all other truth, the truth of Holy Writ *cannot be contrary to the solid reasons and experiences of human knowledge*. (emphasis mine; Galilei, 1957:186)

⁵⁷ Many historians and scientists have elevated Galileo above his peers, acclaiming him to be the "Father of Modern Science" (Finocchiaro, 2007:602), "the father of... the whole of modern natural science" (Einstein, 1934:164), or "the greatest of the founders of modern science" (Russell, 2008:531). It is hard to ascertain to what extent this adulation might also stem from Galileo's usefulness as a warning and deterrent to narrow-minded believers who might dare to question the authority of science.

⁵⁸ In his lectures on the history of science and religion, David B. Wilson (2011:353) admits, "For several years, I have found it very effective to retry Galileo."

⁵⁹ Murphey (1850:1-2), Kalisch (1858:1), Lange (1869:182), Arnold (1875:11), Kipp (1893:201-202), and Grant (1912:15) all endeavour to remind readers of how the church should not repeat the same sins as with Galileo when it comes to interpreting Genesis 1-11.

⁶⁰ In *Genesi Ad Litteram*, Augustine (1982:35-36) wrote, "We must conclude, then, that this same matter is referred to in words carefully chosen by a spiritual man in a manner that is accommodated to unlearned readers or hearers..."

⁶¹ In this dissertation, "natural philosophy" functions essentially as a synonym for science. Here Whiston's use of the term conveys the same import as natural science or empirical science or physical science.

In this way Galileo proposed that science should inform how one reads Genesis and not *vice versa*. As far as he was concerned, on matters pertaining to the natural order, scientific certainty was more attainable than biblical certainty. This allowed any biblical ambiguity to succumb to the scientific confidence of the day. Moreover, to appeal to the Bible for information pertaining to natural philosophy is inappropriate for “the intention of the Holy Ghost is to teach us how one goes to heaven not how heaven goes”⁶² (Galilei, 1957:186). In this way, Galileo separated the domain of Scripture from that of science in order to prevent unnecessary contradiction or confusion between these “two truths”.⁶³ But this divide would only be the beginning of a far greater divorce between reason and revelation.

2.4.2 Bacon and the two books of revelation

Meanwhile in England, Francis Bacon (1561-1626) also rose to fame as a scientist, to the extent that later historians have called him the “founder of experimental philosophy” or “mastermind of experimental science” (Maclaurin, 1748:56; Wandersee, 1987:123). Being a contemporary of Galileo, Bacon (1861:158), like many others, disapproved of his heliocentrism. But in striking similarity to Galileo, he also sought to reinforce the separation of theology from science. To accomplish this, Bacon (1861:63) proposed a “two book” approach to revelation in which God speaks through the book of nature and the book of Scripture. Whilst this was by no means a new idea,⁶⁴ in Bacon’s version of God’s two books, there was no place for theology to meddle with science.⁶⁵ In *Novum organum, sive indicia vera de interpretatione naturae*⁶⁶ (1620), Bacon (1901:38) states unequivocally that no natural philosophy should be built upon precepts derived from the book of Genesis. This does not mean that Bacon, in any way, rejected the historicity of Genesis. To the contrary, he believed in a literal six-day creation (Bacon, 1861:55-56). But this conviction was forged in a world where the scientific consensus sustained such things. This is why Bacon (1902:67) can assert, at the same time, that science is the “key” to understand the “true sense” of the Scriptures.

Possibly the most influential quotation from Bacon (1902:425) to shape the future exposition of Genesis 1-11 comes from his *Of the proficience and advancement of learning, divine and human* (1605), where he wrote:

For they who seek a material heaven, and a material Earth, in the word of God, absurdly seek for transitory things among eternal. To look for theology in philosophy is looking for the living among the dead, and to look for philosophy in theology is to look for the dead among the living.

⁶² Hannam (2009:315) has shown that this aphorism was not original with Galileo but rather William of Conches who lived four centuries before him.

⁶³ Appealing to Galileo, Playfair (1822b:194-195; 1822a:136-137, 496-497) reinforces the same separation between faith and philosophy in order to liberate geology from Genesis.

⁶⁴ As Tanzella-Nitti (2005:235-248) has demonstrated, the book metaphor for creation can be traced back through the medieval period to the early church fathers. One of the first of these was Augustine (1887a:339-340).

⁶⁵ As Manuel (1974:27-28) has observed, “In the seventeenth century men who were rationalist and articulate about the relations of science and religion, either what they were or what they should be, tended to move in one of two directions. Those who inclined towards developing the idea of the neutrality, or separateness, or autonomy, of science took a position that came to be epitomized in the metaphor of the two books, the Book of Scripture and the Book of Nature, both created by God as manifestations of His omnipotence and omniscience, but books different in character that had better be kept apart.”

⁶⁶ i.e. “New organon, or true directions concerning the interpretation of nature”

More than two hundred years later, this quotation featured prominently in Adam Sedgwick's recantation of a global flood (Clark & Hughes, 1890:370).⁶⁷ For this reason, key proponents of the French Enlightenment (1715-1789) – including Voltaire (1694-1778), Diderot (1713-1784) and D'Alembert (1717-1783) – celebrate Bacon alongside, and even above, scientists like Galileo, Newton and Descartes for liberating the world from religious superstition (Rees, 2002:383-384). Charles Darwin, who also considered his approach to science explicitly Baconian,⁶⁸ continues to advocate this same separation – as evident from a conversation he had with the Vicar of Down:

We had been speaking of the apparent contradiction of some supposed discoveries with the Book of Genesis; he said, 'you are (it would have been more correct to say you ought to be) a theologian, I am a naturalist, the lines are separate. I endeavour to discover facts without considering what is said in the Book of Genesis. I do not attack Moses, and I think Moses can take care of himself.' (Darwin, 1887a:288).

Therefore, in the same way that Luther and Calvin freed the expositor from the tyranny of ecclesiastical encumbrances and counsels, Galileo and Bacon liberated scientists from the hegemony of theologians. As mentioned earlier, this legacy can be seen through the eyes of Huxley (1859:8), as he challenged a later generation to become the “heirs of Bacon and acquitters of Galileo” by accepting Darwin's big idea.

Paradoxically perhaps, Bacon did allow his theology⁶⁹ to inform and shape his science. In apparent contradiction to some of the ideas espoused above, he states that “all knowledge is to be limited by religion” (Bacon, 1884:81). And he does not hesitate to describe the book of Job as “pregnant and swelling with natural philosophy; as, for example, cosmography, and the roundness of the world” (Bacon, 1861:57). Even more poignantly, he finds unusual inspiration from Genesis 3. Bacon (1901:290) argues, in his conclusion to *Novum organum*, that what had been lost by man due to the fall could be retrieved to some extent by scientific progress. Harrison (2008:262) claims that this one insight became an “enduring theme” permeated throughout Bacon's writings.

In 1660, Bacon's vision for science inspired the founding of the Royal Society of London (Sprat, 1743:35).⁷⁰ More than a century later, the Geological Society of London, the Astronomical Society of London⁷¹ and the British Association for the Advancement of Science all followed suit, adopting an explicitly Baconian approach to science and religion (Rudwick, 1963:325-355; Orange, 1975:277-278). Therefore, as with Galileo, Bacon can be used to one of two ends: either as an example of harmony between science and Scripture, or as a reason for their separation. As the sixteenth and seventeenth

⁶⁷ Playfair (1822a:466-467) and Gliddon (1857:509) also cite Bacon in the same manner to discount the relevance of Genesis 1-11 in geology and chronology.

⁶⁸ Bacon's influence upon Darwin can also be ascertained from the admission he made in his autobiography where he wrote, “I worked on true Baconian principles, and without any theory collected facts on a wholesale scale” (Darwin, 1958:98).

⁶⁹ In appraising Bacon's theological views, serious character allegations need to be taken into consideration. His homosexual orientation, his involvement with state bribery and corruption, and his admiration of Machiavelli's writings prevent any stereotyping of his Christian faith (Zagorin, 1999:12-14).

⁷⁰ The poem at the beginning of this work also includes a provocative line in honour of Bacon: “In deserts [*sic*] but of small extent, Bacon like Moses, led us forth at last... and from the mountain's top of his exalted wit, saw it himself, and shew'd us it” (Sprat, 1743:§v).

⁷¹ Later renamed to the Royal Astronomical Society in 1831.

centuries will show, these trends often run in parallel. Any sincere appraisal of the history of science needs to acknowledge both sides of the story.

2.5 Harmony in the sixteenth and seventeenth centuries: Genesis inspires science

In the two centuries immediately following the Protestant Reformation, most scientists took Genesis 1-11 as history, and in some cases, found inspiration from these chapters to aid their discoveries.

2.5.1 Mercator believed that Genesis was foundational to science

Nearly a century before Galileo's hostile encounter with the Catholic church, Gerardus Mercator (1512-1594), had also faced persecution at the hands of the Inquisition. In his case, he was charged with the "heresy" of Lutheranism and incarcerated for several months in Rupelmonde Castle (Grigg, 2016:54). Mercator had a high view of Bible and devoted himself to the study of Scripture producing, amongst other things, a harmony of the gospels (Hall & Brevoort, 1878:185). His love for God, however, inspired more than just his theology. It also infused him with a love for science. Mercator became proficient in cartography, mathematics, astronomy, geography and surveying (Karrow, 2000:5). But perhaps one of his greatest accomplishments was the creation of a global map that "revolutionised navigation" employing a geometric projection which is still used by "virtually all nautical charts published today" (Grigg, 2016:54,55). Yet Mercator's prolific scientific career can be attributed with more specificity than merely his love for God. In particular, it was his understanding of Genesis 1-11, taken in its literal sense, which liberated him from the shackles of Aristotelianism (Hall & Brevoort, 1878:165). In the opening dedication of his *Harmonisation of the Gospels* he wrote:

When I saw that Moses' version of the Genesis of the world did not fit sufficiently in many ways with Aristotle and the rest of the philosophers, I began to have doubts about the truth of all philosophers and started to investigate the secrets of nature.⁷² (cited by Grigg, 2016:54)

For Mercator (2000:52-53, 156), Genesis was not a handicap to science, but its very foundation.⁷³ This emphasis can also be found in the opening chapter of *Atlas* where he wrote a substantial thesis on Genesis 1 to describe the aim of all cosmography. Here he thanks God for revealing to mankind the "true fabric of the world, its beginning and the source of all philosophy and all truth, through Moses and the other Prophets" (Mercator, 2000:42).

⁷² Original quote in Latin: "at cū viderem mundi Genesin apud Mosen in multis non satis cum Aristotele reliquisque Physicis conuenire, cœpi ego de veritate omnium Philosophorum addubitare, et ipse in naturæ mysteriis indagare, ita vt aliquando Louanio Antuerpiam vsq, voluntarie solus proficiscerer, et altissimè de mysteriis naturæ perscrutari incœpi, ita vt nonnunquam tædio me afficerent assequentium à tergo vana colloquia et moræ occasionem fingerem." (Mercator, 1592:dedicatory letter; also cited by Van Raemdonck, 1869:25)

⁷³ Mercator (2000:80) took the days of Genesis in their literal sense, reasoning that, "God established the seven days of the week not only as a memorial of the creation, but that he also intended the beginning of each day to be taken from the setting of the sun and the evening." Yet, at the same time, he adopted an unorthodox – albeit hypothetical – view of animal death, proposing that animals would have had to die even in a perfect world because of overpopulation (Mercator, 2000:138).

2.5.2 Vesalius treated Genesis as history

Whilst Mercator was mapping out the world, Andreas Vesalius (1514-1564), who studied with him at the University of Louvain,⁷⁴ was mapping out the human body (Ramachandran, 2015:33). Today, Vesalius is commonly recognised as the “founder of modern anatomy” (Ball, 1910:113). And his single most enduring work, *De humani corporis fabrica*,⁷⁵ which has been called “one of the finest products of the sixteenth-century press” has also been described as Vesalius’s “paean to the magnificent handiwork of the Creator” (Poynter, 1964:321; Hannam, 2009:256). In this magnum opus, he clearly expresses his belief in the literal historicity of Genesis 1 and 2 stating, “perhaps we should confess that our Creator, in forming Adam from the dust of the ground, put forth all his art and ingenuity to prevent this from ever being fully established, even though it were studied by illustrious scholars over a long period of time” (Vesalius, 1999:196).

2.5.3 Gilbert trusted the God-inspired Moses

In 1600, William Gilbert (1540-1603), the English physician and astronomer, published *De magnete*, a treatise which would earn him the title of “the Galileo of Magnetism” or “the father of modern electricity” (Mottelay, 1893:xiii).⁷⁶ In this famous book, Gilbert (1893:328-329) attributes the foundations of his science to the “wonderful wisdom of the Creator” who “implanted” in the earth various forces to animate all things. In another passage, after referring to the “God-inspired Moses”, he chastises theologians for capitulating to Aristotelian views of the universe, calling their philosophies “old wives’ tales” (Gilbert, 1893:324-325). For these reasons and others, Gilbert became one of the earliest Copernicans (Mottelay, 1893:xii). But the greatest Copernican was probably Johannes Kepler (1571-1630).

2.5.4 Kepler’s theology inspired his astronomy

Although Galileo typically takes the credit for “proving” heliocentricity, several recent studies have argued that it was Kepler, not Galileo, who finally established the veracity of the Copernican system (Hannam, 2009:299). At the same time, he also discovered the three laws of planetary motion (Barker & Goldstein, 2011:88). And like Galileo, Kepler also had one of his books banned by the Catholic church. *Epitome astronomiae copernicanae* was listed as heretical from 1621 to 1835 (Benedictus, 1744:40; Mendham, 1840:10). But religious opposition does not negate the fact that Kepler’s science was supported by strong theological convictions. Indeed, Barker and Goldstein (2001:99) insist that *Mysterium cosmographicum*⁷⁷ (1596), Kepler’s first major work, “must be read as essentially theological.” And according to the great Kepler scholar, Max Caspar (1993:374), Kepler’s approach to theology and science can be summarised by: “God is the beginning and end of scientific search and striving.” Even the famous description of science

⁷⁴ In further support of the fact that Scripture did much to advance the cause of science, it should be noted that, at the time, Louvain’s reputation was primarily as a school of theology (Gill, 1914:577).

⁷⁵ i.e. On the fabric of the human body

⁷⁶ Gilbert’s writings eventually inspired Robert Boyle (1627-1691) who went on to become one of the greatest scientists in history (Fulton, 1960:120).

⁷⁷ “The Sacred Mystery of the Cosmos”

as “thinking God’s thoughts after him”⁷⁸ has been attributed to Kepler (Morris, 2012:21; Brooke, 2000:204).

Kepler initially intended to become a Lutheran minister and studied for two years at a seminary at Maulbronn (Barker & Goldstein, 2001:96). When he finally embarked on his scientific career, his religious zeal continued unabated. He professed, “I am a Christian... I hold fast to it. I have not learned to play the hypocrite. I am in earnest about religion; I do not make a game of it”⁷⁹ (Kozhamthadam, 2002:887).

Unlike Bacon and Galileo, Kepler’s faith was conspicuous in all his scientific writings. Most of his major treatises begin and end with praise to God (Kozhamthadam, 2002:888). In the hymn which concludes *Harmonices mundi*⁸⁰ (1619), Kepler (1997:498) euphorically proclaims, “Praise Him heavens; praise Him, Sun, Moon, and Planets, with whatever sense you use to perceive, whatever tongue to speak of your Creator, praise Him...” In clear support for the historicity of Genesis 1-11,⁸¹ he derives insight on the “antiquity of melody” citing verses from chapter four in support of his argument (Kepler, 1997:130). But the intimate union between his theology and science is perhaps best expressed from a passage in *Mysterium cosmographicum*, in which he writes, “I think that from the love of God towards mankind many causes of things in the world may be deduced”⁸² (Kepler, 1981:106).

The “two books” of revelation also feature prominently in Kepler’s (1951:31) thought. In this case, however, the adoration of God’s word leads him to deeply revere the study of God’s world. As Kozhamthadam (2002:894) points out, “This conclusion had an extremely significant consequence: science, which is the study of the Book of Nature, became a profession very analogous to Scriptural theology.” Indeed, so closely did Kepler (1997:304) unite his theology with his science, he could write, “Geometry, which before the origin of things was coeternal with the divine mind and is God himself.” In Kepler’s mind, this placed astronomers on an equal footing with priests⁸³ (Kozhamthadam, 2002:894). Evidence of his enduring legacy and influence on biblical interpretation can be seen in how frequently his name occurs in various Genesis commentaries.⁸⁴ Therefore, as with many other scientists, Kepler left his mark, not only in the sciences, but also in theology.

⁷⁸ The exact quote has not been found within the extant Kepler corpus, although it could summarise a longer passage from a letter to Herwart von Hohenburg, dated 9th and 10th of April, 1599: “Let us therefore not try to discover more of the heavenly and immaterial world than God has revealed to us. Those laws are within the grasp of the human mind; God wanted us to recognize them by creating us after his own image so that we could share in his own thoughts” (Kepler, 1951:50).

⁷⁹ Kepler’s letter to Herwart von Hohenburg, 16 December 1598

⁸⁰ i.e. *The Harmony of the World*

⁸¹ In *Mysterium cosmographicum*, he states that the world is only “six thousand years” old (Kepler, 1981:127).

⁸² Original quote in Latin: “Etenim existimo ex amore Dei in hominem causas rerum in mundo plurimas deduci posse” (Kepler, 1596:27).

⁸³ Or even more radically, according to Manuel (1974:32), both Galileo and Kepler intimated that “in the eyes of God” the student of nature was “manifestly superior” to the student of Scripture (Manuel, 1974:32). Thus, “If theologians needed help with understanding planetary references in the Bible, Galileo counselled them to turn to specialists in astronomy” (Manuel, 1974:32).

⁸⁴ See Arnold (1875:11, 261), Gridley (1913:86), Jones (1897:93), Kalisch (1858:1, 24), Lange (1869:144, 187), Warring (1875:247), and Whitelaw (1881:23).

2.5.5 Napier believed in a literal Genesis

In 1620, Kepler dedicated his *Ephemerides novae motuum coelestium*⁸⁵ to John Napier (1550-1617) whom he considered to be the “greatest man of his age”⁸⁶ (Stewart & Minto, 1787:18). This generous attribution to Napier was owing to his discovery of logarithms – a feat which had made Kepler’s extensive astronomical calculations significantly easier (Napier, 1834:367). But Napier’s first major contribution was not in mathematics, but theology. In 1593, he finished a commentary on the book of Revelation which has been “regarded as of considerable importance in the history of Scottish theological literature” because in it he employs “a method of interpretation much in advance of the age” (Hobson, 1914:9).⁸⁷ In the first proposition of this commentary, Napier’s (1593:1) argument affirms a literal six-day creation.

2.5.6 Guericke deferred to Genesis as relevant to science

Otto von Guericke (1602-1686) was another scientist whose love for God’s word inspired his love for God’s world. Guericke, a German scientist and inventor,⁸⁸ is remembered today for his seminal work in pneumatics, the physics of vacuums and electrostatics (Conlon, 2011:101). What people tend to forget is that he was also a man “soaked in Scripture” (Conlon, 2011:86). Guericke expected to find harmony between Scripture and science. Throughout his scientific writings there are numerous quotations from the Bible. In 1672, he published his magnum opus, *Experimenta Nova*, “on the great questions of cosmology and ultimate reality” (Conlon, 2011:84-85). In this treatise he refers to God no less than 77 times. In particular, Guericke (2012:72) uses the early chapters of Genesis as an authoritative guide on the subject of space and matter. In one instance, he argues, “From these quotations, it is evident that expanse, firmament, and sky are one and the same thing” (Guericke, 2012:73).

2.5.7 Boyle’s understanding of the universe depended on Genesis

Guericke’s *Mechanica hydraulica-pneumatica* eventually won the attention of Robert Boyle (1627-1691) who, being inspired by this work, did his own research in vacuums and air pressure (Conlon, 2011:70). Boyle is now famous for his contributions to chemistry⁸⁹ and physics, deriving a law which has carried his name into the 21st century. He is also remembered by many today as the “Father of modern chemistry” (Morris, 2012:24; cf. Masson, 1927:57-78). Fulton (1960:125) writes, “It is probably true that never before in the history of science has such an outpouring come from one fertile pen and brain.” Boyle’s brilliance was obvious from an early age. By the time he was fourteen, he was studying under Galileo in Florence

⁸⁵ i.e. “new ephemerides of celestial motions”

⁸⁶ At the time Kepler was unaware of Napier’s death (Hobson, 1914:17).

⁸⁷ Napier’s apocalyptic interpretation, following the historicist school, was influential in encouraging “the millennial enthusiasm of the English Civil war era” in which Christ’s return was deemed by many to be immanent (Clouse, 1974:113). In hindsight, however, his explanation of Revelation has little to commend it, being too engrossed with people and events of his own era to stay relevant even a century later. The most egregious example, perhaps, was Napier’s (1593:12) prediction that the world would end in 1786.

⁸⁸ One of Guericke’s most memorable inventions was the air-pump which he demonstrated to the Emperor of Germany, Ferdinand III (Doremus, 1893:543).

⁸⁹ Masson (1927:77) claims, “Boyle dragged chemistry out of a welter of sophisms and charlatanry, endowed it with life and ideals and material, and set it forward upon the true path.”

(Moulton, 1941:381). Thereafter he soon joined a scientific society called the “invisible college” which, under his direction,⁹⁰ became known as the Royal Society of London (Kaplan, 1998:115). The overall goal the society was to promote the knowledge of “natural things... To the glory of God, and the good of mankind” (Sprat, 1734:134). As Rossi (2001:199) relates, Boyle was “one of the most influential members of the new institution.” In later years, he became - “more than anyone else... the hero of the society’s early protagonists” (Hunter, 2007:2).

But Boyle was more than a successful natural philosopher. His keen interest in theology and love for the Bible led him to study Hebrew, Greek and Syriac (Moulton, 1941:382). And like so many other prominent scientists from this period, it was Boyle’s theological studies that laid the foundation for his scientific research (Fulton, 1960:121, 131). In *A Disquisition about the Final Causes of Natural Things*, Boyle (1688:38) argued that the scientific enterprise should be infused with a desire to “acknowledge God, to admire him, and to thank him” for his creation.⁹¹ Echoing Kepler’s sentiment, scientists are regarded as the “priests of nature” (Boyle, 1688:34). Boyle (1688:80-81) employs Genesis as an authoritative and historically-accurate text on questions relating as to why God created certain parts of his universe.⁹² In *The sceptical chymist* (1661), Boyle (1910:71) even entertained the idea that water was the “primitive and universal matter” based on Genesis 1:2. But we find his most explicit statements on how Genesis relates to science in *The excellency of theology compar’d with natural philosophy* (1664), where he insists that the world is not as old as some scientists have alleged because of the chronology presented in the first eleven chapters of Scripture (Boyle 1674:20-22). Boyle (1674:21-22, 73-74) states that Genesis 1-11 is not to be taken as allegory but as literal history including the six days of creation. Evidently, Boyle finds no problem maintaining the literal sense of the Mosaic narrative whilst pursuing his interests in natural philosophy. Indeed, he views any effort to understand history and science *without Scripture* as a fool’s errand (Boyle, 1836:73-74).

Boyle was also one of the first proponents of the classic “intelligent design” argument. Appealing to the ingenious construction of a Strasboursch clock, Boyle (1663:88) anticipated William Paley’s (1743-1805) watchmaker analogy by more than a century.⁹³ At the time, it became increasingly common for scientists to ascribe creative abilities more to nature than to God with the result, “that instead of the true God, they have substituted for us a kind of goddess with the title of ‘nature’” (Boyle, 1996:62). In *A free inquiry into the vulgar notion of nature*, Boyle (1725:118-119) explains that, while these men would hesitate to affirm “that

⁹⁰ Boyle was elected to stand as the president of the Royal Society in 1680, but he refused the position because he was unwilling to take the oath (Moulton, 1941:381).

⁹¹ Boyle (1688:32-33) blames Descartes in particular for discouraging scientists from looking for the “final causes” of things. In this way, he argues, God is robbed of the praise and admiration he is due.

⁹² The implicit assumption here is that this only applies to those things for which a divine explanation is provided in Scripture. The example which Boyle (1688:79-80) cites comes from Genesis 1:14-18 concerning the purpose for which God created the sun, moon and stars – namely, “to give light upon the earth.”

⁹³ Boyle (1725:129) developed this line of reasoning further, comparing the world to a “great machine” and the human body to a “smaller engine”. His challenge to unprejudiced scientists stands: “Thus when a man sees a human body skilfully dissected, he cannot, if he be intelligent and unprejudiced, but acknowledge, that there is a most curious and exquisite contrivance in that incomparable engine, and in the various parts of it, which are admirably fitted for distinct and determinate uses. So that I cannot suppress the manifest tokens of wisdom and design, that are to be observed in the wonderful construction and orderly operations of the world and its parts; but endeavour to refer these indications of wisdom to the true and proper cause” (Boyle, 1725:122).

God and nature are the same thing, ... in practice, their admiration, and their praises, are frequently given to nature, not to God.” These concerns, amongst others, led Boyle to carefully consider how his posterity might contend for God’s truth in the face of this growing scepticism. And so, before he died, he annexed to his last will and testament a codicil in which he appointed and provided funding for a series of annual lectures to be given that would “satisfy real scruples” and “answer such new objections and difficulties, as might be started, to which good answers had not been made... to be the proof of the Christian Religion against notorious Infidels, viz. Atheists, Theists, Pagans, Jews, and Mahometans” (Birch, 1772:cxxxviii-cxxxix). The enduring influence of these Boyle Lectures can even be found in several Genesis commentaries reviewed in this dissertation.⁹⁴

2.5.8 Hooke referred to Genesis as history

Boyle’s brilliant accomplishments owe much to his capable protégé, Robert Hooke (1635-1703). Hooke has been described as “one of the most brilliant” scientists of his generation, and “perhaps the most outstanding figure in the Royal Society” (Gunther, 1930:vii, xiv). His inventions include the watch spring, anchor escapement, pendulum clocks, the wheel barometer, and – with the assistance of Boyle – the first air-pump.⁹⁵ Hooke was a polymath, making meaningful contributions in architecture, astronomy, mechanics, geometry, chemistry, physics, anatomy and palaeontology.⁹⁶ But it was his seminal work in microscopic research that earned him a place in the scientific hall of fame as the “father of Microscopy”⁹⁷ (Gunther, 1930:ix). Hooke’s *Micrographia* became the “first major contribution to natural philosophy published under the [Royal] Society’s *imprimatur*” (Wood, 1980:20). As is evident from the manner in which he wrote this book, Hooke was not embarrassed to hide or censor his theological motivations for science.⁹⁸ In the opening paragraphs of *Micrographia*, he explains how the minute bodies on “the point of a sharp small needle” provide ample evidence of God’s omnipotence (Hooke, 1665:2).⁹⁹ Indeed, throughout the book, Hooke (1665:95, 124, 134-135, 179, 189, 193, 195, 198, 207) endeavours to remind his readers of the infinite greatness and wisdom of God as portrayed in his creation.¹⁰⁰ *Micrographia* also reveals how Hooke’s (1665:154) belief in the literal historicity of Genesis 1-2 shaped his love for science:

⁹⁴ Groves (1861:56), Hoare (1860:xi, 16), Rendell (1852:39) and Stackhouse (1795:xi, 243) all refer to “The Boyle Lectures” in their commentaries.

⁹⁵ Gunther (1930:xv) also lists “an instrument for measuring the velocity of falling bodies; new spectacles for divers; new kinds of hygrosopes; an engine for measuring the force of gunpowder; an instrument for grinding optic glasses; his double telescopes, etc.”

⁹⁶ Henderson (1910:671) has argued that Hooke’s wide-ranging interests were actually detrimental to his overall impact in the sciences: “His scientific achievements would probably have been more striking if they had been less varied. He originated much, but perfected little.”

⁹⁷ Hooke has also been regarded as the “founder of scientific meteorology.” (Westfall, 1930:90)

⁹⁸ As Waller (1930:66-67) records: “He always exprest [*sic*] a great veneration for the eternal and immense cause of all beings, as may be seen in very many passages in his writings, and seldom received any remarkable benefit from God without thankfully acknowledging the mercy; never made any considerable discovery in nature, invented any useful contrivance, or found out any difficult problem, without setting down his acknowledgement to the Omnipotent Providence, as many places in his diary testify, frequently in these or the like words, abbreviated thus, D O M G M, and was a frequent studier of the Holy Scripture in the originals.” Hooke’s love for theology probably owed much to his father who was a minister (Henderson, 1910:670).

⁹⁹ Not unlike the inscrutable complexity of the sub-atomic world known to modern science, Hooke marvels at the feat of engineering accomplished by God in the abundance of life he discovers on the point of a needle.

¹⁰⁰ Hooke (1665:95) even ascribed the pores in wood in a to the “Great and Alwise [*sic*] Creator.”

Who knows but Adam might from some such contemplation, give names to all creatures? If at least his names had any significancy in them of the creature's nature on which he impos'd it; as many (upon what grounds I know not) have suppos'd; and who knows, but the Creator may, in those characters, have written and engraven many of his most mysterious delights and counsels and given man a capacity, which, assisted with diligence and industry, may be able to read and understand them.

This portrayal of Hooke, however, has been challenged. Keith Thomson (2003:211, 210), professor of natural history at the University of Oxford, argues instead that "Everything in Hooke's world view was opposite to the Biblical view" and that it was, in fact, Hooke who "helped to launch our evolutionary age."¹⁰¹ But this alternative perspective is hard to reconcile with Hooke's common use of Genesis 1-11 in coming to scientific conclusions. By way of example, in his lectures on light, Hooke (1705:97) infers that the "first active power" in the universe was light on the basis of Genesis 1:3. Then again, in his treatise on comets and gravity, he concludes that motion and matter should be understood as the "two fundamental and primary powers" because of Genesis 1:1-3 (Hooke, 1705:174-175). The passage which Thomson (2003:211) cites as apparent evidence of Hooke's more secular outlook can be found in his discourse on earthquakes where Hooke doubts that Noah's flood could account for the fossil record (Thomson, 2003:341). But what Thomson fails to mention is that Hooke never doubts the historicity of the flood itself. For more than a hundred pages, Hooke (1705:314-443) engages with the details of Genesis 6-8 in great depth, never treating the text as anything less than inspired history.

In a similar vein, Ito (1988:303) claims that Hooke did not accept a biblical chronology. But neither is this obvious from the corpus of writings attributed to him. As Rudwick (1997:194) puts it, for Hooke, "Fossils simply had the potential to supplement more conventional sources of historical information." In other words, although Hooke (1705:411) was the first to suggest that a natural history of the earth could be constructed from fossils, the chronology which he envisaged was never intended as a replacement of Genesis 1-11, but rather a corroboration of it (Gunther, 1903:x).

2.5.9 Van Leeuwenhoek rejected spontaneous generation because of Genesis

Meanwhile in Holland, shortly after Hooke produced the world's first illustrated book on microscopy, Antonie van Leeuwenhoek (1632-1723) discovered bacteria, thereby establishing himself as the first bacteriologist and father of microbiology (Gest, 2004:189, 194; Harris, 1921:150; Hall, 1989:249). Importantly, van Leeuwenhoek's successes can be attributed, in part, to his stance on Genesis. This led him to question the accepted science of his day and test everything (Harris, 1921:158, 160). Although many scientists assented to spontaneous generation, van Leeuwenhoek's (1800:Part 1:24; 1807:185, 214) belief in biblical creation thereby helped him to reject the idea and discover a previously-unknown microbiological alternative. Taking the first chapter of Genesis as history, he argued that all observable

¹⁰¹ The converse could be argued just as easily by reciting Hooke's intelligent design argument in *Micrographia*: "So may it be with these *most curious engines* of insects bodies; the all-wise God of Nature, may have so ordered and disposed the *little Automatons*, that when nourished, acted, or enlivened by this cause, they produce one kind of effect, or animate shape, when by another they act quite another way, and another animal is produc'd. So may he so order several materials, as to make them, by several kinds of methods, produce *similar Automatons*." (emphasis mine; Hooke, 1665:194)

flora are of the same species as those trees and plants that God made in the first week of creation (van Leeuwenhoek, 1807:297; cf. 1807:344, 1800:Part 2:173-174). Throughout his writings, van Leeuwenhoek (1800:Part 1:24, 41, Part 2:168; 1807:185) attributes what he sees through his microscope to the “Almighty Creator”.

2.5.10 Steno’s geology depended on Genesis

Joining Hooke, Nicholas Steno¹⁰² (1638-1686) became one of the greatest geologists¹⁰³ of the seventeenth century (Toulmin & Goodfield 1965:88). He is commonly regarded as the father of modern geology and stratigraphy (Walker, 2008:93; Davidson, 2000:329). It is remarkable that Steno’s principles of stratigraphy are employed by geologists even today (Walker, 2008:93). More remarkable, perhaps, to the modern conception of science, Steno did not hesitate to use Genesis 1-11 for guidance in geology.¹⁰⁴ This has surprised and frustrated some historians of science who consider the relationship between Genesis and geology to be inherently antithetical (Ashworth, 1986:146). Yet far from impeding his geology, Steno’s belief in these eleven chapters provided explanations which geology could never yield on its own.¹⁰⁵ In his geological description of Tuscany, he points out that the strata by itself is insufficient to provide a geologist with the requisite historical circumstances to explain their origin, but Genesis “teaches us that the waters welling from a single source overflowed the whole Earth” (Steno, 1916:263-264). Steno (1916:258-259, 265, 266; 1969:99) not only accepts the historicity of Noah’s flood as portrayed in Genesis 6-8; he also accepts its chronology. Contrary to what some modern historians insinuate,¹⁰⁶ he did not feel that his geology was ever compromised by the plain reading of Scripture. In fact, he argues otherwise:

In regard to the time of the universal deluge, secular history is not at variance with sacred history, which relates all things in detail. The ancient cities of Tuscany, of which some were built on hills formed by the sea, put back their birthdays beyond three thousand years; in Lydia, moreover, we come nearer to four thousand years: so that it is possible thence to infer that the time at which the Earth was left by the sea agrees with the time of which Scripture speaks. (Steno, 1916:266)

Zoologically, Genesis 1-11 also holds its ground. Steno (1969:251, 253) believes that the effects of the curse and fall of man, as documented in Genesis 4, provide the naturalist with an invaluable forensic presupposition to explain various phenomena in nature. There can be no doubt that Steno’s (1969:259)

¹⁰² Also known as Niels Steensen (Danish).

¹⁰³ Steno’s geological achievements place him as one the greatest scientists of the seventeenth century. Or as Ashworth (1986:145) puts it: Steno “is seldom mentioned in the same breath with Pascal or Descartes, yet he was arguably a more original thinker than either.” Yet, before Steno became a renowned geologist and palaeontologist, he was a highly successful anatomist. His achievements in anatomy include: discovering the parotid salivary duct, refuting Descartes’ theory that tears were secreted by the brain, and proving that the heart is a muscle (Maar, 1910:ii,xix,xvii).

¹⁰⁴ This dependence upon Genesis has irked more modern geologists, like William Herbert Hobbs (1864-1953), who view Steno’s biblical appropriations as a great impediment to his geology: “In treating the length of geological time, Steno was clearly hampered by the church doctrine of the time, to which he himself subscribed. Accepting as correct the Usher chronology of the Scriptures and the Noachian conception of the universal deluge, it is small wonder that Steno fell into error in evaluating geological time.” (Hobbs, 1916:174)

¹⁰⁵ Steno (1916:263-264) provides two examples to show that where “Nature ... is silent, Scripture speaks.”

¹⁰⁶ Gregory (1921:125) claims, “Under the influence of these ideas geologists up to the beginning of the nineteenth century felt compelled to squeeze all geological history into six or seven thousand years.” Israel (2001:21) also states that Steno “concluded that faith and science cannot be easily or satisfactorily reconciled and abandoned the latter completely to champion the former.”

theology¹⁰⁷ enriched and inspired his passion for science and technology.¹⁰⁸ For Steno, science was meaningful because of the conviction that that everything originated from an infinitely creative mind.

2.5.11 Ray gave more authority to Scripture than science

Like Hooke and Steno, John Ray (1627-1705) also found fossils fascinating. But his real expertise was shown in botany and zoology. Ray has been described as, “the greatest botanist in the memory of man” (Smith, 1846:65). He was the first to define the concept of species (Lamont, 1998:52). In 1607, Ray joined Boyle as one of the founding members of the Royal Society (Morris, 2012:24). Indeed, Ray did for biology what Boyle, who was born the same year, did for chemistry (Lamont, 1998:51). But before Ray was known as a botanist or biologist, he was known as a preacher (Derham, 1846:10-11; Cuvier & Thouars, 1846:96). By 1660, his theological accomplishments had amply justified his ordination in the church (Cuvier & Thouars, 1846:96). This was the epistemic foundation that both inspired and invigorated his scientific career.

His most popular book, published in 1691, was entitled, *The wisdom of God manifested in the works of creation*. In this apologetic discourse, Ray (1743:preface) set out to demonstrate and illustrate God’s “infinite power and wisdom” as displayed in his creation. Taking his cue from Psalm 8, he determined that this treatise would be more “theological than philosophical” (Ray, 1743:preface). The book quickly became an international best-seller, going through several editions and receiving “universal applause” (Derham, 1846:44).

Ray’s legacy in the natural sciences is hard to ignore which, in turn, makes his overt theological presuppositions somewhat problematic for those who prefer to view science as a liberation from Christian dogmatism. One such example can be found in Jeske (1986:587) who claims that “*Wisdom*, [Ray’s] masterpiece, clearly subordinates theology to concrete observation and the empirical method.” But the converse is true. As Bowler (2003:37) points out, Ray (1713:172-173) ended up doubting the *scientific* notion that fossils were once living creatures because he could not reconcile this with his *theological* belief that God would never create a species to let them go extinct. Jeske’s re-interpretation of Ray seems to serve a prior commitment. He has already decided that Ray’s work should be seen as a “direct ancestor of Darwin’s *On the Origin of Species*” (Jeske, 1986:587). This kind of historiography may do well to celebrate Darwin, but it is hard to reconcile with Ray’s conspicuous agenda.¹⁰⁹

¹⁰⁷ The authenticity of Steno’s faith can be seen from the fact that he spent the last years of his life from 1677 to 1686 serving as a Catholic bishop in Northern Germany and writing various theological treatises (Kardel & Maquet, 2018:xlvi-xlix).

¹⁰⁸ Anticipating the advent of telecommunication by more than a hundred years, Steno (169:259,261) writes, “We communicate to each other with our eyes, with our fingers, by writing and pictures, and who knows if there are not many other ways of communication hidden in the abyss of the possible.”

¹⁰⁹ Consider, for example, the manner in which Ray (1743:36-37) attacks any who would question the *prima facie* of intelligent-design: “A wonder then it must, needs be, that there should be any man found so stupid and forsaken of reason, as to persuade himself, that this most beautiful and adorn’d world, was, or could, be produced by the fortuitous concourse of atoms... For if this concourse of atoms could make a whole world, why may it not sometimes make, and why hath it not somewhere or other in the Earth made, a temple, or a gallery, or a portico, or a house, or a city? which yet it is so far from doing, and every man so far from believing, that should any one of us be cast, suppose, upon a desolate island, and find there a magnificent palace, artificially

Ray (1743:38), like Boyle, disapproved of the trend to exclude the “consideration of final causes from natural philosophy.” Citing René Descartes (1596-1650) and his followers as the main culprits behind this new direction in the sciences, Ray warns his readers that this would rob God of his glory and hinder people from acknowledging him in creation.

Although Ray’s theological fervour is obvious, his understanding of Genesis 1-11 is harder to discern. In his geological observations of Amsterdam, he encountered a layer of sand and cockle-shells buried a hundred feet beneath below the surface. To Ray (1673:8), this is “a strange thing, considering the novelty of the world, the age whereof according to the usual account is not yet 5600 years.” Even here, it is unlikely that he had doubts about biblical chronology.¹¹⁰ If he did, it is strange that he went on to write *Three physico-theological discourses*¹¹¹ (1713) in which he repeatedly refers to the creation story as history (Ray, 1713:5, 399-400). Neither does he permit science to undermine the “letter of Scripture” in Genesis 1 concerning how God made the world (Ray, 1713:34). What Ray does offer, however, are some interesting speculations¹¹² on how various phenomena might explain the text. For example, in Genesis 1:2, he suggests that God might have initially created a state of chaos “containing in itself the principles of all simple inanimate bodies” (Ray, 1713:6). He also conjectures that God could have used earthquakes caused by “subterraneous fires” to bring about the separation of land and water spoken of in Genesis 1:9 (Ray, 1713:9-12). Later, on his journey around England, he discovered petrified shells hundreds of miles from the ocean. This presented him with an inexplicable problem: how was it possible for the highest mountains of Europe to have once been covered by the sea? But again, although he asks the question, Ray (1673:125; 1713:146-147) still considers the account of “the universal deluge” in Genesis 6-8 to be factual. He does not depart from the literal historicity of Genesis despite the scientific problems it raises (Ray, 1713:171-172).

Ray’s scientific perspective on creation did not go unnoticed by the Bishop Simon Patrick (1626-1707) who, in his commentary on Genesis, eagerly cites Ray’s views in support of his exegesis (Patrick, 1695:23, 134, 144). Indeed, the relationship was reciprocal. Ray (1713:10) also expresses his appreciation for the bishop’s “excellent commentary upon Genesis”: a commentary in which Patrick (1695:preface) condemns all but the literal interpretation of the text.¹¹³ That Patrick found it necessary to make such remarks in his commentary indicates that the so-called “plain reading” of Genesis had some dissenters as early as the late seventeenth century.

contriv’d according to the exactest rules of architecture, and curiously adorn’d and furnish’d, it would never once enter into his head, that this was done by an Earthquake, or the fortuitous shuffling together of its component materials.”

¹¹⁰ Especially since Ray (1713:122) accepted the ages of the prediluvian patriarchs listed in Genesis 5.

¹¹¹ This was Ray’s last major work, published posthumously in 1713 as the 3rd and final edition of *Miscellaneous discourses*, first printed in 1692.

¹¹² These speculations he held to tentatively, “being as ready to relinquish them upon better Information, as I was to admit and entertain them” (Ray, 1713:120).

¹¹³ It is worth noting that Patrick’s (1846:2-3) appreciation for literal interpretation of Genesis did not stop him from propounding one of the earliest versions of the “gap theory” and suggesting that the six days encompass only the creation of the earth, excluding the rest of the universe. Patrick’s unorthodox rendering of the text provided ample motivation to both Whiston (1737:5) and Chalmers (1836a:253) to develop this line of reasoning further.

2.5.12 Grew believed that theology is the beginning and end of philosophy

Nehemiah Grew (1641–1712) was also a founding member¹¹⁴ of the Royal Society and a contemporary of Boyle and Hooke. And although he knew Ray, they had “hardly any personal contact” (Lefanu, 1971:502). Grew was competent in astronomy, mathematics, geometry, mechanics, chemistry and economics; but his specialty lay in botanical anatomy (Johnson, 1931:464). In 1682, he reached the high point of his career, publishing *The anatomy of plants*. It was a work that not only gained him his reputation as a co-founder of plant anatomy but also clearly displayed his love for God (Arber, 1913:44).¹¹⁵ In it he states that, “Theology [is] the beginning and end of philosophy” (Grew, 1672:79). Joining Boyle and Ray, Grew (1672:147-148; 1682a:39, 79, 80; 1682b:2-3, 8) repeatedly uses his botanical discoveries to deliberate on the wisdom and power of God.

In one of his last works, *Cosmologia sacra* (1701), Grew (1701:title) set out to “demonstrate the truth and excellency of the Bible” especially against the radical views of Baruch Spinoza (1632-1677)¹¹⁶ (Johnson, 1931:464). It is here that his theological stance on Genesis 1-11 becomes most apparent. Grew (1701:185-186) accepts the chronology given in Genesis 5, the universality of the flood, the story of the ark, and the historical Adam. On these grounds he rejects the racist polygenic ideas espoused by Isaac La Peyrère (1596-1676).¹¹⁷ In doing so, Grew aligns himself with the mainstream viewpoint on human origins typical to seventeenth-century anthropology (Kidd, 2006:66). But although Grew resisted the iconoclastic ideas promulgated by La Peyrère and Spinoza, his understanding of the supernatural was mellowed by the increasing scepticism of miracles. In *Cosmologia sacra*, he explicitly rules out the possibility that Aaron’s staff turned into a real snake and goes on to suggest a variety of natural causes for the ten plagues of Egypt (Grew, 1701:196-197). Spinoza’s (1891:97) contention that, “miracles were natural occurrences, and must therefore be so explained as to appear neither new (in the words of Solomon) nor contrary to nature” may well have pushed Grew far enough to concede:

In the working of most of the other miracles recorded in the Scriptures; sundry natural causes were made use of, which are either mentioned, or may be guessed at. (Grew, 1701:199).

Therefore, it is perhaps unsurprising that in his efforts to defend the literal veracity of Genesis, Grew (1701:194) entertained a more flexible stance on the days of Genesis, surmising that God “could have made the universe, in one moment: it was then, as easie [*sic*] for him, to make it in six ages, years, or days, as himself pleased.” Evidently, the tide was starting to change.

¹¹⁴ He was also appointed secretary of the Royal Society in 1677 (Johnson, 1931:464).

¹¹⁵ The pervasive influence of his faith in all his writings can be attributed, in part, to his father. Obadiah Grew was a God-fearing man who was prepared to be jailed for six months for his theological convictions to preach with or without a state-sanctioned licence. This did not stop him from publishing a sermon every week during his incarceration. As Arber (1913:45) has noted, “it is a curious fact that the year 1682, which witnessed his father’s imprisonment was the year in which the son published his magnum opus, *The Anatomy of Plants*.”

¹¹⁶ See section 2.6.6 for the discussion on Spinoza.

¹¹⁷ Not only was La Peyrère “a major source of Spinoza’s Bible-criticism” - his pre-Adamite views also provided a “virulent theory of racism” that would be employed “against the American Indian and the Negro slaves” (Popkin, 1977:182,185). In response, Grew (1701:186-187) wrote, “Nor can we doubt of Blacks being bred, as well as Whites of the children of one man... It was likewise becoming the Divine Majesty, not vainly to repeat the creation of man. Not to make one man, merely for the sake of a white colour, and another for a black. But having made him fit to transplant himself all over the world; to project at once the causes, of all the variations, which in time should happen to his seed.” For more on La Peyrère, see section 2.6.3.

2.5.13 Petty allowed Genesis to shape his scientific speculations

William Petty (1623-1687), a good friend of Grew, also affirmed the literal historicity of Adam and Eve, maintaining that, “anthropological diversity took place within the universal framework of biblical history, and it was thus a given that despite differences in human color, size, and shape, humankind was fundamentally unified” (Lewis, 2011:270-271, 279-280). Petty served as professor of anatomy¹¹⁸ at Oxford at the same time that he was professor of music at Gresham College (Morley, 1888:7). As another founding member of the Royal Society, he was also proficient in mathematics, philosophy, demography, land-surveying, and mechanics, inventing a double-writing instrument and designing several ships (though not very successfully) (Flood, 1977:102; Lewis, 2011:261). Yet it was his research into economics that established his legacy in the archives of history.

Petty’s essays on “political arithmetic” helped provided a foundation for modern economics and statistics by employing “quantitative methods for the analysis of social and economic facts” (Strauss, 1975:32). To derive these principles, he drew upon the population data found in Genesis 1-11 (specifically from the time of the flood) to predict when the population in London would cease to grow (Petty, 1888:35-40). Petty (ca. 1680:4) thereby treated Genesis as history, surmising that the world was about “six thousand years” old.¹¹⁹ This reliance on Genesis 1-11 can be found elsewhere in his scientific writings. In a discussion on the nature of atoms,¹²⁰ he writes:

Lastly, I might suppose (even without a metaphor) that atoms are also male and female, and the active and susceptible principles of all things; and that the above-named byasses are the points of coition: for, that male and female extend further than to animals, is plain enough; the fall of acorns into the ground, being the coition of oaks with the Earth. Nor is it absurd to think, that the words in Genesis, [male and female created he them] may begin to take effect, even in the smallest parts of the first matter. For although the words were spoken onely [*sic*] of man; yet we see they certainly refer to other animals, and to vegetables in manner aforesaid, and consequently not improbably to all other principles of generation. (Petty, 1674:130-132)

As shown above, Petty was happy to let the text of Genesis shape his scientific speculations.

2.5.14 Barrow believed in a literal Genesis

Isaac Barrow (1643-1727) was a fellow-pupil of John Ray at Trinity College where they both studied under the tutelage of John Duport (d. 1617) (Feingold, 1990:14). Barrow anticipated and provided the mathematical platform upon which Isaac Newton (1642-1726)¹²¹ developed his theories on infinitesimal

¹¹⁸ Petty famously resuscitated a recently-hanged servant girl, who had been wrongly-accused of aborting her child, and then go on to establish medical evidence of the fact that the so-called abortion was really a miscarriage (Flood, 1977:99).

¹¹⁹ In addition to his unpublished treatise on the “scale of creatures”, Petty’s views on the age of the earth can be discerned from a collaboration John Gaunt (1662:63), in which he wrote, “According to this proportion, one couple viz. Adam and Eve, doubling themselves every 64 years of the 5610 years, which is the age of the World according to the Scriptures, shall produce far more People, then are now in it. Wherefore the World is not above 100 thousand years, old as some vainly Imagine, nor above what the Scripture makes it.”

¹²⁰ Petty (1674:127-128) theorised that, “all atoms have, like a magnet, two motions, one of gravity, whereby it tendeth towards the center of the Earth, and the other of verticity, by which it tendeth towards the Earths-Poles, and whereby Magnets joyn to each other by their opposite poles.”

¹²¹ Isaac Newton was born one hundred years after Copernicus published his *On the Revolutions of the Celestial Spheres* (Snobelen, 2008:494).

calculus (Child, 1916:17).¹²² In the first of his geometrical lectures, he reasons that time could be measured by the motion of the stars because of the purpose given to them by God in Genesis 1:14 (Barrow, 1916:36). In another lecture on the nature of space, Barrow (1734:166) draws upon the plain sense of the Scriptures to infer “certain bounds to matter.” Clearly, Barrow did not divorce his science from Scripture.

From 1669, after he had resigned from his professorship at Cambridge,¹²³ he devoted the rest of his life to studying theology (Child, 1916:8). For such a prominent mathematician, it is striking that Barrow left behind no less than nine volumes of sermons.¹²⁴ From these sermons, it is evident that he believed in the literal historicity of Genesis 1-11 and, consequently, a universe not older than six thousand years (Barrow, 1831:441-442).

2.6 Disharmony in the seventeenth century: Genesis submits to science

As the historical record shows, the founding fathers of modern science not only gave intellectual assent to the literal interpretation of Genesis 1-11 but, more often than not, found inspiration for their research from these very chapters. Robust theological convictions led to seminal discoveries and advances in human and plant anatomy, astronomy, cosmology, cartography, economics, pure and applied mathematics, pneumatics, chemistry, geology, electricity and electrostatics, zoology, botany, microscopy and microbiology. It is incontrovertible that science flourished in the fertile soils of theology. But the general harmony between science and Scripture was not destined to last.

Perhaps typifying the manner in which Genesis would eventually succumb to the historical sciences, even the Royal Society, from its inception in 1660, was hostile towards the Mosaic record. Many of the earliest members including Hooke, Francis Lodwick (1619-1694),¹²⁵ Abraham Hill (1633-1721), and John Aubrey (1626-1697) have been accused of privately¹²⁶ espousing heterodox ways of interpreting Genesis 1-11 (Poole, 2006:245-263; 2006:51-57). Other members, like Isaac Vossius (1618-1689)¹²⁷ and Edmund Halley (1656-1742), were quite open about their opposition to the literal sense of the text (Cook, 1998:181). For reasons such as these, several fellows of the society were accused of harbouring atheistic or materialistic convictions (Wood, 1980:2).

The Royal Society along with the British Association for the Advancement of Science, the Astronomical Society and the Geological Society supplied the Cambridge Network with many theologically liberal men

¹²² Barrow’s contemporaries ranked him as “a mathematician second only to Newton” (Chis olm, 1910a:440).

¹²³ At the time, Barrow occupied the Lucasian Chair of Mathematics which he relinquished to his more famous pupil, Isaac Newton (Child, 1916:6).

¹²⁴ These were later collated and edited by Alexander Napier in 1859.

¹²⁵ Lodwick’s understanding of Genesis 1-11 was influenced by La Peyrère and Simon (Poole, 2005:257-262; 2006:53-57). Toward the end of the seventeenth century, Lodwick (2011:260) drafted a revision of the Genesis narrative in which he argues that the serpent was actually a baboon (Poole, 2006:56). See sections 2.6.3 and 2.6.10 for further discussion of La Peyrère and Simon.

¹²⁶ According to Sprat (1734:63), the Royal Society strongly advocated the privatisation of religion.

¹²⁷ See section 2.6.4 for discussion of Vossius.

(Mortenson, 2004:37). By Mortenson's (2004:38) assessment, this network played a significant role in eroding the orthodox view of Scripture as the word of God.

2.6.1 Thomas Hobbes the first textual critic to question the authenticity of Genesis

One of the first prominent intellectuals to undermine the authority of the Bible in the post-Reformation era¹²⁸ was Thomas Hobbes (1588-1679). Hobbes was not only an acquaintance of Galileo; he also served as a secretary to Francis Bacon (Martinich, 1999:65).¹²⁹ Although Hobbes excelled in varied scientific and philosophical subjects, he wrote himself into the annals of history in 1651 when he published *Leviathan*. It was a theological-political treatise that introduced "new biblical hermeneutics, giving biblical texts exclusive political meaning" (Manenschijn & Vriend, 1997:42). The thesis of *Leviathan* is that the kingdom of God is not the church, but the state (Hobbes, 1929:319, 469-471). In principle, this meant that any distinction between the law of God and the laws of society was essentially immaterial (Hobbes, 1929:470). What Hobbes wanted was a "radical privatization of the Christian faith" (Manenschijn & Vriend, 1997:56; cf. Morrow, 2011:38).

So although Hobbes (1929:315, 346, 481) appears to believe in a literal Adam,¹³⁰ garden of Eden and Noahic flood, his use of Scripture in other places exposes his real epistemological convictions. Hobbes (1929:307-310, 473) did not deem it reasonable to believe in a real spiritual realm, dismissing most biblical references to angels and demons as "phantasms" and "accidents" of the "braine," the product of "old wives' tales."¹³¹ Hobbes (1929:61-62) casts doubts on exorcisms reported in the gospels, arguing against the literal reading of the text in favour of a more scientifically-informed non-literal rendering. He reminds his readers, after a subtle allusion to the recent conflict with Galileo,¹³² that the Bible cannot be trusted on matters pertaining to the real world. On similar grounds, Hobbes (1929:502, 525-528) rejects the existence of the Devil, that hell is a real place, or that spirits are anything other than physical beings with material properties. The Hobbesian hermeneutic encourages "Every man... to make use of his natural reason, to apply to all prophecy those rules which God has given us, to discern the true from the false" (Hobbes, 1929:336). Consequently, the Holy Spirit is also stripped of any personality or divinity in and of "itself" and reduced to a figure of speech describing wisdom, courage, dreams and visions, or the actions of God (Hobbes, 1929:304-306). Hobbes (1929:306-307) denies that any man, including Christ,¹³³ has

¹²⁸ i.e. taking the Reformation period as 1517 to 1648 (Häusser, 1874).

¹²⁹ Hobbes met Galileo in Florence in 1636 (Aubrey, 1898:366; Grant, 1990:147; Moore, 1899:63). In terms of the Bacon-Hobbes connection, Moore (1899:62) asserts that, "the continuity of thought from Bacon to Hobbes is too obvious to admit of permanent doubt." But as Martinich (1999:66) observes, "Bacon's radical empiricism in science is at the opposite pole from Hobbes's rationalism"; moreover, "Bacon never mentioned Hobbes, and Hobbes mentioned Bacon only once".

¹³⁰ Hobbes repeatedly bends the Scriptures to serve his own ends. Therefore, it is not unreasonable to infer that in the case of Adam he could just be citing what the text says without telling us what he really thinks it means, as he does when he describes the angel Gabriel as speaking in Luke 1:32-33 – after he has already informed us that he doesn't believe that Gabriel was a real entity but merely a "supernatural phantasme" of the brain (Hobbes, 1929:311, 318).

¹³¹ Hobbes (1929:312) reluctantly concedes on the basis of his "feeble reason" that there were places in the New Testament which suggest that angels did exist, although not in "incorporeall" form. But this caveat does not appear to interest him because he cites no evidence in its support.

¹³² Hobbes wrote *Leviathan* less than a decade after Galileo had died whilst under house arrest for his Copernican views.

¹³³ Pangle (1992:40) summarises the matter forcefully: "To put it very straightforwardly, and at the risk of appearing to countenance Hobbes's blasphemies: Hobbes tries to show the reader that if he accepts Jesus, he accepts a man of questionable

been or can be “filled with God”. The divine inspiration of Scripture is a farce.¹³⁴ To be guided “by the Spirit is meant inclination to God’s service; and not any supernaturall revelation” (Hobbes, 1929:334). Hobbes (1929:60, 313) reinterprets the “Spirit of God in man” to mean “mans spirit, enclined to godlinesse.” Thus the Bible is only the “word of God” in the sense that it is *about* him, not that it originates *from* him (Hobbes, 1929:323-324). This means that there could be no objective certainty regarding revelation from God because “Christian men doe not know, but onely believe the Scripture to be the word of God” (Hobbes, 1929:407-408).

Building upon such premises as these, Hobbes (1929:293, 297) finds licence to reject the Mosaic authorship of the Pentateuch, and treat “the whole Scripture of the Old Testament” as a document originating only “after the return of the Jews” from exile. Hobbes thereby becomes, on Cheyne’s (1893:11) assessment, the “first modern writer” to present a critical case against the traditionally-accepted literary origin of Genesis. The New Testament suffers a similar fate. Hobbes (1929:297-298) reasons that its authenticity rests not on textual evidence, but on the dubious¹³⁵ hegemony of church councils from the fourth century. From where then did the Scriptures derive any authority? Hobbes (1929:299) answers, “it is not the writer, but the authority of the Church, that maketh a book canonicall.” And from whence does the church derive her own authority? From the state, says Hobbes:

It is the civill sovereign, that is to appoint judges, and interpreters of the canonically Scriptures; for it is he that maketh them laws. (Hobbes, 1929:428; cf. 1929:405)

Thus, the interpretation of Scripture is entrusted pre-eminently to the state, not the church.¹³⁶ In this way Hobbes makes the Bible pliable to his own political agenda (Manenschijn & Vriend, 1997:43, 58; Pangle, 1992:39-40). It was a scheme that served not only Hobbes’s ends; it also set a precedent for the “entire discipline of biblical interpretation” (Morrow, 2011:35). It provided the “enlightened” mind with a model on how to let science dictate the conclusions the Bible ought to reach. Moreover, *Leviathan* made Hobbes possibly the first biblical critic to “separate the Bible from the Church” and subject the interpretation of Scripture to the “autonomy of human reason” (Morrow, 2011:34, 49; Popkin, 1974:339; Pangle, 1992:34; Frame, 2015:191; Hunt, 1870:396).¹³⁷

The influence of Hobbes can be measured by how quickly he gained notoriety. By the early seventeenth century, Richard Bentley (1662-1742), a highly-esteemed classical scholar and theologian, considered

sanity, whose febrile imagination led him to rebuke winds and fevers, who believed he saw devils coming and going in people by the handfulls, who claimed to speak with these devils, who claimed he could breathe God into people, who said doves could bring God onto people, and who threatened anyone who denied this wild spiritualism with the punishment of eternal and unforgiveable suffering in an afterlife, while promising eternal bliss to those who believed and obeyed him and his authorized heirs – whose designation he left totally unclear. This man was merely carrying to its conclusion a Jewish religion that identified madness with Divine inspiration and taught that God’s spirit, trumping all other intellectual and political authority, was constantly popping up in all sorts of people, by the hundreds.”

¹³⁴ Hobbes (1929:306) argues that the seventy elders in Numbers 11 “prophecyed according to the mind of Moses” not by the Spirit of God. Similarly, Joshua being “full of the Spirit” merely meant that he had been “ordained by Moses”; having the “Spirit of Christ” was figurative for “submission to his doctrine” (Hobbes, 1929:306).

¹³⁵ In his discussion on angels, Hobbes (1929:312) insinuates that some of the gospel accounts had been corrupted.

¹³⁶ Hobbes (1929:422) even goes so far as to call the head of state “the supreme pastor” by whose authority “all other pastors are made, and have power to teach, and performe all other pastorall offices.”

¹³⁷ Even Richard Simon (1638-1712), the so-called “Father of Higher Criticism”, was influenced by Hobbes (Popkin, 1987:87; Morrow, 2011:34). See section 2.6.10 for discussion of Simon.

Hobbes to be “the most serious threat to Christianity” (Dahm, 1970:177). In a letter to Edward Bernard (1638-1697), he wrote:

Atheism is so much the worse that it is not buried in books; but is gotten *εἰς τὸν βίον*, that taverns and coffee-houses, nay Westminster-hall and the very churches, are full of it... There may be some Spinosists, or immaterial fatalists, beyond seas. But not one English Infidel in a hundred is any other than a Hobbist; which I know to be rank atheism.¹³⁸ (Bentley, 1842:39)

Hobbes has been labelled a “Sceptic, deist, atheist, infidel” and even “monster” (Hunt, 1870:383).¹³⁹ In his most celebrated work, *The Reformed Pastor* (1656), Richard Baxter (1615-1691) (1830:222) singles out Hobbes as the principal representative of those “atheists” who “take Christianity for a mere delusion” by “reducing all their theology to their philosophy.” In a sermon preached in 1655, Baxter (1655:7) advises the “honourable members of parliament” to:

Lay a penalty on him that prints or sels any books against the fundamentals or essentials of Christianity; and that slander or reproach magistracy, ministry, or ordinances of Christ. And burn some more of this nature, that you may manifest a disowning them. *Specially Hobbs his Leviathan.* (emphasis mine)

And when these efforts to burn or ban *Leviathan* proved to be unsuccessful, the Presbyterian booksellers launched a fruitless censorship campaign to try to suppress the book (Collins, 2007:478, 487-488).¹⁴⁰ But the damage had been done. As Morrow (2011:42) puts it, “By discrediting the Pentateuch in the seventeenth century, Hobbes was able to discredit the Genesis story and set up his own ‘in the beginning...’”

2.6.2 Paracelsus, Palaeologus and other pre-Adamite proponents

Where Hobbes had implicitly undermined the literal historicity of Genesis, other exegetes were more explicit. In fact, a few outliers from as far back as Luther’s heyday, in the early sixteenth century, began to speculate in different ways on the possibility of pre-Adamite races. A Swiss physician, Philip Hohenheim

¹³⁸ During this era, the accusation of “atheist” applied to anyone “who taught a doctrine that the speaker believed led to atheism” (Martinich, 1999:80). For more on this topic, see the footnote on Spinoza.

¹³⁹ There is no scholarly consensus on how to evaluate Hobbes’s profession of Christianity. On the one hand, given the extent and manner in which Hobbes employed the Bible in his writings, Glover (1960:275-297), Manenschijn and Vriend (1997:41) argue that there can be no doubt that Hobbes genuinely thought of himself as a Christian, with the caveat that he approached his work within the framework of “methodological atheism.” But Pangle (1992:31) and Rogow (1986:236) challenge this assessment, pointing out that his writings, although replete with references to the Bible, indicate “Hobbes... almost certainly did not believe in a personal God, or heaven and hell, or in the scriptural version of human history, and he must have doubted that Jesus Christ was of divine origin, though he was careful not to say so.” Either way, Hobbes knew that he had to be careful how he expressed himself in writing. As Aubrey (1898:339) recounts: “There was a report (and surely true) that in parliament, not long after the king was settled, some of the bishops made a motion to have the good old gentleman [i.e. Hobbes] burnt for a heretique. Which he hearing, feared that his papers might be search’t by their order, and he told me he had burn’t part of them.”

¹⁴⁰ The fierce opposition to *Leviathan* can also be seen as a response to its libellous content. Hobbes (1929:539, 541) had accused the Catholic church and Presbyterian clergy of “darknesse in religion” and the teaching of “dark doctrines” and “spirituall darknesse”. One can only wonder to what extent his disillusionment with the church stemmed, in part, from his own father, of whom we are told was a “disreputable clergyman” (Grant, 1990:147; Martinich, 1999:2-4).

(1493-1541), otherwise known as Paracelsus,¹⁴¹ expressed his doubts that every nation descended from Adam (Popkin, 1976:57). In a treatise entitled *Astronomia magna* (1537/38)¹⁴² he wrote:

And so I do not want to refrain from giving a small report about those who have been found on hidden islands and are still hidden, that they may be believed to be from Adam. It should not be assumed that Adam's children have come to the hidden islands, but rather to consider that these people are from another Adam; hence it will hardly be the case that they are related to us by flesh and blood.¹⁴³ (Hohenheim, 1929:35)

Instead he proposed that some continents had been “populated... through another creature, created like men outside of Adam's creation” (Slotkin, 1965:42). Thus Paracelsus, whilst avoiding a blatant pre-Adamite version of history, thereby put forward the first polygenetic theory¹⁴⁴ of human origins (Popkin, 1976:57). A few decades later, in 1584, the notorious Dominican heretic Giordano Bruno (1548-1600) (1713:245-246), wrote *Lo spaccio de la bestia trionfante*¹⁴⁵ in which he surmised that there were once humanoid creatures, not descended from Adam, that once roamed the earth more than ten thousand years ago.

The very next year, in 1585, another heterodox Dominican named Jacob Palaeologus (c. 1520-1585) was executed for teaching, amongst other things, that Adam and Eve were not the first people created (Williams, 1995:1152). Then in 1606, the famous chronologist, Joseph Scaliger (1540-1609) published *Thesaurus temporum*,¹⁴⁶ the final product of a lengthy investigation comparing Egyptian and biblical chronologies (Grafton, 1975:170). As this major work shows, Scaliger believed the creation account in Genesis 1-11 to be authentic, but he was unwilling to dismiss the contradictory history provided by the Egyptian records as errant (Grafton, 1975:171-173). Scaliger's high view of ancient extrabiblical sources led him to believe that the Egyptian records offered a chronology far older than the history derived from Genesis (Livingstone, 2008:9). He wrote, “these dynasties precede the Mosaic archaeology by a long interval”¹⁴⁷ (i.e. by 1336 years) (Scaliger, 1658:279; Grafton, 1975:171). Put simply, Adam was not the first human being (Herbert, 1705:23). Not surprisingly, this created some controversy and precipitated a revolution in chronological research (Grafton, 1975:169; Livingstone, 2008:9). As Grafton (1975:181) relates, it was the chronological debate that freed historians from the “doctrinal authority of the Bible” as a “sufficient basis for universal history”. If the emphasis here is correct, the interpretation of Moses in subsequent decades owes much to chronologists like Scaliger. Thus Grafton (1975:181) maintains:

¹⁴¹ A title he gave to himself: “greater than Celsus”.

¹⁴² Probably written in 1537/38, but published posthumously in 1571; also known as *Philosophia sagax der grossen vnd kleinen Welt* (“Philosophy of the wise of the great and the little world”).

¹⁴³ Translated from the German: “und so mag ich das nit underlassen, von denen ein kleine meldung zu tun, die in verborgenen insulen gefunden seind worden und noch verborgen sind, das sie von Adam zu sein geglaubt mögen warden, mag sichs nit befinden, das Adams kinder seind komen in die verborgenen insulen, sonder wol zu bedenken, das dieselbigen leut von einem anderen Adam seind; dan dahin wird es schwerlich komen, das sie fleisch und bluts halben uns gefreunt sein” (Hohenheim, 1929:35).

¹⁴⁴ Paracelsus avoided heresy by submitting two caveats to this theory: (1) that it was still credible for these people to be descended from Noah, and (2) that they might have had no souls, thereby making them “special kinds of sub-human beings” (Popkin, 1976:58-59).

¹⁴⁵ i.e. “The expulsion of the triumphant beast”

¹⁴⁶ i.e. “treasury of the times”

¹⁴⁷ Original: “quæ quidem Dynastiæ quanuis Mosaicæ ἀρχαιολογίας longo intervallo antecedent” (Scaliger, 1658:279).

True, it was the geology and biology of the nineteenth century which finally destroyed the Biblical chronology. But for their contribution to this development, as well as for their considerable intrinsic merits, the chronologers of the Renaissance deserve the attention of historians.

The notion of pre-Adamite races also surfaced in various works of fiction. In 1592, a satirical piece of prose entitled *Pierce Penilesse his Supplication to the Diuell* was completed by Thomas Nashe (1567-1600), the famous Elizabethan pamphleteer, in which he wrote, “I heare say there be mathematitions¹⁴⁸ abroad that will prooue men before Adam, and they are harboured in high places, who will maintaine it to the death, that there are no diuells” (Nashe, 1883-1884:32). Similarly, albeit several decades later, in 1676, a Franciscan named Gabriel de Foigny (ca. 1630-1692) fabricated an account of a voyage to Australia related to him by a mysterious “James Sadeur” (Bayle, 1826:170). The fictitious narrative, entitled *La terre australe connue* (1676),¹⁴⁹ described how native Australians attributed their origin to a pre-Adamite race:

As for us Europeans, and the rest of mankind, they make our race to begin not ‘till 5000 revolutions after them, and the original which they give us, is altogether ridiculous... (de Foigny, 1693:119-120)

But as Popkin (1976:55) points out, none of these “medieval pre-Adamite theories... raised any real stir” or challenged the “Judeo-Christian picture of the world.” It was only in 1655 when Isaac La Peyrère (1596-1676) wrote his infamous *Praeadamitae*, that the Pre-Adamite theory began to gain traction in the mainstream church.¹⁵⁰

2.6.3 La Peyrère’s naturalistic reinterpretation of Genesis

Prior to the seventeenth (and even eighteenth) century, very few prominent theologians and scientists questioned the plain reading of Genesis 1-11. Of those who did, Isaac La Peyrère was probably the most controversial¹⁵¹ and influential.¹⁵² In *Praeadamitae* (1655), La Peyrère (1655:54, 202-205, 208, 239, 260, 301-302, 305) claimed that Adam was only the ancestor of the Jews, whilst Gentiles were descended from a race of pre-Adamites;¹⁵³ like Hobbes, he suggested that the Pentateuch was not original with Moses; the world never had a beginning; Noah’s flood only covered Palestine; sin, suffering and death were in the

¹⁴⁸ It is assumed that the mathematician whom Nashe had in mind here was Thomas Harriot (1560-1621), one of Walter Raleigh’s (1552-1618) friends (Popkin, 1976:61). The connection is relevant because there are some historians who claim that Raleigh and Harriot, along with Christopher Marlowe (1564-1593), were atheists and advocates of the pre-Adamite theory (Popkin, 1976:61-62). This may be true for Harriot and Marlowe - but in Raleigh’s case, the insinuation is plainly false, given the many places in *The History of the World* (1614) where he calls Adam the “first man” and strongly affirms the literal historicity of Genesis 1-11 (Raleigh, 1820:60, 69, 75-81, 138, 141, 220; cf. Strathmann, 1940:265-287).

¹⁴⁹ i.e. “The southern land, known”

¹⁵⁰ As VanDoodewaard (2015:88) observes, “pre-Adamite theories had no precedent within the history of Christian thought on early Genesis and human origins... The concept of pre-Adamite human existence appears to have become significantly influential both in Europe and England only through the writing of the ‘Enlightenment’ thinker Isaac Peyrère”.

¹⁵¹ According to Popkin (1977:182), La Peyrère was “the greatest heretic before Spinoza.” His book was immediately regarded as “horrible and blasphemous” (Jorink, 2008:430).

¹⁵² Comparing his intellectual impact with Copernicus, Popkin (1976:50) claims that La Peyrère’s ideas were employed by “Hobbes, Spinoza, Richard Simon, Vico, the English Deists, among others, as a basis for developing Biblical criticism, the secularisation of human history, and the bases for anthropology.” This is not to say that La Peyrère established his reputation as a scholar – to the contrary, he was unable to read Hebrew and Greek (Jorink, 2008:433). It was his iconoclastic audacity instead that indelibly inscribed his name into the annals of the Radical Enlightenment.

¹⁵³ To argue the case, La Peyrère (1655:113) construed the first two chapters of Genesis as two different acts of creation: the first describing the origin of Gentiles; the second, the origin of Jews.

world before the fall of man, and that there were many factual errors in Scripture “written with so great carelessness and obscuritie”.¹⁵⁴ On the whole, he was only prepared to accept those miracles in the Bible which he considered “agreeable to reason” (La Peyrère, 1655:234).¹⁵⁵ Thus, in the case of the sign provided for Hezekiah during his sickness (2 Kings 20), he flatly denied the possibility of God moving the sun backward, “For, good God, what a mistake is this, that has befooled a great many wise men, that they believed that the Sun had gone back” (La Peyrère, 1655:223). Typifying the new relationship that would define how theology engaged with science in the ensuing Enlightenment (1650-1789),¹⁵⁶ La Peyrère does not allow his hermeneutic to venture beyond the bounds of what is naturalistically explicable. Not only did La Peyrère’s approach to Scripture impress one of the most influential thinkers of the Radical Enlightenment: Spinoza; he also left his mark on Samuel Fisher (1605-1665) and Richard Simon (1638-1712) (Popkin, 1987:86-88). Fisher has been called the “most radical biblical critic” of his day, and Simon was the most celebrated biblical scholar of that generation (Popkin, 1987:86-88).

2.6.4 Vossius rejects the universality of the flood and the chronology of Genesis 1-11

The Dutch intellectual, Isaac Vossius (1618-1689), opposed La Peyrère’s pre-Adamite theory, and in 1659 published his response in *Dissertatio de vera aetate mundi qua ostenditur natale mundi tempus annis minimum 1440 vulgarem aeram anticipare*.¹⁵⁷ Ironically, this work quickly garnered its own notoriety proving itself to be “more damaging to the authority of the Bible than la Peyrère’s work” (Jorink, 2008:442; Jorink & van Miert, 2012:7). Whilst Vossius (1659:48-60) denies the possibility of pre-Adamites, he is persuaded by La Peyrère (1655:239-244) to treat Noah’s flood as an event that only affected the region of Palestine (Hale, 1677:184-186; McKee, 1944:470). Favours a more naturalistic reading of Genesis 6-8, Vossius writes in the margin of his copy of *Praeadamitae*: “God does not do anything outside the order of nature” (Jorink, 2012:137; Derksen, 2012:273). He also embraces La Peyrère’s preference for Egyptian and Chinese chronologies¹⁵⁸ over those recorded in Genesis 1-11, extending the conventional chronology of the earth by an extra 1440 years¹⁵⁹ (Mandelbrote, 2012:92-93; Derksen, 2012:269-277). This brought Vossius into direct conflict with his contemporary, Archbishop James Ussher (1581-1656), who had dated creation to the 23rd of October 4004 BC (Ussher, 2010:17; Milner, 1694:1-131).

¹⁵⁴ It is a great irony that he prefaces this section by claiming, “I intend not, God forbid I should either diminish the authority of the Scriptures, or doubt the truth of them” (La Peyrère, 1655:202).

¹⁵⁵ La Peyrère, like Hobbes, believed reason to be the final judge of divine revelation: “The difficulty is, to know what are the words of the Copier, and which are the real words of the Original... Why also may not our reason, using its own weights and measures, especially being assisted by God, discern things humane from divine?” (La Peyrère, 1655:212-213)

¹⁵⁶ Israel (2001:3-7; 2013:vi) dates the Radical Enlightenment from 1650 to 1750, with the High or Late Enlightenment beginning in 1750 and ending with the French Revolution in 1789.

¹⁵⁷ i.e. “Dissertation on the true age of the world, by which the world’s birth is shown to antecede the common era by at least 1440 years.”

¹⁵⁸ Being the first Dutch philologist to study Chinese historiography, Vossius (1659:44-45) became convinced that the Chinese records established a chronology more ancient and of greater scope than that of Moses (Weststeijn, 2007:542-544; Boyle, 2018:3). In fact, Vossius (1685:56) suggests that the ancient Chinese were the “greatest and oldest in the world” (Poole, 2012:145; Boyle, 2018:5).

¹⁵⁹ To accommodate the Egyptian and Chinese chronologies, Vossius adopts the Septuagint instead of the Vulgate or Masoretic texts which gives him an additional 1440 years (Wauters, 2012:47; Poole, 2012:146).

Bolstered by his father's reputation¹⁶⁰ and his own philological brilliance, Vossius' book and opinions found a ready audience. And in 1664 he was elected as a fellow of the Royal Society (Boyle, 2018:3). From this position of influence, as Katz (1993:142) and Israel (2001:604) relate, "Vossius did more than most to undermine the sufficiency of the biblical text" and was known to "believe anything, if only it were not in the Bible."¹⁶¹ He was also a member of the *societas Puteana* in Paris, a network of radically-minded intellectuals that exchanged ideas "behind closed doors" (Wauters, 2012:38). Thus he was able to form close relations with "notorious freethinkers" like Charles de Saint-Évremond (1613-1703), Hortense Mancini (1646-1699), and Hadriaan Beverland (1650-1716) (Wauters, 2012:38-39). For these reasons, Vossius has been called a "confirmed libertine",¹⁶² an "ally of the deists" and a deist¹⁶³ himself (Israel, 2001:88, 451, 606; Wauters, 2012:37-48). He was even named amongst the first atheists in Germany after 1650 (Israel, 2013:165). Mandelbrote (2012:117) disputes these characterisations, preferring to view Vossius as merely heterodox (Boyle, 2018:3-4, Poole, 2012:146). Either way, Vossius was "notorious for his freethinking" and encouraged Charles Blount (1654-1693)¹⁶⁴ to reject the biblical proportions of Noah's flood and grant greater antiquity to the Chinese account of history over that of the Hebrews (Jorink, 2008:441, 444; Israel, 2001:604).

2.6.5 Meyer asserts philosophy as the key to interpret Scripture

By the mid-seventeenth century, Amsterdam was the place for controversial books. Not only was La Peyrère's *Praeadamitae* published there, but a decade later, Lodewijk Meyer (1629-1681) also had his short book, *Philosophia S. Scripturae interpres* (1666),¹⁶⁵ entrusted to the printers in Amsterdam. Foundational to Meyer's (2005:113) thesis is the idea that "philosophy is the true, certain and indubitable knowledge of things" by which – as an "infallible norm" – it should be used to interpret the Bible. Essentially, this meant that for Meyer "true theology is philosophy" because "Scripture is a man-made, not a God-given text" and "truth lies in philosophy alone" (Israel, 2001:209). Thus, in practice, all exegesis of Scripture must be subjected to the higher authority of philosophy for approval. An example of this can be found in Meyer's treatment of Genesis 1:1, where he rules out the possibility of *creatio ex nihilo*:¹⁶⁶

'But,' I seem to hear them reply heatedly, 'does not Moses quite expressly teach this when he begins his five books thus, 'In the beginning God created heaven and earth', that is, he made them from nothing. For is not the word 'creation' to be interpreted thus?' But let me put to them this question: 'Since in many other places in the earlier chapters of Genesis the word 'create' means to 'produce from pre-existing material', who has taught them that at the very beginning of

¹⁶⁰ i.e. Gerardus Vossius (1577-1649)

¹⁶¹ According to one of Vossius' earliest biographers, this was the expressed opinion of King Charles II (Wauters, 2012:38).

¹⁶² A libertine of the seventeenth century, according to Wauters (2012:41), describes an individual whose disposition was typically "anti-traditional, anti-theological, anti-dogmatic, anti-authoritarian." In other words, anyone who questioned the established orthodoxy. The example provided by Wauters (2012:41-42) is that of Claude de Chauvigny de Blot (1580-1621) who boasts that he is "not that stupid to believe in [the story of] Genesis." For analogous reasons, Vossius' stance on Genesis 1-11 is sufficient to earn him this label.

¹⁶³ Even Vossius' father Gerardus Vossius was a close friend of the radical deist, Lord Herbert of Cherbury (1583-1648) (Israel, 2001:362). See section 2.6.7 for the discussion of Herbert.

¹⁶⁴ See section 2.6.15 for the discussion on Blount.

¹⁶⁵ i.e. "Philosophy as the interpreter of Holy Scripture" which, at the time, was commonly thought to have originated from Spinoza (Leibniz, 2007:84).

¹⁶⁶ i.e. "creation out of nothing"

the book it means production from nothing? From what source have they derived such an interpretation? Certainly not from Scripture, for it is not found anywhere there, *nor from philosophy, which maintains the contrary*, as they themselves acknowledge. It therefore comes either from their own brains or an accepted tradition. Therefore, until they prove that this axiom is theologically false, it must remain true and indubitable both in theology *and philosophy*. (emphasis mine; Meyer, 2005:139)

So although Meyer offers, in part, an exegetical rationale for rejecting *creatio ex nihilo*, his primary objection to the doctrine is philosophically grounded. What is “philosophically true” must trump that which is “theologically false” (Meyer, 2005:139). In other words, philosophy determines *a priori* the absolute epistemic boundaries for what exegesis can derive *a posteriori* from the biblical text. Therefore, the most competent interpreters of Scripture will be those who are “learned in philosophy” (Meyer, 2005:113).

Meyer’s hermeneutic in *Philosophia* quickly became “a regular focal point of intellectual debate in the Lutheran world” and integral to “theological training in the German and Baltic universities” (Israel, 2001:216-217).¹⁶⁷ But even Meyer is usurped in notoriety by his close friend, Baruch Spinoza (1632-1677),¹⁶⁸ whose legacy resides pre-eminently at the heart of the Radical Enlightenment (Nadler, 2018:202-203; Israel, 2001:12)

2.6.6 Spinoza’s naturalistic subjugation of Scripture

Hobbes and La Peyrère together with Baruch Spinoza are often identified as the three major culprits behind the onset of “modern historical biblical criticism” in the seventeenth century (Morrow, 2017:169). For the English bishop, Richard Kidder (1633-1703), the historicity and inspiration of the Pentateuch had been undermined principally by this same trio: “Mr Hobs in his *Leviathan*, the author of the book called the *Præadamtæ*, and Spinoza in his *Tractatus Theologico-Politicus*” (Kidder, 1694:xxiv). Together, La Peyrère’s rationalistic scepticism combined with Hobbes’s hermeneutics¹⁶⁹ “greatly influenced” Spinoza, inspiring him to find a “nontheological base for his theory of God” (Israel, 2001:503; Popkin, 1977:182; Morrow, 2011:34). Spinoza quickly became the “most celebrated patron of atheism”¹⁷⁰ (Clarke, 1728:26), the principal “representative” of the “modern atheists” (Gurdon, 1723:86), or as George Berkeley (1843:523) once put it, “the great leader of our modern infidels.” In his assessment of the key proponents of the English Enlightenment, Israel (2001:603) places Spinoza at its centre:

¹⁶⁷ By Israel’s (2001:197; 2013:13) estimation, Meyer’s book stimulated “[t]he first of the great public intellectual controversies generated by the rise of radical thought” and “remained uninterruptedly the supreme and basic issue in western intellectual debate” from 1666 to 1848.

¹⁶⁸ As Nadler (2018:202) relates, “[Meyer] more than anyone else was responsible for bringing Spinoza’s writings to publication, both while Spinoza lived and after his death with the posthumous publication of his collected works.”

¹⁶⁹ Both Hobbes’s higher criticism and “enlightened” rationalism in *Leviathan* anticipate Spinoza’s more virulent *Tractatus Theologico-Politicus* (Pogson Smith, 1929:xxvii).

¹⁷⁰ In the seventeenth century, “atheism” was predominantly utilised as a description of the kind of thinking that denied the doctrines of creation, providence, the immortality of the soul, the inspiration of Scripture and the divinity of Christ; or that was reminiscent of Hobbes’s materialism (Goodrum, 2002:219-220; Harrison, 2005:34). Atheists, as understood in the narrower “disbelief-in-God” sense, “were rare in seventeenth-century England” (Dahm, 1970:177). Thus Spinoza’s atheism was not a denial of God *per se*, but rather the God of the Bible. In his magnum opus, *Ethics* (1677), Spinoza (1891b:51) unambiguously states, “God necessarily exists.” But, as Israel (2013:44) observes, “God for Spinoza is always and consistently just ‘the fixed and immutable order of Nature’, something self-creating and evolutionary which never departs from the laws of nature as ascertained by empirical science.”

Spinoza, then, to a considerable extent came to displace Hobbes as the chief intellectual bogeyman and symbolic head of philosophical deism and atheism in Britain and Ireland, as well as on the continent, even if modern British historiography does not acknowledge this.¹⁷¹

In his masterpiece on the Bible,¹⁷² *Tractatus theologico-politicus* (1670), Spinoza (1891a:197-198) argues that theology has “no weight” unless it can be supported by “natural reason”. Following the higher-critical trend, Spinoza (1891a:120-132; 63, 65-66) also rejects the Mosaic authorship of the Pentateuch although, surprisingly, he retains Adam as a historical figure. But Spinoza does not compromise his naturalistic bias. The only reason why people believe in miracles¹⁷³ is because of “man’s ignorance” (Spinoza, 1891a:96). For Spinoza (1891a:194), “truth and wisdom” find their proper origin, not in Scripture, but within the “sphere of reason.” Where others see harmony between reason and theology, Spinoza (1891a:189) finds “no connection, nor affinity.” Thus science can meddle with Scripture, but Scripture has nothing to offer science (Spinoza 1891a:176; Stuermann, 1960-1961:138-139).

In the early 1670s, *Tractatus* caused a general outcry among the academics and theologians in England, France and Germany (Israel, 2001:628). But despite the initial reaction and opposition, *Tractatus* eventually became “the forerunner of German historical criticism” (Froude, 1871:317; cf. Stuermann, 1960-1961:139-141).¹⁷⁴ Friedrich Rappolt (1615-1676) was one of the first German theologians to denounce *Tractatus* in print (Israel, 2001:628). In his rebuttal, *Oratio contra Naturalistas* (1670), Rappolt believed that Spinoza’s treatise was part of a bigger ideological revolution, whose inception could be traced back to another intellectual: Lord Herbert of Cherbury (1583-1648) (Israel, 2001:629; Israel, 2010:83).¹⁷⁵

¹⁷¹ Although Hobbes’s influence in Britain has often been considered “more widely pervasive than Spinoza as a promotor of freethinking, irreligion, and incredulity”, Israel (2001:159) contends, “given Hobbes’ politics, and his attitude to ecclesiastical power and censorship, as well as his being (by his own admission) philosophically less bold and comprehensive, he simply was not, and could not have been, the source and inspiration for a systematic redefinition of man, cosmology, politics, social hierarchy, sexuality, and ethics in the radical sense Spinoza was. When placed in a full historical context, Spinoza evidently had no real rival even in England as the chief progenitor and author of ‘that hideous hypothesis’, as Hume (ironically?) called it, the ‘doctrine of the simplicity of the universe, and the unity of that substance, in which [Spinoza] supposes both thought and matter to inhere’, eliminating divine Providence and governance of the world, in other words, the Naturalistic, materialist, one-substance undercurrent culminating in La Mettrie and Diderot.” In Israel’s estimation (2001:12), “The question of Spinozism is indeed central and indispensable to any proper understanding of Early Enlightenment European thought... there has been a persistent and unfortunate tendency in modern historiography to misconstrue and underestimate its significance.”

¹⁷² Not everyone considered it to be a masterpiece. In 1702, an anonymous German publication, *Fürstellung vier neuer Welt-Weisen*, lambasted *Tractatus* for “the abominable doctrines and hideous errors which this shallow Jewish philosopher has (if I may say so) shit into the world” (Bell, 2008:6). In the first biography of Spinoza, Colerus (1706:71) wrote, “Is it not the most pernicious atheism that ever was seen in the world?” (Stuermann, 1960-1961:134).

¹⁷³ In his treatment on miracles, Spinoza (1891a:82-83) insists, “nature cannot be contravened, but... she preserves a fixed and immutable order... Nothing, then, comes to pass in nature in contravention to her universal laws.” For Spinoza (1891a:90), the miracles in Scripture were merely contrivances to stimulate “popular imagination... to excite wonder, and consequently to impress the minds of the masses with devotion.”

¹⁷⁴ His influence also extended notably to the French Encyclopaedists. Under his entry for “Spinosiste” in the *Encyclopédie*, Diderot (1778b:656) gives his endorsement Spinoza’s materialism, in preference to special creation, because “matter is all there is and is enough to explain the whole process” (Israel, 2001:713).

¹⁷⁵ At this stage Rappolt was unaware that Spinoza had written *Tractatus* because it had been published anonymously (Israel, 2001:628).

2.6.7 Herbert's "common notions"

Edward Herbert has been called the father of deism¹⁷⁶ from his earliest interpreters till today (Halyburton, 1798:title page; Leland, 1754:4; Creed & Smith, 2013:xv; Frame, 2015:218; Wetsel, 1995:95; Willey, 1967:121).¹⁷⁷ Christian Kortholt (1633-1694),¹⁷⁸ Michael Berns (1657-1728)¹⁷⁹ and Francisco Domenico Bencini (1664-1744) all ranked Herbert among "the three real deceivers of mankind", grouping him with Hobbes and Spinoza (Israel, 2001:114).

Herbert's notoriety began with *De veritate, prout distinguitur a revelatione, a verisimili, a possibili, et a falso*,¹⁸⁰ published in 1624. As the full title of his treatise indicates, Herbert's epistemological vision was to separate truth from revelation.¹⁸¹ The central claim of this book is that "the final test of truth" is not found in revelation but in "universal consent" (Herbert, 1937:117-118). In this way he appeals to "universal wisdom" as the "beginning and end of theology and philosophy" (Herbert, 1937:118, 290-291). Herbert (1937:289) believes that without appealing to "common notions",¹⁸² there is no ultimate standard by which truth can be measured. The Bible cannot be that standard because, on Herbert's (1937:308) account, revelation cannot be transmitted, it "must be given directly to some person". On these grounds, he concludes, "everything in short that concerns the past, whether it be true or false, good or evil, possesses for us only probability, since it depends on the authority of the narrator" (Herbert, 1937:314). Then, touching on the subject of Genesis 1-11, Herbert (1937:316) writes:

It may be said that I hereby destroy any belief in history, and make it appear that those who have given us the history of the creation and the redemption have done little of importance. On the contrary, I have great respect for these writers; *but my belief in God, by whom through whom and in whom all things exist is not derived from history, but from the teaching of the Common Notions*, while questions of means, times and other circumstances I take from the authors; and such questions are matters of faith. Faith in the sacred records is not abolished or disparaged by these considerations. With the greater part of mankind I fully accept these accounts... *I distinguish knowledge and certainty from faith founded on report, so that I am able to separate what can be known from what can be believed in every religion.* (emphasis mine; Herbert, 1937:315)

What Herbert proposes here is a two-tier epistemological system: one level to accommodate belief in revelation and history, and the other to describe certain knowledge based on "common notions". The story in Genesis 1-11 belongs to the former. For Herbert (1937:322), this meant that the Mosaic account, along with "the whole of ancient history rests upon conjecture, and therefore, as far as we are concerned,

¹⁷⁶ Following Harrison (2005:62), the term "deism" is used in this sense to describe the "extreme manifestation of the rationalising tendency within the religious thought of seventeenth- and early eighteenth-century England."

¹⁷⁷ Lytle (1935:248-252) and Serjeantson (2001:217-230) dispute this ascription, arguing that Herbert's religious fervour speaks against such conclusions. But, as we will see, Herbert's religiosity made little recourse to Scripture or church tradition. Herbert's god was primarily the god of reason, not revelation.

¹⁷⁸ In his 1680 treatise, *De tribus impostoribus magnis liber*, Kortholt calls Herbert, Hobbes and Spinoza the "three imposters" of Christendom: "Quorum antesignani tres illi nova sapientia conditores, Edoardus Herbert, Thomas Hobbes, Benedictus Spinoza, viri callidi, & technarum pleni" (Kortholti, 1680:3).

¹⁷⁹ This trio of "atheists" provoked Michael Berns (1657-1728) in 1692 to write his *Alter der Atheisten, der Heyden, und der Christen ... Wider die 3 Erz-Betrüger Hobbart* [sic, for Herbert], *Hobbes und Spinoza*. (Pailin, 2000:113).

¹⁸⁰ i.e. "On truth, as it is distinguished from revelation, from probability, from possibility, and from falsehood"

¹⁸¹ The full title being, *De veritate, prout distinguitur a revelatione, a verisimili, a possibili, et a falso* (i.e. "On truth, in distinction from revelation, probability, possibility, and error").

¹⁸² Herbert (1937:313) believes that the ten commandments provide a reasonable "summary of common notions".

upon insecure foundations.” This, of course, supports his original thesis, that the key to finding truth in religion is to ascertain what is “by universal consent acknowledged” in all religions (Herbert, 1937:121). In this way, instead of “[defiling] the purity of religion with foolish superstitions and degrading legends”, an appeal to the “law of common reason” can help mankind construct a generic god¹⁸³ and system of belief that can be universally accepted (Herbert, 1937:305). This he does by reducing religious truth to “five common notions”, which he claims are “implicit in the beliefs of all ages” and easily inferred by brute reason (Herbert, 1937:56-57). In summary, they are: (1) “a supreme deity exists”, (2) this supreme being ought to be worshipped, (3) all morality consists in “virtue and piety”, (4) humans need to repent of their sins, and (5) there are rewards and punishments after death (Herbert, 1937:56-57).

Strangely, in his autobiography, Herbert (1888:176) relates how God endorsed his book by giving him a “sign from heaven”.¹⁸⁴ There is a great irony in this. On the one hand, Herbert maintains an uncompromising scepticism of Scripture, but on the other hand, he attributes *De veritate* itself to divine revelation. Yet Herbert (1937:118, 138, 187) calls preachers “windbags” who “weave their spells from the pulpit”, and those who follow them are “foolish” and “feeble-minded”, members of the “common herd”.¹⁸⁵

Not afraid to praise his own accomplishments, Herbert (1888:175) testifies to how his book was well received by several prominent intellectuals including the likes of Pierre Gassendi (1473-1655), Hugo Grotius (1583-1645) and René Descartes¹⁸⁶ (1991:140). In 1634, after reading *De Veritate*, Gassendi wrote, “O happy England, to have after losing Verulam, raised up this new hero!” (Dircks, 1888:xvi).

Carried along by the tide of his success, Herbert began writing *De religione gentilium errorum apud eos causis*¹⁸⁷ and had the first part printed in 1645. The completed work was only published posthumously in 1663. In *De religione*, Herbert (1705:1, 6) sets out to prove that there is a “universal divine providence” which offers salvation irrespective of religion “to all mankind.” He insists that the orthodox view of salvation is “too rigid and severe” because it is “grounded not on reason, but some peremptory decrees” (Herbert, 1705:2, 5). Instead, Herbert (1705:268) claims that the “book of nature” is sufficient to teach any heathen true theology.¹⁸⁸ With these ideas he encouraged both the development of natural theology and deism.

¹⁸³ Herbert (1937:291) identifies “God” as that “supreme manifestation of deity” which is “everywhere accepted”.

¹⁸⁴ Herbert (1888:176) claims that he initially deliberated over whether he should go public with *De Veritate*. To resolve his angst, he asked God to give him a heavenly sign which immediately resulted in “a loud though yet gentle noise which came from the heavens” (Herbert, 1888:176). This was sufficient to convince Herbert that his petition had been granted.

¹⁸⁵ Describing the Christianity of his day, Herbert (1937:130) writes, “no error and absurdity has failed to insinuate itself into the cult of the Divine, so that the most iniquitous errors are at the same time those that are most sacred.”

¹⁸⁶ Descartes (1991:140) had mixed feelings about *De Veritate*: “He has many maxims which seem to me so pious, and so much in conformity with common sense, that I hope that they may be approved by orthodox theology. Finally, though I cannot agree in everything with the opinions of this author, I regard him as a person of quite extraordinary talent.”

¹⁸⁷ Later translated by William Lewis with the title: *The antient religion of the Gentiles, and causes of their errors consider'd* (1705).

¹⁸⁸ Herbert (1705:353-355) describes pure religion, which does not venture beyond the bounds of “humane reason”, to “five articles”: “1. That there is a supream God, 2. That he ought to be worshipped, 3. That virtue is the principal of divine worship, 4. That we ought to repent of our sins,” and “[5.] That there are rewards and punishments both in this life and after it.”

2.6.8 Bayle's infallible rule

Pierre Bayle (1647-1706), like Herbert, believed that revelation was a dubious authority when compared with autonomous reason.¹⁸⁹ Spinoza may have been the most notorious free-thinker of the seventeenth century, but according to Israel (2001:10), “nothing caused more dismay than the ambivalence and corrosive scepticism of one of the most widely read and influential thinkers of the age, Pierre Bayle”. Some defenders of Bayle have tried to portray him as a “sincere Christian” or “man of faith”,¹⁹⁰ but what remains incontrovertible is that Bayle's subjection of theology to reason won him the admiration of several prominent atheists and deists (Israel, 2001:10; Popkin, 2003:296).¹⁹¹ In his 1686 treatise against religious persecution,¹⁹² he claimed that all clergy would eventually “pay homage” at the “throne of reason” to which the “supreme tribunal” belongs (Bayle, 2005:67-68). In this “supreme court of reason”, Bayle (2005:67-68) gives philosophy all authority over theology and Scripture. Upon these grounds, it would seem unlikely that Bayle would accept any part of Genesis 1-11 as history. Yet he does. In surprising contradiction to his intellectual forebears, La Peyrère and Spinoza, Bayle (1826a:68) maintains that Adam, “[the] stem and father of all mankind was immediately produced by God on the sixth day of the creation; his body having been formed of the dust of the earth”. But this should not be construed in anyway as conservative, for Bayle (2005:75) grounds his belief, not in the Scriptural authority of Genesis, but in the “infallible rule” of reason:

What will become of this reasoning too? All that God says is true; he tells us by Moses, that he created the first man, therefore this is true. If we had not a natural light afforded us, as a sure and infallible rule for judging upon every thing that can fall under debate, ... whether such or such a thing is contain'd in Scripture; might not we have ground to doubt of the major of this argument before us, and consequently of the conclusion? As this wou'd therefore introduce the most fearful confusion, the most execrable Pyrrhonism imaginable, we must of necessity stand by this principle, that all particular doctrines, whether advanc'd as contain'd in Scripture, or propos'd in any other way, are false, if repugnant to the clear and distinct notions of natural light, especially if they relate to morality.¹⁹³

All that remained was for this “infallible rule” to change its opinion, and the historicity of Genesis 1-11 would be jettisoned. Yet, for Bayle and his ilk, it was René Descartes' (1596-1650) mechanistic philosophy that marked “the true beginning of ‘modernity’ and ‘enlightenment’” (Israel, 2001:23).

¹⁸⁹ Autonomous reason treats human reason as “the ultimate standard of truth and right, having no need to consult divine revelation” (Frame, 2015:742).

¹⁹⁰ Although Bayle (1826:288) rejects the “absurdities of Spinoza's system”, as Brykman (1987-1988:259) observes, the longest article in *Dictionnaire Historique et Critique* was nevertheless devoted to “Spinoza” – which seems to betray a “barely restrained admiration” for the Dutch heretic.

¹⁹¹ In his *Poème sur le désastre de Lisbonne*, Voltaire (1912:261) wrote, “Plato and Epicurus I reject,/ And turn more hopefully to learned Bayle./ With even poised scale Bayle bids me doubt./ He, wise and great enough to need no creed,/ Has slain all systems...” Similarly, in *Système de la nature*, Baron d'Holbach (1723-1789) wrote, “The illustrious Bayle, who teaches us so ably to think, says, with abundant reason, that, ‘there is nothing but a good and solid philosophy, which can like another Hercules, exterminate those monsters called popular errors [sic]: it is that alone which can set the mind at liberty.’” (d'Holbach, 1868:313)

¹⁹² His treatise was entitled, “A philosophical commentary on these words of the gospel, Luke 14:23, “Compel them to come in, that my house may be full.” Bayle's interest in religious toleration was not merely academic. His own brother, Jacob Bayle (1631–1685), was incarcerated as a result of the controversy generated by one of Pierre Bayle's earlier literary works, *General criticism of M. Maimbourg's history of Calvinism* (Kilcullen & Kukathas, 2005:xi). From 1689 to 1692, John Locke (1632-1704) also wrote three letters against religious intolerance.

¹⁹³ Here Bayle (2005:75) is using this analogy to argue for a non-literal interpretation of Luke 14:23. Thus he concludes, “The literal sense of these words is repugnant to the purest and most distinct ideas of natural reason. It's therefore false” (Bayle, 2005:75).

2.6.9 Descartes's new philosophy results in a mechanistic universe

Descartes is commonly regarded as the founder or grandfather of modern philosophy¹⁹⁴ (Russell, 2008:557; Conway, 2002:111). His intellectual quest began with a deep concern for how to find absolute truth in a world seemingly devoid of certainty (Frame, 2015:179). As with Bayle, Meyer and Spinoza, for Descartes, philosophy was more than just a handmaiden *to* theology; it was the epistemic foundation *of* theology. Even Herbert's treatment on the subject did not go far enough for Descartes. In one of his letters to Marin Mersenne (1588-1648), he mentions why he only read the first half of *De veritate*: "I did not read it through to the end" because Herbert "mingled religion with philosophy, something that goes quite against the grain with me" (Descartes, 1991:137). Descartes' own views on the subject were published in 1637, in his famous book, *Discours de la methode*.¹⁹⁵ In this volume, Descartes ingeniously uses scepticism¹⁹⁶ as a basis for deriving certainty in his thoughts (Descartes, 1911a:101). The solution, however, created problems of its own.¹⁹⁷ Autonomous reasoning could not account for the "miracle of creation", and so Descartes (1911a:109) had to redefine the concept along naturalistic lines:

But it is certain, and it is an opinion commonly received by the theologians, that the action by which [God] now preserves [the world] is just the same as that by which He at first created it. In this way, although He had not, to begin with, given this world any other form than that of chaos, provided that the laws of nature had once been established and that He had lent His aid in order that its action should be according to its wont, we may well believe, without doing outrage to the miracle of creation, that *by this means alone all things which are purely material might in course of time have become such as we observe them to be at present*; and their nature is much easier to understand when we see them coming to pass little by little in this manner, than were we to consider them as all complete to begin with. (emphasis mine)

These ideas are more fully developed in his earlier treatment, *Le monde* (1632),¹⁹⁸ where he postulates how matter, governed merely by the laws of nature, could have arranged itself independently of God to form a universe from chaos (Descartes, 2004:23-25, 30, 37). The following year, in 1633, Descartes (2004:99) extended this mechanistic worldview to man, finishing the book *L'homme*¹⁹⁹ in which he demonstrates how the human body is akin to "a statue or a machine made of earth" comparable to "clocks, artificial fountains, mills, and other similar machines". Here he envisages the soul as a kind of pilot in the brain to direct and drive the human machine, prompting it to "sneeze, yawn, cough, and make the motions needed to expel various excretions" (Descartes, 2004:107, 116). All that remained was to remove God as first cause and explain away the human soul and, in doing so, achieve the goal of Enlightenment: a fully materialistic worldview.

¹⁹⁴ Although Finkel (1898:194) ascribes Descartes' fame more to his contributions to mathematics than philosophy. Likewise, Langer (1937:495) also places Descartes as the true "founder of mathematics" for his "invention of analytical geometry".

¹⁹⁵ i.e. *Discourse de la methode pour bien conduire sa raison et chercher la verité dans les sciences* ("Discourse on the method of rightly conducting one's reason and seeking truth in the sciences")

¹⁹⁶ i.e. methodological scepticism

¹⁹⁷ As it has been said, "Descartes would not have been called 'the father of modern philosophy' if he had not left so many problems behind him for his children" (Gibson, 1935:440).

¹⁹⁸ The full title being *Le monde ou le traité de la lumière* (i.e. "The world or the treatise on light")

¹⁹⁹ The full title being *L'homme et un traité de la formation du fœtus* (i.e. "Man and a treatise on the formation of a foetus")

Two years before he died, Descartes began writing *La description du corps humain*.²⁰⁰ In this treatise, he takes his autonomous machine as far as it can go, replacing all bodily functions “that do not depend on the Soul” with a mechanised alternative (Descartes, 2004:170). It is not surprising that Spinoza was “wonderfully pleased” with Descartes’ system of philosophy (Bayle, 1826:282; cf. Frame, 2015:182).²⁰¹ And so Descartes’ vision quickly gained traction amongst those who were looking to liberate themselves from the shackles of theology.²⁰² Descartes thereby laid, albeit unwittingly, the necessary foundation for proponents of the European Radical Enlightenment.²⁰³

What came to be called the ‘New Philosophy’... inevitably entailed the subordination of theology and Church authority to concepts rooted in a mathematically grounded philosophical reason—albeit most ‘Cartesians’ of the 1650s and 1660s never intended to undermine theology’s hegemony or weaken the sway of the churches to anything like the extent which rapidly resulted. (Israel, 2001:14)

Finding in Augustine an exegetical justification to dismiss the literality of the hexaemeron, Descartes (1991:349) calls the creation account a metaphorical story. This allows him to exchange Genesis 1-11 for a more philosophically-satisfying alternative.²⁰⁴ Part of his rationale for appealing pre-eminently to human reasoning is to provide a more robust apologetic for the pagan mind.²⁰⁵ It is therefore a great irony that Descartes tries to prove the existence of God on rationalistic grounds, having established the basis upon which subsequent philosophy would ultimately reject the Christian worldview. Descartes’ epistemological principle (“I think, therefore I am”) essentially made human autonomy the “intellectual fulcrum... that set the agenda for all future philosophical discussion” thereby replacing biblical revelation as the “final criterion and chief source of knowledge” (Amos, 2007:254; Hasel, 1972:18-19).

2.6.10 Richard Simon rejects Mosaic authorship

Following Hobbes, Spinoza and La Peyrère, Richard Simon (1638-1712), the so-called “Father of Higher Criticism”, became one of the first Bible scholars to reject the Mosaic authorship of Genesis (Popkin, 1987:87; Morrow, 2011:34; Levitin, 2012:1119). In *Histoire critique du Vieux Testament* (1678), he argues that

²⁰⁰ i.e. *The description of the human body and all its functions, those that do not depend on the soul as well as those that do*.

²⁰¹ According to Pogson Smith (1929:xix) even Hobbes was “powerfully influenced by Descartes.”

²⁰² For example, the “enlightened” Marquis de Condorcet (1795:222,223) calls Descartes “daring and ingenious” because “He called upon men to throw off the yoke of authority, to acknowledge no influence but what reason should avow: and he was obeyed, because he subjected by his daring, and fascinated by his enthusiasm.” Likewise, Meyer (2005:240) pays his respects: “there is a quite reasonable hope that in these times, when its chief founder and propagator, René Descartes, first lit a torch for the world of letters and showed the way by his example, that the boundaries of philosophy will be extended far and wide by those who will tread in his footsteps.”

²⁰³ Instead of delineating multiple “Enlightenments”, Israel (2001:v) interprets the European Enlightenment “as a single highly integrated intellectual and cultural movement, displaying differences in timing... but for the most part preoccupied not only with the same intellectual problems but often even the very same books and insights everywhere from Portugal to Russia and from Ireland to Sicily.” Within this scope, he identifies the “Radical Enlightenment” as “an integral and vital part of the wider picture and... more internationally cohesive than the mainstream Enlightenment” (Israel, 2001:v).

²⁰⁴ Paradoxically, Descartes (2004:21; cf. 1991:320-321) somehow retains the chronology derived from Genesis 1-11, dating creation to “five or six thousand years ago”.

²⁰⁵ This can be seen in his second major philosophical treatise, *Meditationes de prima philosophia* (1641) where he states, “I have always considered that the two questions respecting God and the Soul were the chief of those that *ought to be demonstrated by philosophical rather than theological argument*. For although it is quite enough for us faithful ones to accept by means of faith the fact that the human soul does not perish with the body, and that God exists, *it certainly does not seem possible ever to persuade infidels of any religion, indeed, we may almost say, of any moral virtue, unless, to begin with, we prove these two facts by means of the natural reason*” (emphasis mine; Descartes, 1911b:133).

the Genesis document originated with an anonymous group of “publick writers” and was then subjected to repeated redactions culminating with the editorial work of Esdras after the Babylonian exile (Simon, 1682:book I:5, 19, 33, 36-52). As a result, he asserts that most of the Bible – including the Genesis record, which he calls “very confus’d” – has been corrupted and lost (Simon, 1682:book I:5, 39, 41-43). Simon (1682:book I: 43; book II:31) concurs with Vossius²⁰⁶ that it is a futile exercise to try and base any chronology upon the content of Genesis 1-11.

Whilst on the one hand, he affirms the historical value of the Old Testament, at the same time, Simon (1682:book III:49-50, 95-96) is critical of Luther’s exposition Genesis 1-11, calling it “low and mean” for relying too heavily upon the literal sense and being ignorant of the “symbolical sence [*sic*]” of the text. To make his case, he points out two apparent absurdities in Luther’s commentary: a walking serpent and the absence of rainbows before the flood (Simon, 1682:book III:95-96). He is less harsh in his assessment of Calvin, whom he charges with being “too subtle” in his commentary on Genesis (Simon, 1682:book III:97-98). In terms of his own interaction with the creation story, Simon (1682:book III:15, 99) affirms *creatio ex nihilo* but denies that it is taught in Genesis 1:1, arguing instead that God made the heavens and the earth out of invisible pre-existing matter. Then, in his interpretation of Genesis 11, he prefers a naturalistic explanation for how various tongues arose, disallowing the direct intervention of God (Simon, 1682:book III:154).

Simon’s objective is to provide a plausible apologetic for the Bible without unnecessarily ostracising more enlightened thinkers (Klauber, 1993:624). But this treatise was so controversial for its time that the French bishop, Jacques-Bénigne Bossuet (1627-1704) “ordered all copies to be burned with only six or seven surviving” (Klauber, 1993:625).

2.6.11 Locke’s rationalistic hermeneutic

Not long after Spinoza, Hobbes and Descartes had opened the door to a world of rationalistic scepticism, other philosophers and thinkers began to pour through into its gaping darkness. In England and France, John Locke (1632-1704) continued to explore the bounds of autonomous human reason. It was a topic inspired by conversations with James Tyrrell (1642-1718)²⁰⁷ and a few other friends on “the principles of morality and revealed religion” (Cranston, 1957:140-141). After several years of musing and writing, Locke finally completed *An essay concerning human understanding* (1689).

Arguing against Herbert’s appeal to “universal consent” or “common opinions”, Locke (1836:30-32) claims that there are no principles that are common to all men or innate in man. Theologically, this meant, as Locke (1836:37-38) points out, that the “idea and knowledge of God” is not intrinsic to

²⁰⁶ Simon (1682:book III:150) informs his readers that Vossius’ book is “worth the reading”, especially for his “learned and judicious reflections upon the chronology of Scripture”.

²⁰⁷ James Tyrrell was probably named after his grandfather, James Ussher, Archbishop of Armagh, who famously dated Genesis 1:1 to 23rd October 4004 BC (Ussher, 2010:17). In *Annales Veteris Testamenti* (1650), Ussher (1864:13) gave this date using the Julian calendar: “In principio creavit Deus cœlum et terram, quod temporis principium, juxta nostram chronologiam, incidit in noctis illius initium, quæ vigesimum tertium diem Octobris præcessit, in anno periodi Julianæ 710.”

humanity (Locke, 1836:37-38). Instead, he argues that the “notion of God” is directly obtainable through human reason (Locke, 1836:41). For Locke (1836:48), there is no truth more self-evident than the “existence of a God”. Locke (1836:474) even calls the existence of God, “the most obvious truth that reason discovers” and “its evidence... equal to mathematical certainty”.²⁰⁸ In short, epistemic certainty can be acquired by a purely rational process. But Locke does not ascribe the same level of confidence to divine revelation. He reasons:

For whatsoever truth we come to the clear discovery of, from the knowledge and contemplation of our own ideas, will always be more certain to us, than those which are conveyed to us by traditional revelation. (Locke, 1836:527-528; cf. 388)

For Locke, this means that the authority of Scripture has to be determined *a posteriori*. Human reason alone must judge the authenticity of any “divine revelation” (Locke, 1836:531). Where contradictions arise, Locke (1836:528) advises, “Revelation cannot be admitted against the clear evidence of reason.” Indeed, “Reason must be our last judge and guide in everything” (Locke, 1836:538).²⁰⁹ It was an idea that resonated well with the more extreme proponents of the Radical Enlightenment.²¹⁰ As Francis Gastrell (1662-1725) relates, Locke was highly esteemed and frequently quoted by “the Socinians, deists, atheists, and the freethinkers of this country” (Jolley, 1984:44).²¹¹

In 1706, William Carroll, a high church Anglican, claimed that Locke’s *Essay* was a blatant endeavour to propagate Spinoza’s atheism.²¹² In his diatribe against Locke, Carroll (1706:23, 52) argues that Locke’s writings were “by far, more dangerous than Spinoza’s” because Locke was able to communicate the same pernicious ideas, but with greater insidiousness.

Locke (1836:358-359) believes that all truths derived from Scripture should be subject to the more reliable authority of “natural religion”. In other words, science provides the exegete with an indispensable hermeneutical key. All biblical inferences should therefore be restricted to what human intellect deems reasonable.²¹³ For many, this would provide sufficient grounds to reimagine Genesis 1-11 on nonliteral

²⁰⁸ Locke’s epistemology is generally viewed in contradistinction to Descartes, but here is one instance where Locke (1836:474) clearly follows him, deriving the certainty of God’s existence from man’s own existence (cf. Descartes, 1911c:43).

²⁰⁹ The title of Locke’s 1695 treatise, *The reasonableness of Christianity*, further illustrates the point. In this book, Locke (1812a:11) construes the “law” in Romans 3:33 to mean the “law of reason”, arguing that God expects all “rational creatures” to “live up to the rule of their reason”. He also claims that the gospel is not necessary for salvation because the “light of reason, revealed to all mankind” can lead a person to “reconciliation and forgiveness” (Locke, 1812a:133). Locke denies that people are only saved through hearing the word of Christ.

²¹⁰ Beginning with Voltaire, Locke quickly acquired zealous disciples among the foremost “free thinkers” and materialists in France, and was “linked with Bayle as two of the most prominent writers responsible for the irreligion of the day” (Yolton, 1991:58, 60-85).

²¹¹ This quote is taken from one of Thomas Burnett’s (1656-1729) letters to Gottfried Wilhelm Leibniz (1646-1716) on 25 January 1704.

²¹² Whilst I realise, with Israel (2001:606) and Rogers (2006:113), that Carroll’s assessment of Locke as a secret Spinozist is largely conspiratorial and manifestly false, Locke’s *Essay* does endorse Spinoza’s subjugation of revelation to reason.

²¹³ Locke would probably deny this allegation in favour of a more palatable, nuanced position. Where he sees human reason taking precedence to Scripture, he still tries to preserve a place for theology by maintaining that “divine revelation” rests on faith – not the “evidence of reason” – because then “all supernatural truths” which cannot be defended by reason would lose their credibility (Locke, 1836:409). Yet, whenever faith and reason collide, Locke (1836:530) favours the latter: “In all things, therefore, where we have clear evidence from our ideas, and those principles of knowledge I have above-mentioned, reason is the proper judge; and revelation, though it may in consenting with it confirm its dictates, yet cannot in such cases invalidate its decrees; nor can we be obliged, where we have the clear and evident sentence of reason, to quit it for the contrary opinion, under a pretence that it is a matter of faith; which can have no authority against the plain and clear dictates of reason.”

terms. But surprisingly, where Locke engages with the Mosaic record, he generally treats it as a credible account of human history. He seems to accept the six days of creation,²¹⁴ the origin of Adam and Eve, and the Noahic flood (Locke, 1836:120, 341-344, 528). Yet even here, his assertions are only tentative:

The like holds in matter of fact, knowable by our senses, *v.g.* the history of the deluge is conveyed to us by writings, which had their original from revelation: and yet nobody, I think, will say, he has as certain and clear a knowledge of the flood, as Noah, that saw it; or that he himself would have had, had he then been alive, and seen it. For he has no greater an assurance than that of his senses, that it is writ in the book supposed writ by Moses, inspired; but he has not so great an assurance that Moses writ that book, as if he had seen Moses write it. So that the assurance of its being a revelation, is less still than the assurance of his senses. (Locke, 1836:528)

The same anomaly presents itself in Locke's systematic refutation of Robert Filmer (1588-1653), *Two treatises of government* (1679-1683). To Filmer (1685:12-13), Adam was the first monarch of creation, from which he derives a perpetual principle of monarchy or "absolute dominion". This idea is developed further with Noah and the dispersion at Babel (Filmer, 1685:14). In response, Locke (1821:16) exposes Filmer's misappropriation of Adam, showing how his political hermeneutic had twisted the true meaning of Genesis. Here Locke (1821:26) asserts that, "the scripture itself is the best interpreter" of its own words. He even goes so far as to state:

The prejudices of our own ill-grounded opinions... cannot authorise us to understand scripture *contrary to the direct and plain meaning of the words*. (emphasis mine; Locke, 1821:38)

At face value, this is contradictory to what Locke writes in his *Essay*, and would suggest a more conservative approach to Genesis 1-11. But it is evident that Locke is only a literalist when the Scriptures confirm his *a priori* convictions. When William Whiston's (1667-1752) nonliteral interpretation of Genesis was published,²¹⁵ Locke (1836:385) heartily praised it for being "wonderfully ingenious". He wrote of Whiston, "He is one of those sort of writers, that I always fancy should be most esteemed and encouraged" (Locke, 1824:397). In other words, Locke was prepared to accommodate a scientifically-revised interpretation of Genesis, provided it did not serve any political ends to which he was opposed. This also explains how Jean Le Clerc (1657-1736), a close friend of Locke, could publish *Genesis sive Mosis prophetae liber primus* (1693) with Locke's full endorsement.²¹⁶

²¹⁴ Here Locke (1836:120) appeals to the three days of light before the sun was made in the "history of the creation delivered by Moses" – albeit in a convoluted manner – to illustrate how we might come to an understanding of time without the movement of the sun.

²¹⁵ See section 2.6.16 for the discussion on Whiston.

²¹⁶ In 1692, several months before Le Clerc's commentary on Genesis was published, he posted Locke two drafts and sought his assistance on the dedication (Le Clerc, 1979a:586; 1979b:635; 1979c:689-691). After publication, Philippus van Limborch (1633-1712), another close friend of Locke, wrote to him, "Mr. Le Clerc's book on Genesis is now finished; would that he may complete the rest as he has begun! this work would be most welcome and most useful to all lovers of sounder learning" (van Limborch, 1979:694). Le Clerc's five letters on the inspiration of Scripture were also translated into English by Locke (Lowndes, 1834:1147). In turn, Le Clerc translated an abridged version of Locke's *Essay* into French for his *Bibliothèque universelle et historique* (Milton, 2011:453-454). According to one of Locke's correspondents, William Molyneux (1656-1698), Jean Le Clerc dedicated his *Ontologia et Pneumatologia* to Locke (Molyneux, 1824:392).

2.6.12 Le Clerc's historical-critical method of reading Genesis

Joining Simon, Fisher and Reimarus, Le Clerc became one of the founding fathers of biblical criticism, and “Europe’s most tenacious protagonist of rationalist Christian theology” (Klauber, 1993:612; Israel, 2001:464). Whilst La Peyrère’s and Spinoza’s radicalism made them “marginal scholars or outsiders”, Le Clerc’s more moderate rationalism invited a much broader readership (Klauber, 1993:614). Like Locke, Le Clerc thought that reason was the only tool offered to mankind to “distinguish truth from falsity” and purify Christianity (Israel, 2001:464-465). This led him to champion the “new historico-critical method of Bible exegesis” thereby becoming one of the “leading representatives” of the more moderate Early Enlightenment (Israel, 2001:467, 470).

Le Clerc’s “free thinking” rationalism found ample expression in his commentary on Genesis. Following in the wake of La Peyrère and Spinoza,²¹⁷ he makes the case that Genesis was shaped by multiple authors over many centuries (Le Clerc, 1696:130). Le Clerc (1696:106-113, 123, 129) is careful not to exclude Moses completely from this process, but argues that many sections of the Pentateuch could only be completed after the monarchy was established in Israel.²¹⁸ He surmises, “it might easily happen, that in succeeding times one of the prophets might make some additions to Moses, which afterwards were incorporated with all the copies” (Le Clerc, 1696:129).

Le Clerc’s approach to Genesis typifies the prevailing “chronological snobbery”²¹⁹ of the Early Enlightenment. He states that Moses’s contemporaries were “ignorant in grammar, rhetoric, and the whole circle of philosophy”; and that “no language in the world is fuller of ambiguity and obscurity than the Hebrew” (Le Clerc, 1696:32, 34-39). The principle he seeks to establish at the outset of his commentary is that it is “no easie matter to distinguish” the interpretation of the text (Le Clerc, 1696:33). This provides him with the flexibility he needs to advance his new perspective on the creation story. He proceeds from this point to question whether the snake in Genesis 3 literally spoke,²²⁰ or whether its punishment to crawl on its belly for the rest of its days makes any sense (Le Clerc, 1696:145, 147, 151-152). Le Clerc (1696:145-147) finds these details troublesome and advises the reader that no real meaning can be derived from them. The only criterion of truth that can be known from the text is that, “the first parents of mankind began to sin” (Le Clerc, 1696:145).²²¹ Le Clerc (1696:150, 291) also struggles to believe that Adam and Eve could have been ashamed of their nakedness after the fall when they were the

²¹⁷ In one of his letters to van Limborch, Le Clerc (1987:30-33) wrote that Spinoza’s “opinions on the author of the Pentateuch and his critical-historical method” were “in a great part justified” and “necessary for the proper interpretation of many Scriptural passages” (Klauber, 1993:623).

²¹⁸ Le Clerc (1696:122-123) believes that the list of Edomite kings in Genesis 36:31-39 must have been added by a later editor because they could not have all reigned within the Mosaic timeframe. This inference is supported by a few other references in the Pentateuch including: the demonstrative pronouns in Exodus 6, the preterperfect tense used in Exodus 16:35, and the obituary of Moses in Deuteronomy 34 (Le Clerc, 1696:124-128).

²¹⁹ Lewis (1955:207) coined this phrase to describe “the uncritical acceptance of the intellectual climate common to our own age and the assumption that whatever has gone out of date is on that account discredited.”

²²⁰ Le Clerc (1696:143) rejects any attempt to allegorise these problems, maintaining that the talking serpent in Genesis 3 is described “in the plainest manner imaginable” which makes the allegorical approach “commit violence” to the text.

²²¹ Here we see Le Clerc’s more moderate rationalism. Unlike La Peyrère and Spinoza, he accepts Adam as the first human (although he disputes whether “Adam” should be understood as a proper name) (Le Clerc, 1696:5, 135). Le Clerc (1696:134) also treats the six days of creation as ordinary days.

only two people on the planet. And here again, he presents the problem without any resolution. Le Clerc (1696:288) deems it unreasonable to believe that Adam named all the animals in one day, proposing instead that “words were invented by degrees” over a much longer period of time, “and that these animals received their names as our first parents happen’d to behold them, or to talk of them.”

Le Clerc (1696:152-169) goes on to present the case for and against the universality of Noah’s flood. He readily concedes that the case for a global flood has stronger support from Scripture but the scientific problems that this creates are impossible to reconcile (Le Clerc, 1696:155). Citing Vossius and Edward Stillingfleet (1635-1699),²²² Le Clerc (1696:156-157, 161, 162-164) envisages several problems associated with a global flood: mankind could not have populated the whole world at this stage in human history; there is not enough water to cover the highest mountains; animals native to America would not be able migrate from there to Mesopotamia (before the flood) and back again (after the flood); and the ark would hardly be big enough for all its inhabitants. For Le Clerc (1696:161), the feasibility of a global flood must be determined by “those that are skill’d in natural philosophy,” not exegesis. Thus he is constrained to believe, following Stillingfleet, that the reference to “all living creatures” in Genesis 7:21-23 cannot refer to *every* living creature on earth (Le Clerc, 1696:166-167). Le Clerc’s interpretative principle is to reduce the number of miracles in Scripture to a bare minimum:

‘Tis true, [the flood] could not be effected without a miracle; but then there is no way to solve the difficulties of so great a cataclysm without a miracle. However the less and fewer of this kind we suppose, provided the rest may be conveniently explain’d, that exposition uses to be accounted the most agreeable to truth by all interpreters, because God is never so prodigal of miracles, as to have recourse to them where natural causes are sufficient; much less does he violate and overturn all the establish’d laws of nature without good reason. (Le Clerc, 1696:168, cf. 243)

Applying this principle elsewhere, Le Clerc (1696:13-14, 170-171) proposes that the proliferation of new languages at Babel can be understood without appealing to the miraculous. Instead, he offers a naturalistic explanation which has all the people dispersing due to a “spirit of discord” and only later developing their own languages after a prolonged period of separation from each other (Le Clerc, 1696:177-178).²²³ Le Clerc (1696:247) maintains that this kind of rationalisation is not only permissible but “more preferable” than taking Moses’s words at face value, “especially if ‘tis more agreeable to reason.” To avoid “many monstrous absurdities”, he advises that the interpretation of Scripture be governed by science and reason, not exegesis (Le Clerc, 1696:247).

²²² In *Origines Sacrae* (1662), Stillingfleet (1709:337) states, “I cannot see any urgent necessity from the Scripture to assert, that the Flood did spread itself over all the surface of the Earth.”

²²³ In fact, Le Clerc (1696:178) denies that the world only spoke one language prior to Babel, which makes the event even less extraordinary. Le Clerc (Le Clerc, 1696:244) also rejects the possibility of Lot’s wife being turned into a “pillar of salt” which he calls “absurd”. He provides the following rationalisation: “Now salt seems to be a symbol of eternity, because things that are season’d with it, continue incorrupt for many Years; which perhaps is the reason why this word is used to signifie duration of time. And if this signification may be admitted, Lot’s wife may be understood to have continued always in the country of Sodom, or there to have been benumb’d, and never to have return’d back” (Le Clerc, 1696:243). Other cases of naturalistic reinterpretation can be found in Le Clerc’s (1696:213-219, 323-338) explanation of the destruction of Sodom and the crossing of the Red Sea.

Le Clerc's approach to Genesis in many ways typifies his view of Scripture in general. By 1685, he had already expressed his thoughts on the inspiration of Scripture in *Sentimens de quelques théologiens de Hollande sur l'histoire critique du Vieux Testament* – which had served as a critique of Simon's *Histoire critique du Vieux Testament*. In this treatise, Le Clerc (1690:33, 117-118), like Locke (1836:531), believes that biblical history must be tested by human reason (Le Clerc, 1690:33, 117-118). Le Clerc (1690:30, 32-34, 37) understands inspiration only in terms of divine dictation, which predisposes him to conclude that the bulk of Scripture is merely the product of human testimony, and not without error (Le Clerc, 1690:35).²²⁴

It is important to note that Le Clerc views himself, not as an enemy of Christianity, but as her apologist.²²⁵ He believes that by stripping the Bible of superfluous miracles and its divine origin, he would succeed in getting more people to believe in it. Moreover, the veracity of the biblical account rests ultimately on the “uniform consent of Christians” not on its own authority (Le Clerc, 1690:32-33). Le Clerc (1690:31) argues that the Bible does not need to be inspired or infallible in order to be compelling. But just a few decades later, this line reasoning provided sufficient grounds for an even more radical evaluation of Scripture. Voltaire (1901a:162, 164, 186-187) used Le Clerc to arrive at his own assessment of Genesis:

The object of God was not to teach the Jews philosophy. He might have raised their minds to the truth, but he preferred descending to their error.

This appropriation of Le Clerc shows how the reinterpretation of Genesis in the seventeenth and eighteenth centuries was generally carried forward by those who retained the respect of the church by having a higher view of Scripture than that of Voltaire, Spinoza or La Peyrère.²²⁶ Following Le Clerc, the most prominent intellectual in this more moderate group was Isaac Newton (1642-1726). Today Newton is remembered mainly for his contribution to science. But, as the following quotation from Voltaire shows, his views on Genesis were also taken seriously:

Many ingenious men are of opinion, with the great Newton and the learned Leclerc that the Pentateuch was written by Samuel when the Jews had a little knowledge of reading and writing, and that all these histories are imitations of Syrian fables. (Voltaire, 1901a:182)

2.6.13 Newton's day-age theory of Genesis²²⁷

When Newton was studying at Cambridge, the thinking of Descartes²²⁸ still prevailed in the sciences and philosophy. As Biot (2009:2) relates, “the geometry of Descartes was one of the first books that Newton

²²⁴ Le Clerc (1690:35) cites the differences between Matthew 27:3-5 and Acts 1:18 as a case in point. Le Clerc (1690:23-26) also believes that many Psalms were uninspired because of their imprecatory nature. Not surprisingly, this scepticism also shaped his view of canonicity: “no clear reason is brought to convince us, that those who made the canon, or catalogue of their books, were infallible, or had any inspiration, whereby to distinguish inspir'd books from those which were not” (Le Clerc, 1690:101-102).

²²⁵ Le Clerc (1690:28-29) expresses his confidence in biblical history when he writes, “We ought also to believe that they have given us the truth of the history to the best of their knowledge, without adding or subtracting any thing out of design to deceive us. And as they were very well informed of the principal matters of fact which they relate, having themselves seen them, or taken them out of good records, *we may be confident that for the main of the history they tell us nothing that is not exactly true.*” (emphasis mine)

²²⁶ By most accounts, Le Clerc was considered a moderate radical (Klauber, 1993:614). As Israel (2001:470) points out, this presents an interesting paradox: “Le Clerc, Limborch, and Locke were simultaneously dreaded innovators, disrupting authority and tradition on one side, and champions of Christianity, leading the fight against the philosophical radicals, on the other.”

²²⁷ This section has been published with the Journal of Creation and is used with permission. See Duboisée de Riquebourg (2020).

read at Cambridge.” Then in 1669, Isaac Newton succeeded Barrow as the second Lucasian Professor of Mathematics at Cambridge (Rickey, 1987:364). Four years later, he was appointed President of the Royal Society, a position he held till he died. Newton has been called “one of the greatest creative men of genius who ever existed”, the “high priest of science”, and the “last of the magicians” (Storr, 1985:1779; Brewster, 1840:18; Keynes, 1978:363-364). As early as 1728, one reviewer even said that he was “the greatest man in the world, not only in this age, but in any age, since the world began” (Bedford, 1728:1). His intellectual impact was such that, as Russell (2008:535) has asserted, “it was not till a century after his death that men freed themselves from his authority sufficiently to do important original work in the subjects of which he had treated.”²²⁹

Most of Newton’s seminal work was completed “between the ages of 21 and 23” (Storr, 1985:1785). As Storr (1985:1783) relates, in these two years, he “formulated his basic laws of mechanics, his optical observations on the nature of light, the calculus, and the law of universal gravitation.” But his greatest literary masterpiece, published several years later in 1687, was *Philosophiæ naturalis principia mathematica*.²³⁰ This book has been praised as the “most famous scientific work of all time” (Rickey, 1987:362). So to what extent did Newton allow his theology to influence his science? Storr (1985:1781), following Keynes (1978:366), believes that Newton “regarded the riddle of the universe in theological terms.” Even if this assessment is justified, Newton (1999:814) apparently disapproved of the only direct reference to God²³¹ in the first publication of *Principia*: “God placed the planets at different distances from the sun”; because in all subsequent editions, he changed it to “the planets were to be placed at different distances from the sun” (Cohen, 1971:155-156). This alteration is mitigated by the fact that, to all subsequent editions of *Principia*, he also added a short theologically-explicit addendum entitled “General Scholium”. In the General Scholium, Newton (1846:504) writes:

This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being... This Being governs all things, not as the soul of the world, but as Lord over all; and on account of his dominion he is wont to be called *Lord God*. (emphasis in original)

This is followed by two more pages of theological philosophising, after which Newton (1846:506) concludes, “thus much concerning God; to discourse of whom from the appearances of things, *does certainly belong to natural philosophy*” (emphasis mine).²³² So although Newton removed any explicit theologising from *Principia*, these latter remarks appear to support the idea in principle.

²²⁸ Although, in all his writings, Newton “never mentioned Descartes favourably” (Biot, 2009:2).

²²⁹ Russell (2008:535) claims that Newton’s “triumph” in the sciences was “so complete”, that he “was in danger of becoming another Aristotle.”

²³⁰ Hereafter abbreviated as *Principia*.

²³¹ Here is the sentence in the original: “Collocavit igitur Deus planetas in diversis distantiis a sole, ut quilibet pro gradu densitatis calore solis majore vel minore fruatur” (Newton, 1687:415).

²³² This sentiment was also expressed in the second edition of *Opticks*, where Newton (2006:345) wrote, “And tho’ every true step made in this philosophy brings us not immediately to the knowledge of the first cause, yet it brings us nearer to it, and on that account is to be highly valued.” In the fourth edition, he took this even further, saying, “the main Business of natural philosophy is to argue from phenomena without feigning hypotheses, and to deduce causes from effects, till we come to the very first cause, which certainly is not mechanical; and not only to unfold the mechanism of the world, but chiefly to resolve these and such like questions” (Newton, 1730:344).

But in another short paper, *Seven Statements on Religion*, Newton (2002a:1) states as his first principle, “religion & philosophy are to be preserved distinct. We are not to introduce divine revelations into philosophy, nor philosophical opinions into religion.” Moreover, as Manuel (1974:30) relates, “When Newton was President of the [Royal] Society, the journal-books record, he banned anything remotely touching on religion, even apologetics.”²³³ This makes it hard to ascertain, therefore, to what extent Newton allowed theology to infiltrate his science, given that he preferred – if not in principle, at least in practice – to keep the two separate. As Snobelen (2010:377) has observed, there is “more explicit theology in Charles Darwin’s *Origin of Species* (1859) than in the first edition of Newton’s great work.”²³⁴ That said, Snobelen (2004a:2) still contends:

Recent work on early modern science has demonstrated a direct (and positive) relationship between the resurgence of the Hebraic, literal exegesis of the Bible in the Protestant Reformation, and the rise of the empirical method in modern science... *In this, Newton also played a pivotal role.* As strange as it may sound, science will forever be in the debt of millenarians and biblical literalists. (emphasis mine)

This may be true, but Newton does not fit the classification of “biblical literalist” easily. Although it is not difficult to find evidence of his enthusiasm for the Bible,²³⁵ his theological views were often heterodox. As Thomas Hearne (1678-1735) (1921:100-101, 412) once described him as a man of “very little religion” to be “ranked with the heterodox men of the age” (Pfizenmair, 1997:80). Likewise, Snobelen (1999:383,388) concedes that although Newton was a “devoted believer”, in other ways he was a “damnable heretic.” In this vein, it is generally believed²³⁶ that Newton secretly entertained Arian ideas (Austin, 1970:533; Keynes, 1978:368-369; Mandelbrote, 1993:283-284; Pfizenmair, 1997:79; Rickey, 1987:384; Storr, 1985:1780; Westfall, 2012:130). Manuel (1974:58) refrains from “pigeonholing” Newton like this, but still concedes that he was anti-trinitarian. An example of this kind of heterodoxy can be found in twelve propositions Newton (Newton, 2012:25r) makes on the nature of Christ, two of which are:

Proposition 3: When ever it is said in the scriptures that there is but one God, it is meant of the Father

²³³ Outside of the society, however, he was “unambiguously favourable” toward those who used his system in their own apologetics (Manuel, 1974:35). In 1692, Newton (2007:4r) wrote to Richard Bentley (1662-1742): “When I wrote my treatise about our Systeme I had an eye upon such Principles as might work with considering men for the beleife of a Deity & nothing can rejoyce me more then to find it usefull for that purpose.”

²³⁴ Similarly, Westfall (2012:139): “Having studied the entire corpus of his theological papers, I remain unconvinced that it is valid to speak of a theological influence on Newton’s science.”

²³⁵ It is reported by John Conduitt (2004:1v) that when Newton turned down the Mastership of Trinity College, Archbishop Tenison said to him, “Why will you not? you know more divinity than all of us put together.” Stukeley (2004:65r-66r) claims that, “no man in England read the Bible more carefully than he did; none study’d it more, as appears by his printed works, by many pieces he left, which are not printed; & even by the Bible, which he commonly used, thumbd over, as they call it, in an extraordinary degree, with frequency of use.” The following quote is also often attributed him: “We account the Scriptures of God to be the most sublime philosophy. I find more sure marks of authenticity in the Bible than in any profane history whatsoever” (Morris, 2012:32; Simpson, 1808:237; Watson, 1816:57). Also Tiner (1975:94).

²³⁶ In a fairly recent dissertation on the theology of Isaac Newton, Van Alan Herd (2008:2) has argued that Newton was not an Arian, but instead a “mainstream Puritan”. But as will be evident from the ensuing discussion, this thesis is hardly compelling.

Proposition 11: The son in all things submits his will to the will of the father which would be unreasonable if he were equal to the father.^{237, 238}

But his Arianism is even more explicit in his short essay, *Irenicum, or ecclesiastical polity tending to peace*, where Newton (2002b:33) identifies Jesus as the archangel Michael. It has also been argued that, towards the end of his life, he even questioned the reality of a literal devil and evil spirits (Manuel, 1963:149; Snobelen, 1999:388; 2004:160).²³⁹ Snobelen (2004b:181) tries to dismiss this portrayal by suggesting that “Newton’s demonology was an exegetical option, not a sign of the encroaching Enlightenment.” But this is hard to accept, given that, as Snobelen (2004b:181) himself admits:

Newton’s denial of evil spirits was well outside the theological mainstream in his own day and for a long time afterward. His position would have been viewed as a runaway to infidelity, a capitulation to cold, dark atheism, a disturbing disenchantment of the world or even a delusion inspired by Beelzebub himself. If only his witching-hunting colleagues at the Royal Society had known.

Newton’s secrecy in these matters is telling. King (1858:230) and Popkin (2000:299-300) also show that Newton privately engaged with the writings of radical Enlightenment thinkers like Spinoza and Richard Simon.²⁴⁰ He was also good friends of Locke who, as discussed above, was widely regarded as “England’s foremost Enlightenment thinker” and “father of liberalism” (Hoffecker, 2007:244; Korab-Karpowicz, 2010:291). Newton (1858:217) asked Locke “in the strictest confidence” to help him translate his controversial treatise on 1 John 5:7 and 1 Timothy 3:6 into French and have it published anonymously in the Netherlands (King, 1858:231; Westfall, 2010:490-491). The treatise was entitled *An historical account of*

²³⁷ As he clarifies later, Newton (2012:173r-173v) believes that the deity of the Son and the Spirit is merely derivative, not original: “To apply the name of God to the Son or holy ghost as distinct persons from the father, makes them not divers Gods from the Father becaus the divinity of the son & holy ghost is derived from that of the father... Soe there is divinity in the Father, divinity in the Son, & divinity in the holy ghost, & yet there are not 3 divinities but one divinity which is originally in the father & by descent or communication in the son & holy ghost... so by saying there is but one god, the father of all things, I deprive not the son & holy ghost of the divinity which they derive from the father &c.”

²³⁸ Newton has been quoted as saying to a Mr Hopion Haynes that, “the time will come, when the doctrine of the incarnation as commonly received, shall be exploded as an absurdity equal to transubstantiation!” (Baron, 1763:xviii-xix)

²³⁹ Evidence of this kind of thinking can be found in Newton’s (2002c:19v-21v) discourse on the dragon of Revelation in which he wrote, “A Dragon or serpent, if called the old serpent or the Devil signifies the spirit of error delusion & inordinate affections reigning in the world. ffor spirits good or evil are sometimes put for the tempers dispositions & persuasions of mens minds much after the manner that we often take death for a substance... The spirits of God of fals Prophets & of Antichrist are here plainly taken not for any substantial spirits but for the good or evil dispositions & true or fals perswasions of mens minds... From this figure of putting serpents for spirits & spirits or Dæmons for distempers of the mind, came the vulgar opinion of the Iews & other eastern nations that mad men & lunaticks were possessed with evil spirits or Dæmons. Whence Christ seems to have used this language not only as a Prophet but also in compliance with the Iews way of speaking: so that when he is said to cast out Devils those Devils may be diseases unles where it can be proved by the circumstances that they are substantial spirits. For the language of casting out a spirit is used for the cure of a Lunatique Matt 17.15, 18, 19.” In another manuscript, he wrote, “Cherubim were originally nothing more than hieroglyphical symbols or armies & other bodies politick. Spirits frequently signified the tempers & dispositions of the mind; & evil spirits the diseases & distempers thereof as when Saul was troubled with an evil spirit from the Lord; Devils signified the imaginary Ghosts of dead men whom the heathens worshipped as Gods; Inchanters, Magicians, Sorcerers, Necromancers & Witches signified deceivers & cheats who by certain forms of words & ceremonies & other juggling tricks pretended to supernatural powers & arts of prognosticating for magnifying themselves among the people” (Manuel, 1963:149). Was Newton’s demonology influenced by Hobbes (1929:502)? As Manuel (1974:84) contends, “Newton had clearly been exposed to the new Biblical criticism. That he read Richard Simon is certain, that he knew Hobbes is very likely”. Either way, it is evident that Newton had a low view of the original recipients of Scripture. In his writings on the history of the church, he wrote, “The Christian religion was preached by Christ & his Apostles *to the meanest of the people*, & therefore was suited to their capacity: and what it now contains above their understanding has been introduced since by men of learning.” (emphasis mine; Newton, 2006:99r)

²⁴⁰ In reference to Genesis 36:31, Newton (1831:4-5) employed the same exegetical argument used by Simon (1682:book I:37) to dismiss the Mosaic authorship of certain sections of Genesis. Newton also “collected, arranged, and strengthened Simon’s arguments” in a dissertation on 1 John 5:7 (King, 1858:230).

two notable corruptions of Scripture and was addressed to none other than Le Clerc.²⁴¹ Popkin (2000:300) explains that Newton was not dissimilar from Spinoza and Simon in that he was prepared to question the inerrancy of Scripture. Whilst Popkin may be overstating the case, the fact remains that Newton was not untouched by the kind of thinking that propagated typical Enlightenment thinking.²⁴² And his own writings, whether scientific or theological, did little to hinder its development. As Israel (2001:11) observes:

Although down to 1750, in Europe as a whole, the struggle for the middle ground remained inconclusive, much of the European mainstream had, by the 1730s and 1740s, firmly espoused the ideas of Locke and Newton which indeed seemed uniquely attuned and suited to the moderate Enlightenment purpose.

So although Newton “devoted close to six decades to a passionate study of the Bible, theology, prophecy, church history and natural theology”, his heterodox reading of Scripture left room for a less-than-literal interpretation of Genesis (cf. Snobelen, 2010:378). Calling the story of the fall of man a “parable”, Newton (2002c:19v-21v) claimed that the trees in Eden were “mystical” and the serpent, “only a symbol of the spirit of delusion”. And contrary to Drake and Komar (1983:12), Jones (2019:22), and Morris (2012:32), Newton did not believe in a literal six-day creation.²⁴³ In his treatise on Revelation,²⁴⁴ he states:

And so the six days of the Creation may signify not only six years but even six thousand years... or any other six long times. ffor the history of the creation is not in all things litteral. In that Paradise the flaming sword & trees of life & knowledge may be as much figurative descriptions of something we now understand not as the tree of life is in the Paradise to come, & in a parabolical description of the creation a day may be used figuratively as well as other things are especially since there was no light till the end of the first day nor sun till the fourth – to make natural days. The evenings & mornings of Moses respect all parts of the Earth alike so that it was evening all over the Earth in the beginning of each day of Moses & morning all over it in the end of each day: & therefore his evenings & mornings were not natural ones. ffor had they been natural ones it would have been morning in one part of the Earth when it was evening in another.²⁴⁵ (Newton, 2002c:f39r-f39v)

²⁴¹ It is possible that Le Clerc’s hostility towards the Trinitarian formulation in Nicene Creed also resonated with Newton’s own preference for Arius over Athanasius (Klauber, 1993:630-631; Manuel, 1974:58).

²⁴² A similar example of unwarranted exaggeration is found in Westfall (2012:140) who argues that Newton’s theology was influenced by “a new criterion of truth and a new locus of intellectual authority which ignored the claims of religion”. In this case, Westfall (2012:140) adapts a segment from Newton’s *Origins of Gentile Theology*, thereby making Newton assert that the “undefiled form of true religion [is] found in the study of nature.” But Westfall omits the parenthesis provided by Newton in this quote in order to construe such a position for him. The original quotation, without subtraction, is as follows:

“So then the first religion was the most rational of all others till the nations corrupted it. ffor there is no way (without revelation) to come to the knowledge of a Deity but by the frame of Nature” (Newton, 2001:7r). Newton’s point here is rather that the study of nature would be the only means left to pagan theologians *where biblical revelation was unavailable*.

²⁴³ Another popular claim is that Newton’s chronology depended upon or defended James Ussher’s *Annales veteris testamenti, a prima mundi origine deducti* (Austin, 1970:530; Gaukroger, 2010:376; Jones, 2019:22; Lincoln, 2002:4). But as one of his earliest critics observed, Newton’s chronology “differs toto caelo from all the learned men in the world” including, most notably, James Ussher (Bedford, 1728:5-8). I have also not found a single reference, positive or negative, to Ussher within the Newtonian corpus.

²⁴⁴ Westfall (2012:131) claims that Newton considered Revelation to be the “fundamental book” of the Bible by which the other 65 books should be interpreted. Although I have not been able to corroborate this claim from Newton’s writings, Newton (2004:1r) did consider the study of Revelation to be “a duty of the greatest moment” for the church living in these last days.

²⁴⁵ This quote, coming from a treatise written from the mid to late 1660s, postdates Newton’s reply to Thomas Burnet (see next section) which shows that Newton (2008:8) was not advocating six-day creation when he wrote in that letter, “me thinks one of the tenn commandments given by God in mount Sina, prest by divers of the prophets, observed by our Saviour, his Apostles & first Christians for 300 years & with a day’s alteration by all Christians to this day, should not be grounded on a fiction.” This should also be evident from the manner in which Newton (2008:8) refuses to accept that the sun, moon and stars were created

For the 1680s, this kind of interpretation was far from orthodox, and possibly the first articulation of the “day-age theory” in history. If correct, this makes Newton a key figure in the ensuing hermeneutical revolution which shaped how Genesis 1-11 would be read for the next three centuries.²⁴⁶ This accords well with Israel’s (2001:20) analysis for the onset of the Enlightenment, which he places within the same time period, from 1680 to 1750, as a time of major intellectual upheaval in Europe. Ford’s (2000:8) assessment corroborates this further, ascribing the rapid decline of “Young Earth literalism” from 1660 through to the 1790s and the rise of modern geology. Prophetically perhaps, in the front matter of the first edition of *Principia*, Edmond Halley²⁴⁷ (1656-1742) compares Moses with Newton:

He who commanded us by written tablets to abstain from murder./ Thefts, adultery, and the crime of bearing false witness,/ ...*Exalted the human lot less*, inasmuch as he was concerned with only a few comforts of a wretched life./ *And thus did less than our author for the condition of mankind.*/ But we are now admitted to the banquets of the gods;/ We may deal with the laws of heaven above; and we now have/ The secret keys to unlock the obscure Earth;/ ...O you who rejoice in feeding on the nectar of the gods in heaven./ *Join me in singing the praises of Newton*, who reveals all this./ Who opens the treasure chest of hidden truth,/ Newton, dear to the Muses,/ ...*No closer to the gods can any mortal rise.* (emphasis mine; Halley, 1999:380)

For Halley, at least, Newton was a superior Moses. The curious corollary to all this, is that Newton accepted such praise in print as the foreword to his magnum opus. Did Newton think of himself as Moses’s scientific successor? Perhaps, perhaps not. Either way, Moses did not fare well in the next century. As Manuel (1965:4) has observed, for the Enlightenment to flourish in the eighteenth-century, “certain basic intellectual needs” had to be met, the first being: “a replacement of Genesis.” Newton did little to hinder such a venture. Instead, as Popkin (2000:310) argues, the next generation of theologians took their lead from him:

Newton had a sizable influence on religious writers from the later eighteenth century down to the present, mainly on the protofundamentalists and the nineteenth- and twentieth-century fundamentalists.²⁴⁸ Newton was cited favorably as an authority by David Hartley, Joseph

on “the fourth day nor in any one day of the creation”. Thus, *contra* Janiak (2015:95-96, 99), Newton was not “committed to the literal truth of Holy Scripture”.

²⁴⁶ See Voltaire (1901a:151, 182, 187).

²⁴⁷ Halley’s depiction of Newton as a better Moses also conveys his lack of appreciation for the Mosaic account of creation. Halley (1714-1716:296) did not believe that the days in Genesis were “natural days” because the sun was only created on the fourth day. He maintained that the Scriptures could not provide a reliable account of the age of the earth. Instead, he proposed that the salinity of the oceans could give a better estimate.

²⁴⁸ Here Popkin (2000:309) rightly acknowledges Newton’s theological legacy, but only tells one side of the story, portraying Newton as an inspiration to “the early British fundamentalists”, and as an encouragement to the next generation to “not denigrate the Bible because of modern science.” Yet, even in the examples he cites, a distinctly anti-fundamentalist trait can also be found, whereby the Genesis story was indeed denigrated by modern science. David Hartley (1705-1757), following Whiston, believed that Genesis 1 was merely “a narrative of the succession of visible appearances” (Hartley, 1834:387); and that the account was “more accommodated to [the typological or prophetic] sense than to the literal one” (Hartley, 1834:388). He only believed that the account of the flood was literal *because* Halley and Whiston had convinced him that “Natural history bears a strong testimony to Moses’s account of the deluge” (Hartley, 1834:388). Likewise, Joseph Priestley (1733-1804) thought that the Genesis account had “the air of fable” (Priestley, 1803:42, 46, 49); that the story depicted a “history of appearances” (Priestley, 1803:43); that the days of creation were “six periods... or longer portions of time” (Priestley, 1803:46); moreover, that, “It is highly probable that the creation of animals took place at different periods” (Priestley, 1803:44). Of those listed by Popkin, only Samuel Horsley (1733-1806) unambiguously preferred the orthodox, literal approach to Genesis, viewing the acts of creation over “six successive days” (Horsley, 1820:1-2, 8-9). Thus, as Thomson (1812:284) has recorded, Horsley admired Newton for his science, but he “found Newton’s [religious] papers unfit for publication.”

Priestley, Bishop Thomas Newton, Charles Crawford, and Bishop Samuel Horsley, among others writing on religious topics in the eighteenth century. (Popkin, 2000:309)²⁴⁹

And so, wittingly or unwittingly, Newton became a model for how to do science and theology. Theologians in Germany “reverently quoted” him in their efforts to muster support for Christianity (Manuel, 1974:4). In similar ways, Newton’s science inspired the apologetic works of “Craig, Whiston, George Cheyne, Derham, the lectures of Bentley and Clarke” (Manuel, 1974:35). All these men endeavoured to show the harmony between the book of nature and the book of Scripture in treatises which “came to be known as a *physica sacra*” as they studied the history of creation (Manuel, 1974:37). But of those enamoured with Newton’s science,²⁵⁰ Thomas Burnet (1635-1715) was one of the first to attempt an explanation of Genesis 1-11 in terms of Newtonian physics.

2.6.14 Burnet’s scientific hermeneutic

Burnet (1726a:xxiii) set out to establish scientific reasons to “justify the doctrines of the *Universal Deluge*, and of a *Paradisiacal* State, and protect them from the cavils of those that are no well-wishers to sacred history”. It is possible that he had Walter Charleton (1619-1707) in mind. In *The darknes of atheism dispelled by the light of nature* (1652), Charleton (1652:146) makes the case that “God miraculously created a sufficient supply of Waters purposely for the Deluge, and afterwards annihilated them again.” This kind of reasoning was both embarrassing and troubling to Burnet. The age demanded credible evidence and rational grounds for such phenomena, and he was prepared to supply it. Burnet (1726a:206-207) suggests that the water needed for Noah’s flood could have come from a “Great Abyss” within the earth.²⁵¹ These ideas eventually culminated in *Telluris theoria sacra* (1681).²⁵²

In many ways, Burnet’s treatise seems²⁵³ to affirm the literal interpretation of Genesis, including the longevity of the antediluvian patriarchs (Burnet, 1726a:31), the universality of the flood (Burnet, 1726a:12; 30-31); and an earth no older than six thousand years (Burnet, 1726a:3, 48). But Burnet only espoused

²⁴⁹ This point is made *contra* Manuel (1974:4) who maintained that it was Newton’s science rather than his religion which had a lasting impact on western society.

²⁵⁰ For example, Buffon (1797:112) who appropriates Newton in his endeavour to provide a more naturalistic alternative to Genesis 1-11. See section 3.15 for the discussion on Buffon.

²⁵¹ Burnet was not the only natural philosopher trying to make the deluge in Genesis 7-8 more palatable. Within the same period, Halley (1724-1725:121) also suggested that a comet might have provided the “natural means” required by God for the flood.

²⁵² i.e. *The sacred theory of the earth*

²⁵³ Before the publication of *Telluris theoria sacra*, in 1860, Burnet submitted his manuscript to Newton. From the correspondence which ensued it is apparent that Burnet (2008:4-5) did not consider the six days of creation to be a “physical reality” but rather “Ideal” or “Morall”, accommodated to the “vulgar” state of the earliest civilisations of mankind. Newton (2008:12) replied, “But be it as it will, me thinks one of the tenn commandments given by God in mount Sina... should not be grounded on a fiction. At least Divines will hardly be perswaded to beleive so.” It seems that Newton (2008:10), at this stage in his career, still wanted to maintain a more literal approach to the text, although he unequivocally dismisses the events pertaining to the fourth day of creation, asserting instead that, “when [Moses] tells us of two great lights & the starrs made the 4th day, I do not think their creation from beginning to end was done the fourth day nor in any one day of the creation nor that Moses mentions their creation as they were physicall bodies in themselves some of them greater then this Earth & perhaps habitable worlds, but only as they were lights to this Earth, & therefore though their creation could not physically {be} assigned to any one day, yet being a part of the sensible creation which it was Moses’s design to describe & it being his design to describe things in order according to the succession of days allotting no more then one day to one thing, they were to be referred to some day or other & rather to the 4th day then any other if the air then first became clear enough for them to shine through it & so put on the appearance of lights in the firmament to enlighten the Earth.” Whether or not it was Burnet’s writings that eventually convinced Newton to abandon the literal historicity of the hexaemeron is not easy to ascertain.

these views because he deemed them to be reasonable and scientifically credible, not because of anything he had read in Genesis. In the preface he wrote:

‘Tis a dangerous thing to engage the authority of Scripture in disputes about the natural world, *in opposition to reason*; lest time, which brings all things to light, should discover that to be evidently false which we had made Scripture to assert. (emphasis mine; Burnet, 1726a:xix)

Burnet’s book was eagerly received and was widely circulated (Janiak, 2015:97). But his handling of Genesis also invited criticism. In one of the first reviews of *Telluris theoria sacra*, Erasmus Warren (1726:387-390) protests that the notion of God making the world in six days is “repugnant to clear and uncontested science”, and that “there can be nothing more like a vulgar style, than to set God to work by the day, and in six-days to finish his task”. Burnet (1726b:405) was quick to reply, “you may suppose it made in six minutes, if you please.” In another letter to a friend, Burnet (1726b:518) clarifies his position further, writing:

There are as good reasons, and better authorities, that Moses’s six days creation should not be literally understood, than there are, why those texts of Scripture that speak about the Motion of the Sun, should not be literally understood.

A decade later, Burnet’s cosmology had very little to do with Genesis at all.²⁵⁴ In *Archaeologiae philosophicae sive doctrina antiqua de rerum originibus* (1692),²⁵⁵ he calls the story of Adam and Eve a parable (Burnet, 1736:11); rejects the creation of Eve from Adam’s rib (Burnet, 1736:12); and deems a speaking serpent to be utterly nonsensical (Burnet, 1736:17-18). Burnet (1736:21, 22, 23, 35, 50) cannot believe that Adam and Eve were capable of sewing their own clothes; that the garden of Eden was guarded by real cherubim; that Adam had named all the animals in a single day; or that the universe was less than six thousand years old. He concludes, “the very letter of the *Hexaemeron* [is] most absolutely contradictory to the nature of things, as well as to all philosophical reasons” and “Moses has departed from the physical truth” (Burnet, 1736:29, 51).

What this called for, in practice, was a *scientific* hermeneutic, whereby “philosophy is the interpreter of Scripture in natural things” (Burnet, 1736:58). It was a principle that resonated strongly with Charles Blount (1654-1693), who eagerly plagiarised sections of Burnet’s writings to further his radical deistic agenda in England (Israel, 2001:605; Redwood, 1974:490).

2.6.15 Blount frees Genesis from absurdity

Despite being called a “hack journalist” of “small literary talent”,²⁵⁶ Blount is still regarded as a “crucial figure in the rise of English radicalism” and even the “chief deist of his age” (Mintz, 2010:147; Macaulay, 1953:532; Israel, 2001:604; Harrison, 2005:73). What Blount lacked in originality, he made up for in

²⁵⁴ Burnet’s final rejection of Genesis was no secret, as evidenced by a “popular ballad” written against him: “That all the books of Moses/ Were nothing but supposes;/ That he deserv’d rebuke, Sir,/ Who wrote the Pentateuch, Sir,/ ‘Twas nothing but a sham, &c./ That as for father Adam,/ With Mrs. Eve his madam,/ And what the serpent spoke, Sir,/ ‘Twas nothing but a joke, Sir,/ And well-invented flam, &c” (Stephen, 1886:409; King, 1726:212).

²⁵⁵ i.e. *The ancient doctrine concerning the origin of things*

²⁵⁶ In his unflattering appraisal of *The oracles of reason* (1693), Taylor (1698:ii) says of Blount, “the Devil cannot always speak through the Serpent; sometimes he must make use of a duller animal, the best he can get.”

iconoclastic defiance. He borrowed extensively from Hobbes, Herbert²⁵⁷ and Burnet, but became, pre-eminently, Spinoza's "English disciple" (Israel, 2001:602, 604; Blount, 1683b:48; King, 1698:33). It is thought that Blount was the man originally responsible for bringing out the first English translation of *Tractatus* thereby giving Spinoza a foothold in England (Israel, 2001:605).

Following the trajectory of Galileo and Bacon, Blount insists that the Bible has nothing to offer the sciences. In the first sentence of *Miracles no violation of the laws of nature* (1683), he writes, "the authors of the Holy Scriptures, when they speak of natural things, do not design to instruct men in physical speculations and the science of natural philosophy; but aim only to excite pious affections" (Blount, 1683a:par. 1). Blount (1683a:par. 1) believes that ancient civilisations were not intelligent enough to understand the nature of the physical world, describing them as an "unthinking multitude" whose "narrow capacity and grovelling wit [the biblical writers] were always to condescend". On these grounds, he claims that a miracle in Scripture is simply "a work of nature, which either really transcends human understanding, or is believ'd to do so" (Blount, 1683a:13).

For Blount (1683a:6), the laws of nature are as eternal and immutable as God himself.²⁵⁸ In fact, the will of God, as expressed in Scripture, is indistinguishable from the laws of nature (Blount, 1683a:16). In this way, like Locke, Blount imposes a scientific hermeneutic upon the text. The inspiration or veracity of any passage is determined *a posteriori* by its scientific credibility:

Wherefore we here absolutely *conclude*, that all the events that are truly related in the Scripture to have come to pass, proceeded necessarily (as all other contingents do) according to the immutable laws of nature; and that if any thing be found, which can be apodictically demonstrated to be repugnant to those laws, or not to have followed from them: we may safely and piously believe the same not to have been dictated by divine inspiration, but impiously added to the sacred volumes by sacrilegious men: for whatever is against nature, is against reason; and whatever is against reason, is absurd, and therefore also to be rejected and refuted. (Blount, 1683a:21)

Ten years later, Blount penned his final deistic manifesto, *The oracles of reason* (1693), a collection of extracts, letters and chapters from other deistic thinkers (Redwood, 1974:497). For Taylor (1698:i-ii), this book was "The Poyson" behind the "growth in Deism" in the world.

In *The oracles of reason*, Blount (1693:preface) assumes a prophetic role in his crusade to liberate mankind from a narrow-minded misinterpretation of Scripture. It quickly becomes apparent that this liberation must begin with Moses. Following the course charted by his enlightened predecessors, he considers the interpretation of Genesis 1-11 to be of chief importance. To this end, he insists that we follow "our sovereign guide, Reason" (Blount, 1693:preface). Blount's first champion of reason is Burnet. After praising Burnet for "freeing" Moses from "absurd" interpretations, he devotes his first three chapters to vindicating Burnet's rendition of the creation story, republishing the first two chapters of *Archilogiae*

²⁵⁷ In *Religio Laici* (1683), Blount (1683b:94) embraced Herbert's (1937:56-57) "Five Articles, that are grounded upon the Law of Nature, which is God's universal Magna Charta".

²⁵⁸ Blount's (1693:preface) god is practically indistinguishable from nature: "the Power of God and the Power of Nature are one and the same, and that all her Laws are his eternal Decrees."

philosophicae verbatim (Blount, 1693:preface; Burnet, 1736:1-48). Burnet's views on the flood, however, were apparently too tame. Here Blount (1693:10-11) favours Vossius (1659:48-60), finding it more credible to believe that the deluge was constrained to Palestine. The chronology in Genesis is also rejected. Quoting Charles Gildon (1665-1724) at length, Blount (1693:181-183) argues that the world is considerably older than six thousand years. And in a section entitled *Ocelius Lucanus*, he shares La Peyrère's pre-Adamite theory:

It plainly appears out of the Bible, that there were two creations both of Man and Woman, and that Adam was not the first Man, nor Eve the first Woman, only the first of the Holy Race. (Blount, 1693:218)

Blount's expressed concern for the correct interpretation of Scripture is clearly superficial. He leaves no room for divine inspiration, and is happy to equate nature with "God" (Blount, 1693:preface, 88-96). In other words, his revision of Genesis 1-11 is merely a means to reject the Bible altogether.

In an age ripe for this kind of thinking, Blount was an effective propagandist for deism. By Redwood's (1974:498) assessment, his eclectic concoction of science and Scripture resonated with the "anti-clerical, the anti-papist, the radical and the republican, the pursuer of reason, and the man who hated miracles and revelation."

2.6.16 Whiston reinterprets Genesis according to Newtonian science

In 1702, Newton's disciple, William Whiston (1667-1752), succeeded him as the Lucasian professor of mathematics²⁵⁹ (Snobelen & Stewart, 2003:140). Unlike Blount, Whiston was regarded as a serious scientist, and was invited to make his own contribution to the Boyle Lectures (Dahm, 1970:175). And following Newton, he excelled in both the sciences and theology, achieving considerable success in both his preaching²⁶⁰ and mathematical writings (Snobelen & Stewart, 2003:147). His translation of the works of Josephus is still being used today.²⁶¹ In 1696, he wrote his own philosophical version of Genesis 1-11, *A new theory of the earth*, which he dedicated to Newton. Instead of Burnet's hollow earth theory, Whiston (1737:180) envisaged the Noahic flood being caused by a comet. Such was his confidence in this astronomical cause, that not only did it persuade him of the historicity of the deluge, but even its precise date: 28th of November 2349 BC²⁶² (Whiston, 1737:186). Indeed, comets featured prominently in

²⁵⁹ Only eight years following his appointment at Cambridge, in 1710, he was expelled from Cambridge for publicly espousing his anti-trinitarian views (Manuel, 1974:31; Snobelen & Stewart, 2003:149). As Manuel (1974:7) and Rickey (1987:384) point out, Newton was shrewd to hide his own theological musings.

²⁶⁰ Whiston was ordained as a deacon in 1693, and served as a chaplain to the bishop of Norwich from 1694 to 1698 (Snobelen, 2004c:502).

²⁶¹ As of 2018, the most popular reprint of Josephus on amazon.com still uses Whiston's translation.

²⁶² It is not hard to see how this kind of apologetics did little to hinder a growing "Deistic criticism of the Bible" as, for example, in the case of Buffon (1797:124-125) who appropriated Whiston's theory to his own ends (Reventlow, 1985:340). The same could be said of Burnet. In *An essay toward a natural history of the earth* (1695), John Woodward (1665-1728) (1695:161-162) takes Burnet to task for supplying sceptics with more reasons to reject the universal flood than accept it: "Some Men there are who have made a very untoward use of this, and such a one that I am willing to persuade myself he never intended they should; yet it were to have been wish'd that he had been somewhat more wary. These cryed up this computation of the water as indisputable and infallible: and then boldly gave out that such a Deluge as that described by Moses was altogether incredible, and that there never was nor could be any such thing." Ironically, the theory which Woodward proposes as a replacement to Burnet's – involving various gravitational anomalies – receives as much ridicule from Buffon (1797:136) as Burnet's.

Whiston's hypotheses. He postulates that "a comet, or more peculiarly the atmosphere thereof, was that very *chaos* from whence [the] world arose" (Whiston, 1737:34).

As with Newton, Burnet and Halley, Whiston believes that the interpretation of Genesis requires the expertise of scientists. He insinuates that those "unacquainted with the works" of God (in the "Book of external Nature") will be unable to interpret the "Word of God" (Whiston, 1737:40). In this way Whiston always allows science and reason to have the last say in hermeneutics:

That SACRED RULE ought for ever RELIGIOUSLY to be observ'd, that we never forsake the plain, obvious, easy and natural sense, *unless where the nature of the thing it self, parallel places, or evident reason, afford a solid and sufficient ground for so doing.* (emphasis mine; Whiston, 1737:27; cf. 95)

On these grounds, *contra* Reventlow (1985:340), Whiston (1737:55) deems the literal rendering of the six days of creation, a "vulgar hypothesis." Incredulous as to how God might have completed his work in so short a time, he claims that the days in Genesis are years (Whiston, 1737:52, 87-109, 325). And once again, to explain the transition from the six year-long days of creation to the ordinary days which followed, he invokes another comet to accomplish the task²⁶³ (Whiston, 1737:111-112).

When it comes to God creating light before the sun, moon and stars, Whiston (1737:15) is equally troubled and even alters the very words of Scripture in Genesis 1:16 to "And God having (before) made two great lights" so that his astronomical views can be accommodated. Not sufficiently satisfied with this amendment, he also denies that Genesis 1 has anything to do with "the rest of universe"²⁶⁴ or the original creation of matter (Whiston, 1737:4). Following the course charted by Augustine (1982:35-36) and Galileo (1957:181), Whiston (1737:17) argues that Scripture "accommodates itself to the vulgar apprehensions of men" who were incapable of comprehending a more accurate account on "such points of natural philosophy."

The revolt against Genesis was steadily gaining momentum. As VanDoodewaard (2015:105) recounts:

Burnet, Newton, and Whiston demonstrate that by the late seventeenth century, philosophical and religious challenges to both a literal interpretation of Genesis and its derivative theology were increasing in England and on the European continent.

2.6.17 De Fontenelle's rejection of Genesis in favour of extra-terrestrial speculations

Bridging the seventeenth and eighteenth centuries, from 1697 to 1740, Bernard Le Bovier de Fontenelle (1657-1757) served as secretary to the French *Académie des sciences*, during which time he wrote three volumes of the highly-successful *l'Histoire du renouvellement de l'Academie royale des sciences* (1708, 1717, 1722) (Sibley, 2020:54; Lalande, 1803:iv). In this privileged capacity, de Fontenelle actively promoted geological views that precluded the biblical flood, whilst at the same time censoring²⁶⁵ any scientific interpretations

²⁶³ Whiston (1737:111-112) believed that the earth's rotation only began after the six "days" of creation.

²⁶⁴ Here Whiston (1737:5) cites the "Lord Bishop of Ely" (i.e. Simon Patrick (1626-1707), whose "excellent" commentary had allowed him this line of reasoning.

²⁶⁵ Rappaport (1991:299) cites the case of Hans Sloane (1660-1753), an Irish scientist who, in 1727, submitted a report to the French journal documenting the discovery of mammoth bones in Siberia – something which he attributed to Noah's flood

that assumed or asserted it (Sibley, 2018:86-87; 2020:54; Rappaport, 1991:282). De Fontenelle's (1754:151-152) disdain towards Genesis 1-11 is also apparent from his essay, *De l'existence de Dieu*, which shows, as Marsak (1959:27) points out, that "His thoughts on this subject are among his most daring for he not only challenged the Biblical account of creation, but spoke for an evolutionist philosophy that should trace even man back to a prime living substance."

Added to this, in 1695, de Fontenelle wrote an anonymous tract entitled *De la diversité des religions*, in which he postulated that "all the world's religions were concocted by humans" (Israel, 2001:498). The greater book, to which this thesis belonged, *l'Origine des fables*, had been written mostly by 1680, but was only published in 1724 when censorship laws were relaxed (de Fontenelle, explained by Fellows & Torrey, 1971:60). In this work, de Fontenelle (1975:18) singles out those who are "infatuated with antiquity" as followers of fables. His not-so-subtle insinuation is that if Genesis has anything to offer modern man, it is merely to show "the history of the errors of the human mind" (de Fontenelle, 1975:18). With a craftiness necessitated by the risk of prosecution, de Fontenelle (1975:16) is careful to exclude Christianity from this sweeping generalisation, but cannot restrain himself from pronouncing that "there are no peoples whose history does not begin in fables" and "Among most peoples, fables change into religion".

De Fontenelle's most celebrated work, however, was *Entretiens sur la pluralité des mondes*²⁶⁶ (1686), published just one year before Newton's *Principia*. Voltaire stated that this was "one of the best works that ever were written",²⁶⁷ and it is thought to be the first popular-level science²⁶⁸ book ever published (Lalande, 1803:iv; Stott, 2013:117). De Fontenelle's (1803:34) novel thesis proposes the existence of intelligent life on other planets, beginning with the moon,²⁶⁹ which he says, "is a world like ours; and to all appearance, inhabited." To make this claim, de Fontenelle (1803:129-130) assumes a naturalistic origin of the universe, appealing to "Nature" as a powerful creative force capable of producing other worlds like our own. His cosmology, following Descartes' *Le monde*, is explicitly mechanistic (de Fontenelle, 1803:10). De Fontenelle (1803:9-10) compares the universe to a large watch, whose inner workings can only be discerned by those of "mechanical genius". As his commentary in *l'Histoire* shows, de Fontenelle believes that "the earth's past was a subject for scientists, not for historians" (Rappaport, 1991:298). Theologians, therefore, are portrayed as a threat. If there was to be any opposition to de Fontenelle's theory of life on other planets, it would come from those who already understood the universe and its origin on Scriptural grounds. As de Fontenelle (1803:xv) laments, these people are "the most difficult to satisfy" because they

(Rappaport, 1991:299). De Fontenelle (1739:4) believed this explanation was unwarranted and therefore prepared his readers in the preface to disregard Sloane's (1739:312) interpretation of the evidence.

²⁶⁶ i.e. Conversations on the plurality of worlds

²⁶⁷ Translated from Nicolas Charles Joseph Trublet's (1697-1770) (1761:135-136) account of Fontanelle's life and works in which he cites Voltaire as saying, "je regarde son livre comme un des meilleurs qu'on ait jamais faits & l'auteur comme un des plus estimables qui aient jamais été."

²⁶⁸ To call *Entretiens sur la pluralité des mondes* a work of science is perhaps too generous. Given its format and methodology, de Fontenelle's book was really a piece of science fiction (Sibney, 2018:85).

²⁶⁹ De Fontenelle (1803:44) suggests that "as a prodigious number of men have been, and still are, silly enough to worship the moon; so there are some in the moon that pay their adorations to the earth". Applying a similar logic to the proposed inhabitants of Mercury, he supplements his lunar speculations with the following racist remark: "They must be almost mad with, vivacity, like most of the negroes, they are without memory; never reflecting; acting by starts and at random: in short Mercury is the bedlam of the universe" (de Fontenelle, 1803:85).

“imagine religion is endangered by placing inhabitants any where but on the earth” (de Fontenelle, 1803:xv). De Fontenelle (1803:134) is clearly aware of how Genesis 1:16-17 precludes the existence of extra-terrestrial life because the text “prevents people from believing the planets to be inhabited”. In France, amongst the educated classes, de Fontenelle’s imaginative speculations were discussed and debated for more than a century (Lovejoy, 2001:130; Stott, 2013:117). And with this increased interest in extra-terrestrial life, came a decreased interest in reading Genesis as history.

2.7 Conclusion

After centuries of theologians, philosophers and scientists taking Genesis 1-11 as nothing less than literal history, the spell was eventually broken. What began in the High Middle Ages as a separation of philosophy from theology culminated in the separation of science from Scripture by the turn of the seventeenth century. The progression towards this end, however, was by no means linear. With the onset of the Protestant Reformation and the rediscovery of a vernacular Bible, there was a rejuvenated interest in the sciences in a manner that recognised and celebrated theology as the necessary preconditions for science itself. Indeed, by liberating science from the tyranny of Aristotle, the Reformation birthed a generation of Christians who were inspired to study the world of God in light of the word of God. Genesis 1-11 became a foundational book for science. By any modest estimate, almost all the founding fathers of our modern scientific disciplines would be identified in today’s terms as regular six-day creationists, including the likes of Copernicus, Galileo, Kepler and Bacon. Robust theological convictions led to seminal discoveries and advances in human and plant anatomy, astronomy, cosmology, cartography, economics, pure and applied mathematics, pneumatics, chemistry, geology, electricity and electrostatics, zoology, botany, microscopy and microbiology. It is incontrovertible that science flourished in the fertile soils of theology. But the general harmony between science and Scripture was not destined to last.

Just as Luther had challenged the Catholic church to reconsider the biblical grounds for their doctrine and practice, so Galileo challenged the Catholic church to reconsider its Ptolemaic interpretation of Scripture. Unfortunately, the iconic conflict which ensued made Galileo the quintessential martyr for science. Under the new presuppositions of Enlightenment, the literal interpretation of Genesis was increasingly construed as anti-scientific and ill-conceived – eerily reminiscent of the Galileo affair. Not only were Bacon’s two books separated farther apart, they were also brought into conflict with each other. As it became harder to accept Genesis on its own terms, theologians and scientists alike amended their hermeneutics to save their theology of creation from apparent absurdity. Science became the interpreter of Scripture. And with this drive to reinterpret Genesis, a new generation arose that simply sought to replace it. From the likes of Hobbes and Spinoza to Burnet and Blount, Genesis 1-11 was repeatedly refuted, rejected and replaced by various naturalistic alternatives. What began as a happy marriage between science and Scripture ended in a painful divorce.

Chapter 3. The rejection of Genesis 1-11 in the eighteenth century

3.1 Introduction

With the eighteenth century came coach springs, the mercury thermometer, inoculation for smallpox, iron-loading rods for guns, metal boring and spinning machines, the use of steam-heat and the steam engine, sugar, the discovery of oxygen, electricity, and the first balloon flight (Barth, 1959:19). This wave of technological innovations and scientific advancements was enchanting. The eighteenth-century man needed little help to believe in “the miracle of human power” (Barth, 1959:15). And with this confidence came the growing sentiment – at least among the French *philosophes*¹ – that theology was largely redundant (Butel, 2000:18). Representing their cause, philosopher and mathematician, Marquis de Condorcet (1743-1794), prophesied:

The time will therefore come when the sun will shine only on free men who know no other master but their reason; when tyrants and slaves, priests and their stupid or hypocritical instruments will exist only in works of history and on the stage.² (Condorcet, 2012:130)

Condorcet did not hesitate to reinterpret history to suit his own prejudices. Construing Christianity as the natural enemy of scientific progress, he claims that science had been viewed as “odious” and “dangerous” by the church (Condorcet, 1795:128). For France, this kind of critique was not without warrant. The Church had become hopelessly corrupt (Durant, 1965:608).³ Intellectual freedom had been criminalised.⁴ The appointed clergy did not tolerate dissent from their dogmas. And so, Condorcet’s revisionist thinking resonated loudly with other advocates of a theologically-purged science. As Durant (1965:611) relates,

The cafés of Paris hummed with atheism; lampoons of the clergy were the feast of urban wits, who referred to God as “Monsieur de l’Être,” Mr. Being. Even in the provinces anticlerical literature circulated widely; some traveling salesmen profitably peddled from door to door a brochure entitled *The Three Most Famous Impostors: Moses, Jesus, and Mahomet*.

In the aforementioned brochure, *De tribus impostoribus*, two sentiments feature prominently: (1) the notion that truth is pre-eminently the domain of scientists and philosophers, and (2) the idea that any deference to Genesis 1-11 leads to intellectual suicide (Anon, 1904:39, 139-140). The juxtaposition of these two

¹ The *philosophes*, epitomised by men like Meslier, Diderot, d’Holbach and Voltaire, were the earliest protagonists of the dechristianisation of France eventually culminated in the French Revolution (Gliozzo, 1971:273-283). By Israel’s (2013:5) reckoning, de Fontenelle was the first *philosophe*.

² The historian, Edward Gibbon (1737-1794), shared the same enlightened perspective. In his analysis of the growth of the early church, he writes, “In the primitive church, the influence of truth was very powerfully strengthened by an opinion, which, however it may deserve respect for its usefulness and antiquity, has not been found agreeable to experience” (Gibbon, 1854:532).

³ Durant’s (1965:608) summary is scathing: “[The Church] seemed to be draining more wealth from secular into ecclesiastical hands through its role in the making of wills and the guidance of bequests; it refused to pay taxes beyond its occasional “gratuitous gift”; it held thousands of peasants in practical serfdom on its lands; it maintained monks in what seemed to be fruitless idleness. It had repeatedly profited from false documents and bogus miracles. It controlled nearly all schools and universities, through which it inoculated the minds of the young with stupefying absurdities. It denounced as heresy any teaching contrary to its own, and used the state to enforce its censorship over speech and press. It had done its best to choke the intellectual development of France.” This, in turn, prompted Jean Meslier to write his infamous testament against the “tyrannical yoke of the errors, superstitions, abuses, and the injustices of the government” (Meslier, 2018a:chapter 98; Meslier, 1864c:394).

⁴ In 1619, Lucilio Vanini (1585-1619) was condemned by the Parliament of Toulouse for espousing atheistic beliefs and tortured to death (Christie, 1895:265; Durant, 1961:624).

traits, as will be demonstrated, can be found in the writings of almost every Enlightenment thinker. This makes the reaction to, and treatment of Genesis 1-11 inextricably connected to both the origin and development of the Enlightenment.⁵ Thus, *De tribus impostoribus* begins with the maxim: “Common Sense is the only rule that men should follow”; and it ends with a tirade against Genesis 1-11 (Anon, 1904:39, 129-140). Before the enlightened “freethinker”, the Mosaic account becomes suspicious, risible and fictive (Anon, 1904:129-140).

3.2 Meslier ridicules Genesis 1-11 in his polemic against Christianity

In 1729, a Catholic priest named Jean Meslier (1664-1729) bequeathed to his congregation a testament that unveiled thirty years of hypocrisy:⁶ a hidden atheistic world of antagonism against, and disillusionment with Christianity (Durant, 1965:611). Both anticipating and fuelling the fires of the revolution^{7,8} that would lead France away from the authority of Scripture, Meslier’s diatribe has been called “the most complete antireligious declaration that even this age would ever know” (Durant, 1965:617). In Onfray’s (2011:29) estimation, the “history of true atheism” can be traced back to this single publication. Durant (1965:612) even makes the claim that:

In all the campaign against Christianity, from Bayle to the Revolution, there was no attack so thoroughgoing, so merciless, as that of this village priest.

Voltaire,⁹ d’Holbach¹⁰ and Diderot quickly lionised Meslier’s legacy (Durant, 1965:611, 617). Although the atheism of *Le Testament* was a little too radical for Voltaire, Meslier’s polemic against divine revelation still resonated with him. So, in the early 1760s, he edited it, removing Meslier’s atheistic bent in favour of a more palatable deism, along with a “bogus final prayer at the end” (Israel, 2013:726-727). But according to the uncensored Meslier (1864a:33-38; 1864c:371), religion is a human invention. Specifically, all doctrines derived from Scripture “are nothing, at bottom, but illusions, errors, lies, fictions and

⁵ Mayr (1982:323) supports this notion indirectly when he suggests that the concept of “progress in the social world” as it relates to “evolution in the natural world” is “perhaps the dominant theme in the writings of the philosophers of the Enlightenment.” Given that naturalistic evolution is antithetical to Genesis 1-11, the treatment of Genesis 1-11 during the seventeenth and eighteenth centuries becomes a critical indicator of Enlightenment.

⁶ Meslier (1864a:24-25) relates, “I was, nevertheless, obligated to instruct you in your religion and speak about it to you sometimes, to fulfill, as it were, these false duties of mine, which I had committed to do as the curé of your parish, and thereby I had the displeasure of finding myself bound to this troublesome necessity of acting and speaking entirely against my own views, of having the displeasure of personally filling your heads with stupid errors and vain superstitions which I hated, which I condemned, and which I detested in my heart: but I protest that I always found it difficult, and only did it with extreme repugnance; this is also why I so hated all the vain functions of my ministry, and in particular all the idolatrous and superstitious celebrations of Masses, and these vain and ridiculous sacramental administrations, which I was obliged to give you” (translated by Watson in Meslier, 2018b:chapter 2).

⁷ The first government of the French Revolution, the National Convention, issued a decree in their second year of power (1793) to erect a statue in memory of Jean Meslier, “the first priest who had the courage and the honesty to abjure religious errors” (Voltaire, 1910:47).

⁸ Many philosophers from this period saw the French Revolution as a significant victory for the Enlightenment. For example, when Immanuel Kant (1724-1804) heard news from Paris he exclaimed, “Now let your servant go in peace to his grave, for I have seen the glory of the world” (cited by Kuehn, 2002:342). Although he later changed his mind, a colleague of Kant, Friedrich von Gentz (1764-1832), initially shared the same sentiment: “The revolution constitutes the first practical triumph of philosophy, the first example in the history of the world of the construction of government upon the principles of an orderly, rationally-constructed system. It constitutes the hope of mankind and provides consolation to men elsewhere who continue to groan under the weight of age-old evils” (cited by Kuehn, 2002:342). For more on Kant, see section 3.14.

⁹ In a letter to Mr Damilaville on 10 October 1762, Voltaire writes, “I think that nothing could be more effective than the testament of a priest who begs God’s forgiveness, on his deathbed, for having deceived mankind” (Watson, 2018:9).

¹⁰ For many years, even d’Holbach’s *Good Sense* (1772) was erroneously attributed to Meslier.

imposture, which were originally invented by crafty and skilled politicians, and were perpetuated by seducers and impostors; and were then received and believed blindly by ignorant and crude peoples”¹¹ (Meslier, 1864a:15-16). Comparing the Bible to other contemporary writings, Meslier (1864a:115-116) insists that,

Far from it; we commonly see that there is more intelligence, knowledge, eloquence, order, clarity, civility, consistency, precision, and even more wise and solid instructions in the books of the secular philosophers, historians, and orators than in any of these so-called holy and sacred books, both the Old and New Testament, the principal wisdom of which consists only in making people piously believe in errors and make them religiously observe vain superstitions.¹²

To make his point, Meslier (1864a:114) singles out Genesis 1-11 for special attention, calling the entire narrative a “fabulous” fairy tale invented to amuse only the most gullible people. But Meslier does more than deny Genesis; he asserts that creation itself is impossible, and that there never was a Creator (Meslier, 1864b:346-400). Instead, everything in the universe can be explained by “necessary and fortuitous causes, and by blind and irrational causes” (Meslier, 1864c:201).¹³

Thus, in a peculiar sense, Christianity faced its strongest opposition at the onset of the French Enlightenment, not from outside the church, but from within. The greatest contempt for Genesis 1-11 came from a Roman Catholic priest.

3.3 De Maillet extends the age of the earth to billions of years

Benoît de Maillet (1656-1738) was equally disenchanted by the Genesis record. De Fontenelle’s naturalistic scheme resonated deeply with him, and thus, with some encouragement and direction from the latter, he contrived his own version of earth history (Stott, 2012:115). Like de Fontenelle, de Maillet had more respect for Descartes than Moses, though he believed that Descartes’s cosmogony could still be improved (Albritton, 2002:68-70; Dalrymple, 2004:28; Stott, 2012:112, 115). Whilst Burnet’s *Archaeologiae Philosophica* was stirring up controversy in 1692, de Maillet was devising his own theory of the earth (Albritton, 2002:68). Five years later he began writing the book which would take him the rest of his life to complete (Stott, 2012:106, 109). In fact, the finished product was only published in 1748, ten years after he died (Stott, 2012:120). As in the case of La Peyrère and Meyer, de Maillet’s book had to be printed in Amsterdam, and only after being censored by its editor, Jean Baptiste Le Mascrier (1697-1760), a French clergyman (Carozzi, 1968:27-30; Stott, 2012:120). The book was entitled *Telliamed*,¹⁴ a thinly guised reversal of de Maillet’s own name. Stylistically, it emulated the conversational style of de Fontenelle’s bestseller (Stott, 2012:110).

In *Telliamed*, de Maillet (1968:60, 236) follows Spinoza’s lead, making God a redundant hypothesis as he strives to “discover the true origin of the terrestrial globe” (Carozzi, 1968:10). Matter is eternal and

¹¹ Translated by Kirk Watson (*in* Meslier, 2018b:ch. 2).

¹² Translated by Kirk Watson (*in* Meslier, 2018b:ch. 17).

¹³ Translated by Kirk Watson (*in* Meslier, 2018a:ch. 84).

¹⁴ The full title was *Telliamed: or, discourses between an Indian philosopher and a French missionary, on the diminution of the sea, the formation of the earth, the origin of men and animals*.

sufficient in itself to explain the origin of all things (de Maillet, 1968:226). De Maillet (1968:160, 161, 167, 184) leaves no room for creation: a concept which he deems “contrary to reason”. Articulating one of the earliest forms of uniformitarianism, de Maillet (1968:162, 178) constructs his natural history of the earth upon the principle that “the present and the past [are] the keys to the future”. Akin to Lyell’s endeavour to reconstruct the past from the present,¹⁵ de Maillet suggests that we imagine what kind of past would supply the present.

By employing this approach, he calculates the age of the oceans to approximately “2 billion years” based on the current rate of “diminution of the sea” (de Maillet, 1968:181-182). This makes de Maillet the first scientist to estimate the age of the earth in the billions. The disparity between his result and an earth “only 6000 years old” is, of course, an embarrassment not to de Maillet (1968:161) but to Genesis.

De Maillet (1968:96) dismisses Burnet’s attempt to salvage Genesis, flatly denying any correlation between Noah’s flood and the fossils or that the flood waters once covered the mountains. According to his reinterpretation of events, the deluge was a localised phenomenon, grossly exaggerated by the Scriptures (de Maillet, 1968:170-171). This does not stop him, however, from insisting that all mountains were once covered by the oceans. In fact, de Maillet (1968:72-73, 84-85, 94, 97, 100, 107-108, 111, 118-120, 154-156, 183) believes that everything comes from the oceans: all the mountains, plants, animals and birds originated in the sea. To argue the point, de Maillet proposes an evolutionary¹⁶ model empowered by the mere fact of necessity. Fish will become birds because they need to become birds (de Maillet, 1968:185). To explain how, he argues that fish became birds by being “chased in the sea” so that they could only escape by flying out of the water (de Maillet, 1968:187). Anticipating Darwin, de Maillet (1968:189) assumes that homology proves phylogeny: “The lion, the horse, the ox, the hog, the wolf, the camel, the cat, the dog, the goat, and the sheep, all have fish similar to them in the sea.” For de Maillet (1968:188), these kinds of transmutations (e.g. of fish into birds) are plausible because the “more difficult to believe” metamorphosis of caterpillars into butterflies occurs “daily before our own eyes”.

He then recounts reported sightings of mermaids, mermen, tritons, and other strange sea monsters that resemble people as evidence of how the oceans produce human beings (de Maillet, 1968:192-200). The complete process involves several stages: from “sea men” to orangutans to “men with tails” to “races of blacks in Africa whose language we do not understand, either because they perhaps just came out of the sea, or because originally that race was so primitive that it has not yet learned to articulate sounds correctly” (de Maillet, 1968:201-207, 222). De Maillet’s (1968:207, 215) racism precludes him from accepting “that imaginary origin of all mankind from one father” as depicted in Genesis:

“But I shall ask you, in general, whether you believe that the black men are descendants of the white and have the same origin?”

¹⁵ For more on Lyell, see section 4.10.

¹⁶ De Maillet’s *Tellamed* has been regarded as the “first sustained attempt” to establish the transmutation of species, predating Darwin’s own attempt by more than a hundred years (Stott, 2012:112). What de Maillet’s theory lacked was a robust naturalistic mechanism to effect the transmutations required.

Yet, to placate Christians and Jews who might view the creation account as antithetical to this aquatic origin of life, he suggests several ways in which the text could be reinterpreted to fit the science (de Maillet, 1968:231, 233). He points out, firstly, that the description of the Spirit hovering over the waters in the first verse of Genesis implies that the “seeds” for every different species of animal, fish and bird were already there in the oceans (de Maillet, 1968:227-228). Secondly, the “six days” should be understood as a “metaphorical expression” to represent “a length of time much longer than the measure corresponding to our ordinary days” (de Maillet, 1968:231, 234). To make the latter point more compelling, he even cites 2 Peter 3:8 (de Maillet, 1968:231). Thirdly, he argues that the eternal pre-existence of matter can be derived from Genesis 1:1 by translating the Hebrew to read: “When God created the heavens and the earth, matter was without form” (de Maillet, 1968:235, cf. 161). And finally, realising perhaps that he could not provide plausible harmonisations for every detail in the text, de Maillet (1968:231) proposes that “what is said in the book of Genesis about the purpose for which God created the sun, the moon, and the stars should not be taken literally.”

In this way, de Maillet (1968:234) demonstrates how to reinterpret the Mosaic record to fit the science, thinly masking his materialistic dogmatism. To the incredulous, de Maillet (1968:57-58, 183) attributes their unbelief to narrow-minded religious prejudice: “you are forbidden to believe anything besides what your Scriptures teach you.”

Thanks to Le Mascrier’s efforts, this authentic version of *Telliamed* was left largely unread until 1968 when Albert Carozzi (1925-2014) was able to reconstruct the original from several pre-published copies of de Maillet’s final manuscript (Albritton, 2002:73). But although he removed almost all references to the eternity or pre-existence of matter, deleted sections that attribute the world to chance, softened de Maillet’s refutation of Noah’s flood, and reduced the age of the earth by at least three orders of magnitude: from “billions of years” to “millions of years”, Le Mascrier’s unsolicited editorial amendments did little to temper de Maillet’s derogation of Genesis (Carozzi, 1968:29-30). If anything, his additions made the account even more farcical, placing the creation story amongst other “fables and romances... and most mysterious allegories”, claiming that the story of the flood cannot be trusted because Jews are amongst “the vainest and most credulous mortals in the universe” (Le Mascrier, 1750:xv; de Maillet & Le Mascrier, 1750:74; Carozzi, 1968:297-298). As Carozzi (1968:27) observes, “Le Mascrier was certainly not a very orthodox ecclesiastic since he undertook the impossible task of trying to reconcile a completely materialistic and atheistic system with the Dogma.” Le Mascrier even repackaged de Maillet’s three conversations into six sections, one for each day, almost as if to make *Telliamed* a replacement of the biblical hexaemeron.¹⁷

Telliamed’s notoriety made it a best-seller, guaranteeing an English translation as early as 1750 (Albritton, 2002:73). For another fifty years its popularity endured, earning another American printing in 1797

¹⁷ Le Mascrier’s (1750:xxxiv-xxxv) concession in the preface does little to save a place for Genesis: “It would be easy to shew, that if the system of Telliamed concerning the origin of the Earth, is not entirely conformable to the Mosaic history of the Creation, yet it is not absolutely contrary to it.”

(Albritton, 2002:73). Thus, not only did the argument for antiquity and aquatic origins in *Telliamed* leave its mark on “all the leading naturalists of his time” including Georges Cuvier (1769-1832), it also inspired thirty-four volumes of Buffon’s *Histoire Naturelle* (1749) (Repcheck, 2009:99; Albritton, 2002:76; Carozzi, 1968:4).

3.4 Bolingbroke targets Genesis to prove that the Bible cannot be the word of God

Following the course chartered by Meslier, Lord Bolingbroke (1678-1751), an English politician and philosopher, also left his most notorious writings for posthumous publication, thereby joining the ranks of Hobbes and Spinoza “as a philosophical villain” (Cottret, 1997:13). His Scottish friend, David Mallet (1705-1765), published them three years after his death in five separate volumes (Cottret, 1997:430). This act of spineless vitriol provoked the ire of Samuel Johnson (1709-1784) who called Bolingbroke a “scoundrel” for his attack on Christianity and a “coward” for leaving the matter to a “beggarly Scotchman, to draw the trigger after his death” (cited by Boswell, 1958:189).

Apart from attacking Christianity itself, Bolingbroke’s (1967a:446; 1967c:131-475) polemic singled out Samuel Clarke (1675-1729) for his two Boyle lectures: *A demonstration of the being and attributes of God* (1704), and *A discourse concerning the unchangeable obligations of natural religion, and the truth and certainty of the Christian revelation* (1705). In both these lectures, Clarke (1706:299-301) treats Genesis 1-11 as literal history,¹⁸ arguing that Scripture and science¹⁹ testify to the fact that the earth was formed about “6000 years ago”. In response, Bolingbroke (1967a:479-481, 495) argues that Moses fabricated his “puerile, romantic, and absurd” account from pre-existing Egyptian, Persian, Chaldean and Phoenician cosmologies. Bolingbroke (1967b:20, 22, 32) denies that Moses ever spoke “face to face” with God, taking him to be just like any another fallible historian from antiquity. The Genesis story suffers the same plight as the rest of the Old Testament, replete with “gross defects, and palpable falsehoods” and disclosing an “ignorance of nature” (Bolingbroke, 1967b:32-34). From Bolingbroke’s perspective, the first eleven chapters of the Bible are the *sine qua non* of Scripture and therefore the primary target of his ridicule. Bolingbroke (1967b:35) mocks those apologists who, in their endeavour to avoid the literal awkwardness²⁰ of the creation story, had resorted to allegory. He points out:

This however cannot be admitted by Christians; for if it was, what would become of that famous text whereon the doctrine of our redemption is founded? The whole therefore must be understood literally, and in that case the God who made the world and man, that is, the Supreme Being, is the same God who walks in the garden, to enjoy the cool of the evening, who tries this famous cause, and insults our first parents by irony and sarcasm. (Bolingbroke, 1967b:35)

¹⁸ Clarke (1738:661, 681) generally accepts the days of creation as twenty-four hour periods, although in *An exposition of the church-catechism*, he allows the possibility that these days “might be a typical representation of some greater periods; seeing *One day is with the Lord as a thousand years, and a thousand years as one day*” (emphasis in original).

¹⁹ Or to use his words: “arguments, drawn from nature, reason and observation, make that account of the time of the Earth’s formation exceedingly probable in itself” (Clark, 1706:300-301).

²⁰ Bolingbroke (1967c:311) has little patience for “all the profane nonsense that has been broached about Eve and the serpent, about the trees of life and knowledge, ... the creation and fall of man, which the curiosity of the woman, the wiles of the serpent, and the uxorious complaisance of Adam effected, ... for all that has been written upon them is alike absurd.”

In the end, Bolingbroke (1967b:381, 396) wants to establish his own version of Christianity²¹ “founded on the universal law of nature” unrestrained from any “pretended revelations”. Fulfilling Condorcet’s vision for the Enlightenment, Bolingbroke (1967c:303) enshrines autonomous reason as the final court of appeal to which all matters must be decided. His pronounced judgment on “sacred history” is unequivocal (Bolingbroke, 1967c:303). The Genesis story “ought to be rejected with indignation” as blasphemous and a “thing unworthy of the Supreme Being” (Bolingbroke, 1967b:393). Weighed in the “balance of human reason”, the inevitable conclusion follows: the Bible is “in a multitude of instances the word of man, rather than the word of God” (Bolingbroke, 1967c:303, 470). It was a sentiment warmly received by one of his contemporaries: François Marie Arouet, or Voltaire (1694-1778). But as it turned out, Bolingbroke’s greatest usefulness to Voltaire was simply in his name (Torrey, 1927:797).

3.5 Voltaire expunges Genesis from the book of Nature

Bolingbroke’s death afforded the French *philosophe* the opportunity to use his name eponymously in one of his most audacious attacks on Christianity. In 1767, Voltaire deviously placed his own words “into the mouth of the dead Englishman” in a book entitled, *L’examen important de Milord Bolingbroke*,²² falsely backdated to 1736 (Durant, 1965:743).

L’examen important de Milord Bolingbroke is a diatribe against the Bible to show that Christianity, is an “abhorrence” (Voltaire, 1819:60). Like Bolingbroke (1967b:405), Voltaire (1819:60) accepts only one of Bacon’s “two books”, arguing that:

The only gospel we should read is the grand book of nature, written with God’s own hand, and stamped with his own seal. The only religion we ought to profess is, ‘to adore God, and act like honest men.’²³

Of course, the creation story did not escape his ridicule. Citing both Newton and Le Clerc, Voltaire (1819:8, 12) states that the Pentateuch is a “stupid falsehood” and “an absurd fable”, “written by fools, commented upon by simpletons, taught by knaves”, and filled with “innumerable geographical and chronological errors and contradictions”. He not only questions the Mosaic authorship of Genesis, he even doubts whether Moses existed (Voltaire, 1819:7-9). In opposition to Burnet and John Woodward (1665-1722), Voltaire (1901c:284-288, 292) is adamant that the world has never experienced an event as catastrophic or far-reaching as that described in Genesis 6-8. In his efforts to avoid a Noahic explanation for the origin of fossilised fish in the Alps, he even postulates that they were carried up there by “some traveller” who discarded them as unwanted food (Voltaire, 1901c:279). As to how they became petrified, Voltaire (1901c:279) confidently asserts that the “process of time” is all that is required. Yet, like Spinoza, Voltaire (1819:18) views Genesis 1-3 as a ludicrous story:

²¹ He refers to Biblical Christianity as a “system of artificial theology” which has corrupted natural religion (Bolingbroke, 1967c:291).

²² English translations were entitled “The important examination of the Holy Scriptures”

²³ M’Giffert (1911:244) supplies this translation from the original: “Le seul Evangile qu’on doive lire, c’est le grand livre de la nature écrit de la main de Dieu et scellé de son cachet. La seule religion qu’on doive professer est celle d’adorer Dieu et d’être honnête homme.” (emphasis in original, Voltaire, 1766:350)

The Jews,²⁴ then, who wrote Genesis, are merely imitators; they mixed their own absurdities with these tables, and we must confess, it is difficult for us to abstain from laughter, when we hear of a serpent talking familiarly with Eve; of God speaking to the serpent; of God's promenade, in the garden of Eden at noon-day; of God making small-clothes for Adam, and an apron for his wife Eve.

For someone who tried hard to distance himself from de Maillet's *Telliamed*, Voltaire's own writings betray a markedly similar disdain for Genesis as history (Albritton, 2002:73).

3.6 Rousseau replaces the God of Genesis with the God of Nature

Jean-Jacques Rousseau (1712-1778), another French *philosophe*²⁵ and Encyclopaedist, second only to Voltaire, was provoked in similar ways by the claims of Scripture. In one infamous section of *Émile, ou de l'éducation* (1762),²⁶ he denies that any part of the Bible was inspired. For Rousseau (1910:291), divine revelation only adds "absurd contradictions" to our understanding of God. He finds the gospels "repugnant to reason" (Rousseau, 1910:312). To reform religion, Rousseau (1910:293, 291, 300) insists that all theology, including our conception of God himself, should be derived from the "dictates of reason" alone. As expected, Genesis becomes redundant and is supplanted by the book of nature (Rousseau, 1910:309; cf. 1910:256-261, 290-291, 294). Thus, it is to nature, that Rousseau (1761:34) attributes the creation of man and beast:

I can discover nothing in any mere animal but an ingenious machine, *to which Nature has given senses* to wind itself up, and guard, to a certain degree, against every thing that might destroy or disorder it. I perceive the very same things in the human machine, with this difference, *that Nature alone operates in all the operations* of the beast, whereas man, as a free agent, has a share in his. (emphasis mine)

In effect, Rousseau exchanges the God of Genesis for nature personified and transfers the priesthood from the faculty of theology to the faculty of science, thereby granting enlightened man²⁷ a new infallibility: the infallibility of science.

3.7 Hume discards the *imago Dei* as he places experience above revelation

Despite their later conflict,²⁸ David Hume (1711-1776) owed a profound intellectual debt to Rousseau (Popkin, 1978:287). In a letter to the Comtesse de Boufflers (1725-1800), Hume (1932a:363) writes of Rousseau: "I assure your ladyship there is no man in Europe of whom I have entertained a higher idea,

²⁴ He says of the Jews, "never was there a petty nation more stupid; all their falsehoods were plagiarisms" (Voltaire, 1819:10).

²⁵ Durant (1965:605) prefers not to call Rousseau a *philosophe* (which he acknowledges "took on an anti-Christian connotation") because "he gave a reasoned argument in defense of feeling and faith." But, as mentioned in what follows, Rousseau's God was definitely not the God of Scripture – and so the designation of *philosophe*, even on Durant's terms, seems justified.

²⁶ The section was entitled *Profession of faith of a Savoyard vicar*. It was here that Rousseau's unrestrained opinions of Christianity elicited a warrant of arrest from the Parliament of Paris (Goodman, 1991-1992:173). Condemned by the faculty of theology, the book was burnt at Paris and Geneva the same year it was published (Monin, 1918:316).

²⁷ Essentially, this is how the Radical Enlightenment appointed man as the "centre of all things", abandoned "the concept of divine intervention and relegated God to the role of spectator" (Barth, 1959:15; Jones, 1969:6).

²⁸ From 1766-1767, a misunderstanding developed between them that precipitated a public literary feud (see Goodman, 1991-1992:171-201).

and whom I would be prouder to serve”; and to Rousseau himself, he writes, “you are the person whom I most revere, both for the force of your genius and the greatness of your mind” (Hume, 1932b:364).

By some estimates, Hume was the most influential Enlightenment thinker of the eighteenth century, being “among the most radical of radical philosophes” (Gay, 1966:402; Cobban, 1960:133; Willey, 1964:248). Hume (1992:87) has very little regard for Scripture,²⁹ and even less for the Pentateuch. His scathing assessment speaks for itself:

Here then we are first to consider a book, presented to us by a barbarous and ignorant people, written in an age when they were still more barbarous, and in all probability long after the facts which it relates, corroborated by no concurring testimony, and resembling those fabulous accounts, which every nation gives of its origin. Upon reading this book, we find it full of prodigies and miracles. It gives an account of a state of the world and of human nature entirely different from the present: Of our fall from that state: Of the age of man, extended to near a thousand years: Of the destruction of the world by a deluge: Of the arbitrary choice of one people, as the favourites of heaven; and that people the countrymen of the author: Of their deliverance from bondage by prodigies the most astonishing imaginable: I desire any one to lay his hand upon his heart, and after a serious consideration declare, whether he thinks that the falsehood of such a book, supported by such a testimony, would be more extraordinary and miraculous than all the miracles it relates; which is, however, necessary to make it be received, according to the measures of probability above established. (Hume, 1992:87-88)

This kind of appraisal typifies where Hume’s real epistemic authority lies: the realm of reason and experience.³⁰ Like Voltaire and Rousseau, Hume believes that science has replaced Scripture. This is because Hume’s science is a naturalistic science, a science devoid of God. Within this restricted paradigm, miracles are deemed impossible because the laws of nature cannot be violated, and therefore Christianity is a farce (Hume, 1992:68-69). Hume (1992:63) claims that the evidence for Christianity is “less than the evidence for the truth of our senses”. On these grounds, Genesis 1-11 is a false record. Consequently, this gives Hume an opportunity to reenvision his own anthropology. In an essay on suicide, he confesses, “the life of man is of no greater importance to the universe than that of an oyster” (Hume, 1992:44). Without the *imago Dei*, man was just another animal, albeit more advanced. Hume began to question the unity of the human race. From a brief analysis of various nationalities, he came to the conclusion that nature had made “Negroes” intrinsically inferior to “Whites” (Hume, 1826:235-236). Of course, this kind of scientific racism is strongly aligned to a scepticism of Genesis 1-11.³¹ Without Adam and Eve, both the origin and ontology of the human race is left open to reinterpretation.

²⁹ Not surprisingly, his thoughts on Scripture are reflected by his overall attitude towards Christians whom he refers to as “the ignorant multitude” (Hume, 1992:12).

³⁰ In his short essay on priests, Hume (1992:13) laments that the clergy were more proficient in eloquence than in “reasoning and philosophy”.

³¹ For example, Voltaire (1901b:145-146) states, “Were you to have ever so large a number of children born to you in Guinea, of a European wife, they would not one of them have that black unctuous skin, those dark and thick lips, those round eyes, or that woolly hair, which form the specific differences of the negro race... *Now extricate yourself from the difficulty, with Adam and Eve only, if you can*” (emphasis mine). The naval surgeon, John Atkins (1685-1757), also envisaged multiple species of mankind after first rejecting Adam and Eve. In *A voyage to Guinea, Brasil and the West Indies* (1735), he writes, “The black Colour, and woolly Tegument of these Guineans, is what first obtrudes itself on our observation, and distinguishes them from the rest of mankind, ... and tho’ it be a little heterodox, I am persuaded the black and white Race have, *ab origine* sprung from different-coloured first parents” (Atkins, 1735:39).

While Hume was in exile from France, both Charles Lyell³² (1767-1849) and Charles Darwin's (1809-1882) grandfather, Erasmus Darwin (1731-1802), extended their hospitality to him (Butel, 2000:18). Perhaps this is how, several decades later, Hume's views on race and origins went on to inspire Darwin's *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life* (1859).³³ In fact, Darwin cites Hume repeatedly in his notebooks on the transmutation of species, and in *The Descent of Man* (1871) (Huntley, 1972:470).

3.8 Diderot's quest to reconstruct religion from reason instead of Scripture

Denis Diderot (1713-1784) eagerly took up Hume's cause, writing to him in one of his letters, "I salute you – I love you – I revere you" (cited in Mossner, 2001:478). But while Hume played a part in the generation of Darwin's grand thesis, it was Diderot who, of all enlightenment thinkers, most closely anticipated and "prepared the way for the theory of evolution" (Jourdain, 1916:1). In his *Pensées sur l'interprétation de la nature* (published anonymously in 1754), Diderot (1999:40) surmises:

If we consider the animal kingdom, and observe that, among the quadrupeds, every single one possesses functions and bodily parts - especially internal organs - fully resembling those of any other quadruped, is it not easy to believe that in the beginning there was only a single animal which served as prototype for all the others, and that all nature has done is to lengthen, shorten, alter, multiply or eliminate certain organs?

Diderot (1999:75-76) points out that if it were not for the encumbrance of Genesis 1-11, philosophers would, "left to their own conjectures", conclude that all living creatures are merely the product of innumerable evolutionary developments encompassing "millions of years".³⁴ Citing a "Dr Baumann",³⁵ Diderot (1999:66, 68) ascribes the origin of "an infinite number of animal species" to a mysterious evolutionary process in nature. As for the Mosaic record? He dismisses it as fiction:

Its history is based entirely on stories that grandparents repeated to children at the fireplace, based in turn on their memories of the verbal narrations they learned from their own grandparents, and so on, back to the beginning. Quite a way to preserve a true history!³⁶ (Diderot, 2018:37-38; 1831:282-283)

³² Not to be confused with his better-known son, Charles Lyell (1797-1875), the lawyer and geologist.

³³ Hume's views on race also resonated with another Enlightenment thinker and slave owner, Edward Long (1734-1813). In his efforts to persuade readers that "Negroes" were close cousins of orangutans, and "inferior to the rest of the [human] species" Long (1774:371, 376) cites Hume as a recognised authority on the subject. Notably absent from Long's anthropology is any mention of Adam and Eve, or Genesis.

³⁴ In Baron d'Holbach's *Système de la nature*, Diderot expresses the same idea in a footnote: "It may be that the larger animals we now behold were originally derived from the smallest microscopic ones, who have increased in bulk with the progression of time" (in d'Holbach, 1868:177). For further discussion on d'Holbach, see section 3.10.

³⁵ This was the pseudonym used by Pierre Louis Maupertuis (1698-1759) in his *Système de la nature* (1751) [NB: not to be confused with d'Holbach's own *Système de la nature* (1770)]. Diderot's views on origins borrow extensively from Maupertuis's (1768:164-165) own evolutionary speculations: "Could one not explain by [mutations] how from two individuals alone the multiplication of the most dissimilar species could have followed? They could have owed their first origination only to certain fortuitous productions, in which the elementary particles failed to retain the order they possessed in the father and mother animals; each degree of error would have produced a new species; and by reason of repeated deviations would have arrived at the infinite diversity of animals that we see today; which will perhaps still increase with time, but to which perhaps the passage of centuries will bring only imperceptible increases." (translated by Glass, 1947:207)

³⁶ From *Promenade du sceptique* (i.e. "the sceptic's walk") completed in 1747 but only published posthumously in 1830 (Durant, 1965:626).

Diderot (1999:71, 76-77) denies even the fact of creation, claiming instead that living matter arose naturally from non-living matter, and that the universe had no beginning. Predictably, Genesis 3 is taken as nothing more than fable, making the atonement of Christ even more ludicrous.³⁷ In *Pensées sur la religion*,³⁸ he writes, “The God of the Christians, for an apple, punished all the human race and killed his own son” (Diderot, 1841:4).

Driven by a dogged commitment to materialism,³⁹ any reference to inherent creativity in nature begged refutation, and Diderot was pleased to supply it. In *Lettre sur les aveugles à l’usage de ceux qui voient*⁴⁰ (1749), (for which he was imprisoned) Diderot presented his case against intelligent design (Jourdain, 1916:6). This ambitious venture quickly won the admiration of Voltaire who publicly praised Diderot’s book (Durant, 1965:629; cf. Torrey, 1935:1108-1109).⁴¹

Naturally, Diderot’s rejection of divine revelation⁴² did not end with Genesis. The other 65 books of Scripture suffered the same fate. In his first treatise, *Pensées philosophiques*⁴³ (1746), which was banned and burned the same year it was published, he claims that the Old Testament was merely a product of the Jewish mind, and of inferior quality to that of contemporary Greek and Roman works (Diderot, 1916:52-53; Durant, 1965:626).

Maintaining the momentum of his enlightened predecessors, Diderot’s prolific writing projects were consumed and fuelled by one overarching passion: to prove that theology was merely an incumbrance to scientific progress and human flourishing.⁴⁴ He blames “ignorant priests” and “bigoted religious men” for impeding science (Diderot in d’Holbach, 1868:171).⁴⁵ That said, Diderot (1999:37) holds out hope that mankind will experience a “great revolution in science” once he is liberated from archaic inscripturated beliefs.⁴⁶ With human reason as the only real saviour of the world, he developed his own canon of “true religion”: a 28-volume encyclopaedia (Diderot, 1841:4-6). Although this was not the first attempt at compiling an exhaustive dictionary of the arts and sciences, it earns its place as one of the most ambitious writing projects undertaken in the eighteenth century (Israel, 2001:711). As Durant (1965:635) puts it, “The *Encyclopédie* was the most famous of all experiments in the popularization of knowledge.”

³⁷ Here Diderot (1841:4) argues, “to prove the truth of the Gospel by a miracle, is to prove an absurdity by a contradiction in nature.”

³⁸ i.e. “Thoughts on religion” (published anonymously in 1763)

³⁹ Like Hume, Diderot (1916:54) denies the existence of the supernatural, attributing all accounts of miracles to fanaticism, delusion and dishonesty. He seems to have the resurrection of Christ in mind when he notes, “if all Paris were to assure me that a dead man had come to life again at Passy, I should not believe a word of it” (Diderot, 1916:54; cf. 1841:7). Diderot (1916:31) maintains, “superstition is more of an insult to God than atheism”.

⁴⁰ i.e. “Letter on the blind for the use of those who can see”

⁴¹ Diderot (1965:630) later replied to Voltaire, explaining why he had such sympathy for atheists: “It is very important not to mistake hemlock for parsley, but not at all important whether or not you believe in God.”

⁴² Diderot (1916:65-66) denies that the “divinity of the Scriptures” can ever be proved, hence he maintains, “I am therefore reduced to scepticism.”

⁴³ i.e. “Philosophical thoughts”

⁴⁴ Of Blaise Pascal (1623-1662), he writes, “How much it is to be regretted that he did not leave to the theologians of his day the task of settling their own disputes;... How regrettable that he took for his masters men who were not worthy to be his disciple!” (Diderot, 1916:32)

⁴⁵ Despite the vitriol, some sympathy can be mustered for Diderot when it is remembered that his own father once imprisoned him in a monastery in a desperate attempt to proselytise him (Durant, 1965:624).

⁴⁶ According to Diderot (1841:6), the strongest argument for theology is “Believe, or you will be damned”.

Predictably, in its classification of knowledge, theology was made subservient to her preeminent master, Reason (Durant, 1965:636).⁴⁷ It was an ingenious strategy to propagate a materialistic agenda. For this reason alone, Diderot's critical role in the Early Enlightenment cannot be over emphasised, as Israel (2001:704) contends:

The two authors who most effectively summed up the radical thought of the early Enlightenment era in the middle of the eighteenth century were both Frenchmen – La Mettrie⁴⁸ and the famous chief editor of the *Encyclopédie*, Diderot.

3.9 Smith makes origins a matter of science not theology

Joining Hume,⁴⁹ Adam Smith's (1723-1790) writings also fuelled the fires of the Scottish Enlightenment (Ward, 2004:48). Smith may be remembered mostly for his contributions to economic theory, but he was also proficient in astronomy, physics, art, linguistics, theology, literature and considered "an expert on politics and jurisprudence" (Ward, 2004:46). In the *History of astronomy* (1795), Smith (1811a:88) shares Voltaire's disparaging perspective on the patriarchal period, contending that "in the first ages of the world, the lowest and most pusillanimous superstition supplied the place of philosophy." Smith (1811a:89) believes that "Wonder", not theology, is what really motivates people to study the world. As Ward (2004:52) observes, Smith never references the Bible as authoritative. Genesis is ignored. In his investigation into the formation of languages, he makes no mention of the account at Babel (Smith, 1881b:3). Instead, Smith (1811b:3) argues for an evolutionary origin, suggesting that, "Two savages, who had never been taught to speak" could develop their own intelligible language from "uttering certain sounds".

But the biblical animosity of both Hume and Smith pales in comparison to their most notorious mutual acquaintance: Baron Paul-Henri Thiry d'Holbach (1723-1789) (Durant, 1965:696).

3.10 D'Holbach makes Genesis the Achilles' heel of Christianity

In Faguet's (1907:497) estimation, d'Holbach is the true "father of all the philosophy and all the anti-religious polemics" at the turn of the eighteenth century, eclipsing both Voltaire and Diderot. D'Holbach provided a haven for atheists and sceptics. With his extensive wealth, he accommodated Condorcet,

⁴⁷ Diderot (1778a:367) wrote the article on "Encyclopédie", in which he concludes, "Today, when philosophy advances with giant steps, when it submits to its empire all the objects of its interest, when its voice is the dominant voice, and it begins to break the yoke of authority and tradition, to hold to the laws of reason..." (in Durant, 1965:646)

⁴⁸ Like Diderot, Julien Offray de la Mettrie (1709-1751) believed that philosophy was antithetical to religion and rejected the argument from design, believing instead in the theory of spontaneous generation (Israel, 2001:706, 708). Some have placed La Mettrie as "the the most extreme radical and materialist of the eighteenth century" (Israel, 2001:707-708). But, as Israel (2001:707-708) points out, La Mettrie was largely unoriginal in his writings, "regurgitating past work and ideas" to capture the more radical elements of the Early Enlightenment. Curiously, even Diderot felt that La Mettrie was too extreme in his radicalism and kept his distance (Israel, 2001:709).

⁴⁹ Like Diderot, Smith admired Hume. This affection is clearly portrayed in a letter he wrote to Alexander Wedderburn (1733-1805) just prior to Hume's death: "Poor David Hume is dying very fast, but with great cheerfulness and good humour and with more real resignation to the necessary course of things, than any whining Christian ever dyed with pretended resignation to the will of God" (Smith, 1987:203). Then in *The wealth of nations* (1776), he describes Hume as "by far the most illustrious philosopher and historian of the present age" (Smith, 1911:174).

Rousseau, Hume,⁵⁰ Diderot,⁵¹ Smith, Buffon and other sceptics like Jean-Baptiste le Rond d'Alembert (1717-1783), and Edward Gibbon (1737-1794) (Kors, 1976:9-40, 105-106). By any measure, d'Holbach's notoriety can be gauged from the company he kept. Voltaire once greeted him in Paris saying, "I have long known you by reputation, sir; and you are one of the persons whose esteem and friendship I have most desired"⁵² (Hibbert, 1834:11).

In his first anti-Christian treatise, *Christianity Unveiled* (1761),⁵³ d'Holbach (1819:22, 50-51) describes the opening chapters of the Bible as "a string of marvellous and improbable stories" which he attributes to the "credibility of a stupid and infant people."⁵⁴ One of their biggest problems, apparently, is their ignorance of science and lack of reason (d'Holbach, 1819:50-51). This unrestrained vilification of the creation story was strategic. D'Holbach considered Genesis to be the Achilles' heel of Christianity. By showing the absurdity of Moses, he could demonstrate the absurdity of Christ⁵⁵ and liberate man from the tyranny of theology.⁵⁶ Thus, less than a decade later, in 1770, d'Holbach applied himself to this end. The result was a critical biography of Jesus entitled, *Ecce Homo*.⁵⁷ In his reimagining of Christ, he calls the gospel story, "an eastern romance, disgusting to every man of common sense, and apparently addressed to the ignorant, the stupid, and the vulgar, the only persons whom it can mislead" (d'Holbach, 1813:8-9). Attributing the resurrection⁵⁸ to "falsehood and knavery", d'Holbach (1813:275, 280) describes the first converts to Christianity as "stupid people" who were scientifically ignorant. But *Ecce Homo!* was just a footnote to the second book that he finished that same year. Without question, d'Holbach's most infamous work was *Système de la nature* (1770).⁵⁹ This tome quickly became the "materialist's Bible", providing the Radical Enlightenment with the most compelling rationale for atheism (Sviták, 1976:2;

⁵⁰ From the letters exchanged between Hume (1932c:90, 92; 1932d:205) and d'Holbach (1932a:409-411; 1932b:439-440), it appears they were also close friends.

⁵¹ Buckley (1987:34) attributes the "emergence of modern atheism" to Diderot and d'Holbach. It is even possible that Diderot wrote several sections of d'Holbach's notorious *Système de la nature*. When it was published, the book elicited nothing but praise from Diderot for its unabashed atheism (Durant, 1965:699-700).

⁵² The pamphlet this quote comes from is anonymous, but Cushing (1914:2) asserts that it can be attributed to a "Mr. Julian Hibbert".

⁵³ Owing to its controversial content, d'Holbach attributed the authorship of this book to the recently deceased Nicolas Antoine Boulanger (1722-1759) (Cushing, 1914:36). It was a tactic that he employed more than once. To avoid censure and prosecution, d'Holbach published a number of his anti-religious works under various pseudonyms (Hammersley, 2010:126).

⁵⁴ This kind of parody is not dissimilar from how Andrew Michael Ramsay (1686-1743) describes Christianity from a freethinker's perspective (Hume, 1992:171-173).

⁵⁵ D'Holbach (1813:310) calls the cross "the banner under which madmen assembled to glut the earth with blood."

⁵⁶ His conclusion says as much: "Truth must at last triumph over falsehood. – Mankind, fatigued with their own credulity, will return to her arms. – Reason will break their chains. – Reason, which was created to reign, with undivided empire, over all intelligent beings. AMEN" (d'Holbach, 1819:98).

⁵⁷ i.e. "Behold the man!" Thus d'Holbach made his own contribution to the growing corpus of liberal theology inspired by the likes of Hobbes and Spinoza.

⁵⁸ D'Holbach's (1813:272-273) comments on the resurrection reveal his stubborn adherence to a materialistic worldview: "The dogma of the resurrection of Jesus is only attested by men whose subsistence depended on that absurd romance; and as roguery continually belies itself, these lying witnesses could not agree among them selves in their evidence... How is it possible for rational persons of the present age to believe, after the lapse of eighteen hundred years, on the discordant testimonies of four interested evangelists, fanatics, or fabulists, a fact which they could not make be believed in their own time, except by a small number of imbecile people, incapable of reasoning, fond of the marvellous, and of too limited understandings to escape the snares laid for their simplicity."

⁵⁹ The full title was *Système de la nature ou des loix du monde physique & du monde moral* (i.e. "The system of nature, or laws of the moral and physical world"), originally published under the name of Jean-Baptiste de Mirabaud (1675-1760) who had already been dead for a decade.

Buckley, 1987:32, 273). Indeed, d'Holbach's *Système* retained its usefulness as an apologetic for atheism well into the mid-nineteenth century (Lion, 1922:269-270).

D'Holbach (1868:151-152, 174, 181-194) denies that God makes man in his image. No, it is man who makes God in his image. Therefore, what all religion has in common is "ignorance for its basis" and "imagination for its guide" (d'Holbach, 1868:152; cf. 170-171).⁶⁰ Theology is blamed for blinding the human mind, enchaining the "genius of philosophers" and sabotaging scientific progress (d'Holbach, 1868:51-52, 191, 284). Genesis is completely irrelevant to the subject of origins.⁶¹ He calls the doctrine of creation an "inconceivable and chimerical operation" (d'Holbach, 1868:239).⁶² There is no need for an inscripturated account of where the universe came from because, for d'Holbach (1868:240), the "true origin of everything" can be found in nature itself.⁶³ Put succinctly, his materialistic dogma maintains, "Nature is the cause of every thing; she is self-existent; she will always exist; she is her own cause" (d'Holbach, 1868:245). D'Holbach (1868:338) has a god and she is Nature, a "sovereign of all beings" and worthy of praise.

Thus, with nature deified and man self-appointed as the "centre of all things", d'Holbach and his coterie "relegated God to the role of spectator" (Barth, 1959:15; Jones, 1969:6). The seventeenth century saw God's creation replace God himself. Nature was reduced to a "Great Machine"⁶⁴ (Espinasse, 1958:83). Enlightened man did not care for any reinterpretation of Genesis 1-11, but only its replacement.

3.11 Astruc defends Genesis by making Scripture uninspired and fallible

Amidst this onslaught on the authority of Scripture, not all French Bible scholars were ready to abandon Genesis completely. In 1753, a Catholic physician named Jean Astruc (1684-1766) conceived a novel theory⁶⁵ to rescue Moses from the clutches of radical freethinkers. In *Conjectures sur les memoires originaux*,⁶⁶ published anonymously, Astruc (1753:453-454) defends the Mosaic authorship of Genesis against his enlightened predecessors: Le Clerc, Simon, La Peyrère, Hobbes and Spinoza. To make his apologetic, Astruc (1753:9) argues that Moses compiled Genesis by editing and collating pre-existing historical

⁶⁰ D'Holbach (1868:257) suggests that the Bible is merely a re-fabrication of ancient fables and superstitions: "The religion of Abraham appears to have originally been a theism imagined to reform the superstition of the Chaldeans; the theism of Abraham was corrupted by Moses, who availed himself of it to form the Judaical superstition."

⁶¹ Given that he had already dealt with Genesis explicitly in *Système*, d'Holbach apparently does not see the need to rigorously engage with the Mosaic record again. That said, d'Holbach (1868:167, 194, 259) does, in passing, mention that global flood is completely implausible; ridicules the notion that God gave man dominion over the earth; and calls the stories of Adam's sin and the fall of angels "absurd fables".

⁶² Of all the miracles documented in Scripture, d'Holbach (1868:260) singles out Creation for special ridicule: "Is there, in any one religion in the world, a miracle more impossible to be believed than that of the creation, or the eduction from nothing?"

⁶³ As with Diderot, d'Holbach's rigid materialism constrains him to conjecture a pre-Darwinian form of evolution to explain the origin of species: "Matter alone has existed from all eternity, ... matter is the great engine used by nature to produce all her phenomena" (d'Holbach, 1868:211; cf. 176-177)

⁶⁴ Thus Diderot (1916:35) writes concerning Newton, Pieter van Musschenbroek (1692-1761), Nicolaas Hartsoecker (1656-1725) and Bernard Nieuwentyt (1654-1718): "Thanks to the works of these great men, the world is no longer a God; it is a machine with its wheels, its cords, its pulleys, its springs, and its weights."

⁶⁵ According to Durant (1965:501), Astruc was the first scholar to posit two different sources for Genesis from the fact that that God is referred to by two different names: Yahweh and Elohim.

⁶⁶ i.e. "Conjectures on the original memoirs which it appears that Moses employed to compose the book of Genesis".

records. Specifically, he proposes that the text can be deconstructed into its original sources, of which he identifies two: the Elohim strand and the Yahweh strand (Astruc, 1753:17-18).

To achieve this, Astruc's apologetic makes some telling concessions. For one, he believes that Moses speaks as a "simple historian" in Genesis, not as someone who received direct revelation from God (Astruc, 1753:4). He does this to avoid the more troublesome task of dealing with any anomalies in the text, reasoning instead that his theory "exonerates Moses from any errors of negligence and even mistakes" (Astruc, 1753:431; cf. 438). In this way, Astruc (1753:378-430) absolves God of any scientific aberrations and "embarrassing anachronisms" in Genesis by attributing them entirely to human fallibility (Acosta, 2002:258). But in his endeavour to preserve the "privileged epistemological status of Scripture", he unwittingly⁶⁷ provided a more insidious rationale to reject Genesis outright (Acosta, 2002:263). Whilst his conjecture tenuously retained the Mosaic authorship of the Pentateuch, it blatantly denied its divine inspiration (Gertz, 2007:193-194). Astruc's rudimentary deconstruction of Genesis "became the hallmark of Old Testament criticism for nearly two centuries" (Nahkola, 2007:204). His *Conjectures* on Genesis became "most significant work on the Bible at the time" laying a foundation for the essential core of Julius Wellhausen's (1844-1918) documentary hypothesis more than a century later (Nahkola, 2007:213-214, Gertz, 2007:191; cf. Acosta, 2002:256-258).

The story of Astruc's handling of Genesis serves as a kind of parable for the times. Here is a man who was, first and foremost, a professor of medicine, not theology or Old Testament or even Hebrew. Yet, as Nahkola (2007:210) points out, he became the "father of biblical criticism" for his innovative approach to the Mosaic record. Or as Johann von Goethe (1749-1832)(1987:417-418) first put it, "Astruc, private surgeon to Louis XIV, first applied his scalpel and probe to the Pentateuch".⁶⁸ Indeed, for all his medical expertise, Astruc is remembered today because he was a "quintessential 'secular theologian'" (Nahkola, 2007:210). In other words, the prevailing hermeneutical approach to Genesis was shaped – not by biblical exegesis – but by rationalistic science.

Thus, even Voltaire (1901a:187) finds much to appreciate in Astruc, whom he cites as an ally in his rejection of the divine inspiration of Genesis. Astruc might have construed his apologetic as a means to stem the tide of Enlightenment but, as history shows, these efforts did more to sustain it (Smend, 2007:169). He had tried to construct a "tenable scientific thesis" that could maintain the credibility of Genesis in light of the growing scepticism typified by the "enlightened" mind (Gertz, 2007:198). Instead he unwittingly paved the way for higher critical perspectives on Genesis 1-11 to gain traction (Gertz, 2007:198).

⁶⁷ At the outset of *Conjectures*, Astruc (1753:avertissement) expressly maintains that he does not want his theory to be misappropriated by "free thinkers" to undermine the Mosaic authorship of Genesis.

⁶⁸ Translated from German by Smend (2007:157) who points out that it was actually Louis XV.

3.12 Eichhorn treats Genesis as myth

Meanwhile in Germany, exactly 3 decades after Astruc's *Conjectures* were published, Johann Eichhorn (1752-1827), produced a more developed version of this documentary hypothesis in *Einleitung in das Alte Testament*⁶⁹ (1783) (Gertz, 2007:198). In an anonymous article, *Urgeschichte*,⁷⁰ published in 1779, Eichhorn had already suggested that the "tales in Genesis" were akin to the other fabulous stories found in classical literature (Bietenholz, 1994:256-257; Cupitt, 1988:89; Miller, 2014:286). This makes Eichhorn one of the first biblical scholars to describe sections of Scripture as "myth"⁷¹ (Cupitt, 1988:89). But it was with *Einleitung in das Alte Testament*, that he really established his reputation as a pioneer and "founder of modern Old Testament criticism" (Cheyne, 1893:13). Stearns (1947:197) even asserts that Eichhorn was the first to use the terms "higher criticism" and "lower criticism" to describe the difference between "historical and literary criticism" and textual criticism. This higher critical approach to Scripture allowed Eichhorn to make awkward pericopes more palatable to an enlightened audience. For example, he suggests that all miraculous elements present in the text were introduced later because of "mere misapprehension and ignorance of the language" (Eichhorn, 1888:x). And in cases where contemporary science was at odds with the plain reading of the text, he explains to his reader that the Hebrews were "a nation which never reached a high degree of civilisation" – but even more pejoratively: "whose mental capacity" did not extend to the arts and sciences⁷² (Eichhorn, 1888:10). He also informs us that the original form of Genesis bears little resemblance to the extant text that we have today (Eichhorn, 1888:116). Specifically, Genesis is merely a later composition of "Mosaic materials" that have been redacted and revised by later editors like Ibn Ezra (Eichhorn, 1888:23, 49).

3.13 Herder calls the creation story a fable

Meanwhile, whilst Eichhorn was kept busy with his *Einleitung in das Alte Testament*, his friend Johann Gottfried von Herder (1744-1803), was hard at work on the *Vom geist der Ebräischen poesie*⁷³ which he finished in the same year, 1783 (Mueller-Vollmer, 1990:418). Like Eichhorn, Herder believed it was useful to view the Bible as a piece of ancient mythology (Ilany, 2018:125; Miller, 2014:287).

In *Vom geist der Ebräischen poesie*, Herder (1833a:49, 124, 131-132; cf. 1803:492) asserts that the creation story has the "appearance of a fable" and is the "most ancient poetry of nature" preserving "an artless, child-like tradition."⁷⁴ Genesis 1-11 is just a summary of an older legend, an "abbreviated fable"

⁶⁹ i.e. "Introduction to the Old Testament"

⁷⁰ i.e. "pre-history"

⁷¹ That said, the concept does not originate with Eichhorn. The word "fable" – which is mostly synonymous with "myth" – had already been used to describe Genesis 1-11 by the likes of Fontanelle, Meslier, Voltaire, Diderot and d'Holbach.

⁷² Eichhorn (1888:4) describes the philosophy propounded in Jewish literature as "childlike".

⁷³ i.e. "On the spirit of Hebrew poetry". The book is written as a dialogue between Alciphron (epitomising popular opinion) and Euthyphron (the voice of reason, i.e. Herder himself) (Herder, 1833a:21).

⁷⁴ Gentry (2016:13) attributes the earliest formulation of the framework hypothesis to Herder, thereby predating Arie Noordzij's thesis in 1924 by almost 150 years. Gentry's claim, however, is largely based on Marc (2007:72-73) who, in turn, cites Blocher (1984:51) who merely makes the assertion without providing a source. Gentry (2016:13) and Marc (2007:72-73) appeal to a sentence in *Vom geist der Ebräischen poesie* which seems to justify their claim: "The history of the creation is entirely a sensuous representation arranged by days' works and numbers; in seven pictures of the separate portions of the created universe; and,

punctuated with “poetical invention[s]” or fictions⁷⁵ (Herder, 1833b:15, 17). Herder (2015:90) refuses to believe that the first few chapters of the Bible present a “coherent story” because of all the “contradictory content”. He argues instead that the account can be divided into several separate documents (Herder, 2015:91). It is evident that Herder’s (1803:496) geological convictions influence what he “knows” the text cannot mean, because in *Ideen zur philosophie der geschichte der menschheit*⁷⁶ (1784-1789) he accepts “without doubt” that it takes “thousands of years” for mountains and valleys to form. Upon the *a priori* belief that the earth is very old, he infers that, “Moses leaves every one at liberty to frame epochs as he pleases” (Herder, 1803:506). This line of reasoning can also be found in *Zerstreute blätter*⁷⁷ (1792), where he states:

First of all, it seems to me, one ought *not to base the entire exegesis of all the old and even the most ancient monuments left by all other peoples on the Hebraic legends of the primeval world*, but accept them merely for what they are, the reports of a pastoral people regarding the areas in which they lived. As little as the six days⁷⁸ of creation will resolve for the geologist the question of the structure of the earth, as little may the family chronicles – indeed worthwhile in and of themselves – of this people provide satisfaction for all the peoples of the earth... Therefore, in reference to all monuments, the so-called Great Deluge ought to be forgotten. (emphasis in original; Herder, 2015:64-65)

For Herder (2015:197), the “oldest book on earth” is not to be found in Scripture, but in the fossil record.⁷⁹ This is where his high view of science translates to a low view of revelation. He argues that, “No word in the Bible is divine” because this would commit the “greatest hyperbole of anthropomorphism” (Herder, 2015:94). The Scriptures bear no proof of the divine; they are entirely and “thoroughly human” (Herder, 2015:94-95). Therefore the Bible should be treated as an ordinary historical text. On grounds such as these, Boyle (2005:15) calls Herder, “the man who more than any other deserves to be called the founder of ‘historicism’” (Boyle, 2005:15; Berlin, 2013:208).⁸⁰

Herder was also responsible for stimulating a renewed interest in Spinoza in Germany, whom he admired for being both a committed naturalist and “bona fide religious thinker” (Schwartz, 2015:32,42). He was convinced that Spinoza’s heterodox views were completely compatible with Christianity (Schwartz,

placed with reference to their parallel or corresponding relations, they could be preserved and acknowledged, because the institution of the sabbath renewed and retained them in the recollection” (Herder, 1833a:258). But Herder’s meaning here has been misconstrued. The discussion is about how the earliest civilisations communicated using images before the alphabet was invented. Understood in this context, the seven pictures of creation correspond to the seven works of creation articulated verbally in Genesis 1. The triadic formulation of day one corresponding to day four, day two with day five, and day three with day six is not in Herder’s mind, nor does it fit his emphasis on seven days instead of six.

⁷⁵ Herder (2015:94) treats the very possibility of an inspired account of creation with incredulity: “What kind of childishness is it, to have elucidated for oneself by God in a divine way how He created the world?” Concerning Noah’s flood, he asserts, “it would make no difference if we admit that it was not universal... If there were a people in the extreme East saved from the deluge we shall in due time find it out” (Herder, 1833a:253).

⁷⁶ i.e. “Ideas on the philosophy of the history of man”

⁷⁷ i.e. “Scattered leaves”

⁷⁸ Despite his conviction that the Genesis story is mythical, Herder (2015:213-214) still felt the need to explicitly address the six days of creation: “To remove the false notion of the days of creation from the following exposition, let me here point out what is obvious to everyone on bare inspection”, viz. that the days are merely symbolic divisions for the “first simple table of a natural order”.

⁷⁹ It is also possible that Herder (1803:513) subscribed to an evolutionary account of origins when, in his discussion on the history of man, he writes, “Men, once accustomed to live as ourang-outangs would never of themselves labour against themselves and learn to pass from speechless inveterate brutality to manhood.”

⁸⁰ Schaper’s (2013:633-634) appraisal of Herder’s hermeneutical legacy is worth quoting in full: “It is Herder’s innovative reading of the Bible, especially the third aspect of its impact on biblical interpretation, which so disturbed, and continues to disturb, conservatives and traditionalists. Biblical scholarship has to thank Herder for inaugurating a refreshingly new way of reading and understanding the biblical text, an interpretative approach saturated with a deep understanding of history, informed by a refined use of the necessary philological tools and appreciative of the texts as examples of ancient literary artistry.”

2015:42). Thus, although Herder has been lauded as “the champion of faith against reason”, being “a remorseless critic of the Encyclopedists”, in other ways his treatment of Genesis perpetuated a more resilient form of Enlightenment that has endured till today⁸¹ (Berlin, 2013:209-210). That said, Herder was entirely eclipsed by his mentor,⁸² Immanuel Kant (1724-1804), who is commonly regarded as the most important philosopher to have lived since he was born (Frame, 2015:252).

3.14 How Kant’s nebula hypothesis was foundational to his religion of reason⁸³

Kant was both a product⁸⁴ and proponent of the Enlightenment. Unlike his predecessors who had merely ignored divine revelation in their zeal for autonomous human reason, Kant set out to provide a “comprehensive rationale for autonomous reasoning” (Frame, 2015:251-252). Despite his pietistic roots and subsequent theological training,⁸⁵ Kant became convinced that autonomous reasoning was logically inescapable (Frame, 2015:252; Kuehn, 2002:34).

Kant completed his magnum opus, *Critique of pure reason*, in 1781. In it he laid out his critical philosophy in answer to three primary questions: “What can I know?”, “What ought I to do?” and “What may I hope for?” (Kuehn, 2002:241; Kant, 2007:635). Kant (2007:272) attempts to justify the epistemological basis for autonomous reasoning by dividing all knowledge into two spheres: phenomena (“the world of senses”) and noumena (“the world of understanding”). In other words, noumena describe entities beyond the realm of human experience, whereas phenomena describe the world of things that can be observed directly. Feeling the force of Hume’s scepticism of empiricism,⁸⁶ Kant (2007:273-274) ingeniously proposes a Copernican revolution in philosophy. Put simply, this transcendental approach makes man the epistemological centre of all knowledge (Frame, 2015:257). Within this anthropocentric framework, biblical revelation becomes extraneous. A decade later, Kant makes this point himself.

In two books, *Religion within the limits of reason alone*⁸⁷ (1794) and *The conflict of the faculties* (1798), Kant shows where theology belongs within his critical philosophy. In the opening paragraph of the former work, Kant (1998:33) declares that morality has no need of revelation or religion. Naturally, this makes the

⁸¹ As Berlin (2013:214; cf. 231) observes, “In his general explanation of events in naturalistic terms, whether geophysical or biological, Herder adopted the normal approach of the followers of Locke, Helvétius and the Encyclopedists, and indeed of the entire Enlightenment.” Herder’s (1833a:94) cosmology borrows more from Newton, Buffon and Priestley than does from Genesis.

⁸² Herder was Kant’s student from 1762 to 1764 (Kuehn, 2002:126-134).

⁸³ This section has been published with the Journal of Creation and is used with permission. See Duboisée de Ricquebourg (2021).

⁸⁴ Kant embraced the rationalism of Christian Wolff (1679-1754) and Leibniz (Kuehn, 2002:84-85, 176; Frame, 2015:252). He admired Rousseau (Kuehn, 2002:131-132, 178). Kant was also indebted to Hume (Kuehn, 2002:182-183, 202, 257).

⁸⁵ This included lessons in Greek, Hebrew, church history, Luther’s catechisms, along with studies from the Old and New Testaments (Kuehn, 2002:47). Kant’s theological education was rigorous, requiring him to read the Pentateuch, historical books and Psalms in Hebrew and the entire New Testament in Greek (Kuehn, 2002:47). For more on Kant’s pietistic background and context, see Kuehn (2002:34, 39, 46, 54, 69).

⁸⁶ In *Prolegomena to any future metaphysics that will be able to come forward as science* (1783), Kant (2002:57) famously relates how Hume had stimulated the development of his critical philosophy: “I freely admit that the remembrance of David Hume was the very thing that many years ago first interrupted my dogmatic slumber and gave a completely different direction to my researches in the field of speculative philosophy.”

⁸⁷ Frame (2015:264) considers this treatise to be the “first liberal systematic theology”.

interpretation of Genesis 1-11⁸⁸ a moot point for Kant (1998:65) because the “moral use” of any “historical narrative” does not depend on the “meaning of the writer” or whether it has any basis in real history.⁸⁹ Thus, the “literal interpretation” of any biblical text an abomination to Kant (2001:286) who reasons that it will “hinder the real end of religious teaching” because “even the authors of sacred Scripture, being human, could have made mistakes”. Applying this same logic in the gospels, Kant (1998:81-83, 98-99) regards the divinity of Christ to be an unnecessary doctrine, and the historicity of biblical miracles irrelevant. For Kant, Scripture is only useful for confirming universally-accepted moral principles. This is the “supreme principle of all scriptural exegesis”: to confirm a preestablished “religion of reason” (Kant, 1998:119-120). Of course, this kind of hermeneutic is quintessentially eisegetical.⁹⁰ For Kant (1998:120-121; cf. 2001:284), the “religion of reason” determines the universal truths that Scripture cannot contradict.⁹¹

Denying the inspiration and inerrancy of Scripture, Kant (2001:284-287) asserts that the only “infallible interpreter” is human reason. From this standpoint, he argues that the “true church”⁹² is exclusively derived from the “pure faith of religion, based entirely on reason” (Kant, 1998:122). Essentially, as Frame (2015:265) points out, in Kant’s theology, “man replaces God”. But Kant’s theology relies heavily upon Kant’s science.

Over the course of 56 years, Kant published a total of sixteen scientific treatises (Watkins, 2012:x). The first controversial book that he wrote was explicitly scientific: *General natural history and theory of the heavens, or an essay on the constitution and mechanical origin of the whole universe, treated in accordance with Newtonian principles* (1755). Knowing that it would be theologically iconoclastic, he was only content to publish it when he felt that he was “secure in relation to the duties of religion” (Kant, 2012a:194). This state of affairs was achieved by Frederick the Great (1712-1786) – a known atheist – taking to the throne,⁹³ to whom Kant dedicated the volume (Kuehn, 2002:82). Here we find, at the brink of Kant’s academic career, a book that

⁸⁸ One of the reasons Kant (2001:282) gives for rejecting the authenticity of Genesis is because of “the existence of a questionable cabala of numbers regarding the most important epochs of sacred chronology”.

⁸⁹ Kant (2001:285) discourages deriving any historical truths from Scripture because they are not “essential to salvation.” He insists that all historical claims should be settled by the “philosophical faculty”, not the “biblical theologian” (Kant, 2001:252). This is because Kant (2001:284) believes the clergy to be “incompetent (in scientific matters)” and therefore ill-equipped to investigate any historical or scientific claims of Scripture.

⁹⁰ Without using these labels, Kant (2001:288) clearly advocates eisegesis over exegesis: “In explaining the Bible to the people the preacher must be guided, not by what scholarship *draws out of* Scripture by philological studies, which are often no more than misleading guesses, but by what a moral cast of mind (according to the spirit of God) *puts into it*, and by teachings that can never mislead and can never fail to produce beneficial results. In other words, he must treat the text only (or at least primarily) as an occasion for anything morally improving that can be made of it, without venturing to search for what the sacred authors themselves might have meant by it.” (emphasis mine)

⁹¹ As a case in point, Kant’s (1998:118) abhorrence of the imprecatory psalms elicits the question: “whether morality must be interpreted in accordance with the Bible, or the Bible, on the contrary, in accordance with morality.”

⁹² Given that this criterion functions independently of Scripture, Kant (1998:116) logically infers that Christians, Muslims and Jews are all manifestations of the same “one (true) religion”.

⁹³ Prior to 1740, under the reign of the previous monarch, Frederick William I (1688-1740), the Pietists enjoyed a period of intolerance towards any dissenters. As Kuehn (2002:69) relates, this meant that, “No theology student who cared about his future could afford to disagree openly with the Pietist professors or to be friendly with those who were not Pietists.”

attempts to replace Genesis 1-11 with a pseudo-naturalistic⁹⁴ account of the origin of the universe. Kant's (2012a:200) materialistic approach is plainly stated:

Give me matter and I will build a world out of it, that is, give me matter and I will show you how a world is to come into being out of it.⁹⁵ (emphasis in original)

Choosing to follow Newton instead of Moses, Kant (2012a:204) develops the first “nebular hypothesis”⁹⁶ prototype to explain the origin of the universe “through mechanical laws alone” (Calinger, 1979:352; Kuehn, 2002:105). Kant (2012a:266, 296, 267) freely speculates that the universe may have taken “millions of years” to evolve from chaos; that the earth may have “existed for a thousand or more years before it was constituted so as to support people, animals, and plants”;⁹⁷ and that the world continues to evolve because “Creation is never complete... it will never stop.” In the process Kant (2012a:307) loses the *imago Dei*, resulting in an anthropological quandary:

We are not even properly familiar with what a human being actually is, even though consciousness and our senses should inform us about it; how much less will we be able to imagine what he will become in the future!

Thus began a quest which would climax with the *Critique of Pure Reason*. But five years after this monumental writing project, Kant returned to Genesis. In 1786, he wrote an essay entitled *Conjectures on the beginning of human history*. This time, instead of seeking a replacement of Genesis, he sought to reinterpret Moses to suit his critical philosophy. The fact that he felt the need to do so is interesting in itself.⁹⁸ In this essay, Kant's main focus is on the fall of man. Instead of viewing Adam and Eve's sin as man's first step into slavery, he reenvisioned it as man's first step into freedom, where man can now “choose his own way of life” (Kant, 1989:224). Kant (1989:223-227) equates God with nature, reducing his commands to the “voice of nature” or, simply, man's instinct. From this perspective, the temptation to sin becomes the “guidance of human reason”, and the sin itself as man's liberation from being like the animals to becoming truly human (Kant, 1989:223-227).⁹⁹ Thus, the fall of man is reinterpreted as a necessary step in man's “progress towards perfection” (Kant, 1989:226-227). Kant has, in fact, turned Genesis 1-3 into a manifesto for the Enlightenment.

⁹⁴ Kant (2012a:200-201) retains God as a first cause whilst trying to explain how matter could arrange itself into the present universe over time.

⁹⁵ Prophetically, Kant (2012a:201) also asks, “Are we in a position to say: *Give me matter and I will show you how a caterpillar can be created?*” – a question picked up by Darwin's *Origin of Species* a hundred years later.

⁹⁶ Even though the Nebular Hypothesis is often attributed to Laplace, “he only restated and developed it” (Pearson, 1929:205 *versus* Newman, 1954:79).

⁹⁷ Kant's thoughts on the days of creation can be found in *Physical geography* (1802), where Kant discusses the implications of lava layers in the Italian province of Catania which, according to contemporary geologists, required at least 16 000 years to form. Here Kant (2012b:535) reasons, “Moses gives [us] the age of mankind but not the age of the earth. The earth may have been formed some thousands of years earlier, for we should not allow ourselves to be prevented by Moses's statements from giving consideration to physical evidence. For God, a period like a day is too long for creation; and for the formation of the earth it is too little.” In Kant's (1989:222) reinterpretation of Genesis 1-3, he assumes that by the time we encounter Adam and Eve in the garden, they had already existed for a “considerable interval of time” because experience proves that it would be impossible for them to walk, talk and think without having to acquire these skills progressively like a child.

⁹⁸ For example, why was Kant so bothered by Genesis 1-11 when his whole philosophy of human reason necessarily precluded it?

⁹⁹ Kant (1989:224) also reinterprets the putting on of clothes in Genesis 3 not as evidence of guilt and shame, but as evidence that man had developed a “sense of decency”.

In 1784, Kant wrote *An answer to the question: what is enlightenment?* In this short essay, Kant (1999:17-18) defines the “motto of enlightenment” as the “courage to make use of your understanding” or “freedom to make public use of one’s reason in all matters”. It is important to notice that the freedom conceived of here is a freedom from the tyranny of any religious authority. He explains why:

I have put the main point of enlightenment, of people’s emergence from their self-incurred minority, chiefly in matters of religion because our rulers have no interest in playing guardian over their subjects with respect to the arts and sciences¹⁰⁰ and also because that minority, being the most harmful, is also the most disgraceful of all. (Kant, 1999:21)

Here we find the real heart of Kant’s Enlightenment: the desire to be free from God,¹⁰¹ or as Frame (2015:268-269) suggests, the desire to be God: in Kant’s universe, “it is the human mind that creates the world out of nothing.” It is hard to avoid the notion that Kant’s philosophical legacy is inextricably connected to Genesis 1-3.

3.15 Buffon makes old-earth chronologies more respectable

Georges-Louis Leclerc, or Comte de Buffon (1708-1788), can take credit for his important contribution to Kant’s development as a scientist. Kant’s (2007:326, 2012:290, 356) anthropology, cosmological theory and geology were all shaped, to a large extent, by Buffon.¹⁰² Buffon’s influence also extended to David Hume and Adam Smith who were his close friends, and his writings left their mark on James Hutton (1726-1797), Alexander von Humboldt (1769-1859), Vladimir Vernadsky (1863-1945), Charles Lyell (1797-1875) and eventually Charles Darwin, to whom Buffon has been called an ideological grandfather¹⁰³ (Hume, 1932d:205; 1932e:82; Zalasiewicz *et al.*, 2018:xvii; Jacob, 1973:12; Persell, 1991:16, 20). By Roger’s (1997:xvi) estimations, “Buffon was the most important naturalist between Aristotle and Darwin.”¹⁰⁴ Mayr (1982:337) concurs:

It makes no difference which of the authors in the second half of the eighteenth century one reads, their discussions are, in the last analysis, merely commentaries on Buffon’s work. Except for Aristotle and Darwin, there has been no other student of organisms who has had as far-reaching an influence.

Consequently, Buffon’s views of natural history garnered much support. The first three volumes of his thirty-six volume work,¹⁰⁵ *Histoire naturelle* (1749-1804), “became an immediate best-seller throughout Europe” (Corsi, 19881). In the opening pages of the first volume, Buffon (1797:5) insists that the history of the earth should be derived empirically without any recourse to facts not dependent upon experience

¹⁰⁰ Kant’s enlightenment leaves “science and theology with nothing to say to each other” and creates “a conflict between facts and values that continues to this day” (Amos, 2007:264).

¹⁰¹ If the contemporary assessment of his last years are accurate, Kant began his life as a Christian but ended his life as an atheist (Kuehn, 2002:318; cf. 391-392).

¹⁰² Kant (2008:65; 2007:326) shows his respect for Buffon in at least two places referring to him as “that justly celebrated philosopher” and “great author”.

¹⁰³ The important caveat here is that, although Buffon’s views are echoed in Darwin, Darwin (1887b:45) does not attribute them to Buffon. In the third edition of *Origin of Species*, Darwin (1861:xiii) mentions “Buffon, with whose writings I am not familiar”. It was only after 1861 that Darwin acknowledged that Buffon had anticipated some of his ideas.

¹⁰⁴ Zalasiewicz *et al* (2018:xviii) make a more modest claim, calling Buffon “one of the greatest naturalists of France.”

¹⁰⁵ As enumerated by Roger (1997:xiv).

and observation.¹⁰⁶ Upon these epistemic grounds, Buffon (1797:15) rejects any chronology derived from Genesis 1-11 in favour of a world considerably older than “two or three thousand years”. Given that Buffon’s (1797:17, 150-154) uniformitarianism precludes any cataclysmic geological events in history, Noah’s flood is reconstrued as a placid deluge causing no physical damage to the face of the earth. Instead, he argues that the “strata must have been formed by degrees” over vast ages by gradual processes like erosion and sedimentation (Buffon, 1797:18, 26, 34, 67). The fossil record is subjected to similar logic. Citing Bernard Palissy¹⁰⁷ (c. 1510 - 1589) and René Antoine Ferchault de Réaumur (1683-1757), Buffon (1797:221, 224; cf. 152) claims that the flood had no bearing on the fossil record.¹⁰⁸

Buffon’s subjugation of Genesis to natural causes does not end here. Finding inspiration from Gottfried Leibniz¹⁰⁹ (1646-1716), he goes on to suggest that planets could originate as a result of a comet colliding with the sun (Buffon, 1797:75-76). Buffon (1797:75-76) supports this hypothesis from Genesis 1:4, claiming that this is what is meant by God separating the light from the darkness.¹¹⁰ Of course, this type of eisegetical misappropriation of Scripture typifies how Buffon (1797:76) uses Scripture to motivate his preconceived naturalistic theory of origins. Consequently, it is not surprising that Buffon (1807a:316) refuses to affirm the literal historicity of Adam and Eve, resulting in an anthropology that is only tenuously monogenic and overtly racist.¹¹¹

Ten years before he died, Buffon returned to Genesis, finishing his most controversial work, *Les époques de la nature* (1778). In this final treatment on cosmogony, Buffon engages directly with Genesis 1-2. At the outset, he wants his reader to know that Moses’s original audience comprised people who were “half savage” and “very ignorant” (Buffon, 2018:4, 19). Buffon (2018:17) claims that the Hebrew of Genesis is “an impoverished language, bereft of precise expressions for abstract ideas”. Upon such grounds, Buffon

¹⁰⁶ Anticipating Hutton (1785:9) and predating Lyell (1730:313) by several decades, Buffon (1797:37) articulates the principle of uniformitarianism: “to judge of the future, as well as the past, we must carefully attend to what daily happens before our eyes.” This idea, often captured by the maxim “the present is the key to the past”, was developed further by Buffon (2018:3, 5, 13) in *Les Époques de la Nature* (1778). But even Buffon was not the first to employ the idea of uniformitarianism. In *Meteorologica*, Aristotle’s (1931:351^a-353^a) natural history of the geography of Egypt assumes a uniformitarian model.

¹⁰⁷ Palissy believed that the fossil record was not a result of Noah’s flood (Morley, 1869:294-297).

¹⁰⁸ Here Buffon (1797:154) attempts a biblical rationale for his geological views: “Does the Scripture say mountains were formed by the Deluge? No, it says the contrary. Is it said that the agitation of the waters was so great as to raise up shells from the bottom of the sea, and transport them all over the earth? No; the ark floated quietly on the surface of the waters.” Not only is this an argument from silence, it also sustains double standard: “the ark floated quietly” is not found in the text.

¹⁰⁹ According to Israel (2001:502), “Leibniz emerged as the foremost and most resolute of all the antagonists of radical thought, as well as the pre-eminent architect of the mainstream, moderate Enlightenment in Germany, Scandinavia, and Russia.” Specifically, Leibniz was instrumental in bringing Spinoza’s *Tractatus Theologico-Politicus* into France in 1672 (Lambe, 1985:155-156). Preparing the way for Buffon, Leibniz (2008:590) suggests that the world is older than Genesis suggests owing to chronological gaps in the genealogy from Adam to Noah.

¹¹⁰ Hypocritically, Buffon (1797:127) chastises Whiston for doing exactly what he does here: attempting “to explain theological truths by physical reasons” which will “involve ourselves in the darkness and chaos of obscurity and confusion”.

¹¹¹ He suggests that it would be easy “to imagine the Negro, the Laplander, and the White” as “different species” if it were not for the fact that only “one man” was “originally created” (Buffon, 1807a:316). Citing Pierre François Xavier de Charlevoix (1682-1761), Buffon (1807b:279, 291) argues that “negroes” are “simple and stupid”. This sentiment, finding a kindred spirit in both Hume and Voltaire, inspired the slave owner, Edward Long (1734-1813), to extrapolate Buffon’s logic further resulting in a more comprehensive rejection of Genesis 1-11 and the common ancestry of the human race. Long (1774:365) reasons, “That the oran-outang and some races of black men are very nearly allied, is, I think, more than probable; Mr. Buffon supports his deductions, tending to the contrary, by no decisive proofs.” Long (1774:376, 362; cf. 364, 371) is convinced by Buffon and Hume that “native Africans” are “inferior to the rest of the [human] species”, being “only varieties of the oran-outang”. Proposing an evolutionary origin of mankind, Long (1774:363) places African pygmies in “the space between mankind and the ape, as this and the monkey tribe supply the interval that is between the oran-outang and quadrupeds.”

finds ample licence to amend the first verse of the Bible. The overall objective seems superficially admirable: Buffon wants to reconcile Scripture with science.¹¹² To do this, he advises Christians to “supply a word” in Genesis 1:1 as follows: “At the beginning God created THE MATTER of the heavens and the Earth” (Buffon, 2018:16). In this way he is able to insert “twenty-five thousand years” between Genesis 1:1 and 1:2 to accommodate the time needed by his understanding of geology and palaeontology (Buffon, 2018:116). He then inserts a second gap between Genesis 1:3 and 1:4 arguing that there is another considerable period of time “between the production of light and its separation from darkness” (Buffon, 2018:17). As a concession, Buffon (2018:19) admits that we should not “deviate from the letter of the sacred tradition” but immediately adds, “except when the letter kills, that is to say, when it seems directly opposed to healthy reason and to the truth of the facts of Nature.” Borrowing perhaps from Galileo (1957:186), Buffon (2018:19) justifies his subjugation of Scripture to science on the basis that “all reason, all truth, comes equally from God” thereby equating the words of Scripture with the scientific consensus of his day.

Buffon (2018:18) then proceeds to dismiss the six days of creation as literal days because the first three existed before the sun. Instead their duration should be determined by the timescale dictated by his view of natural history (Buffon, 2018:18). In this case, the longevity he needs for the earth is at least¹¹³ seventy-five thousand years (Buffon, 2018:35, 40). This is because Buffon (2018:26, 29) is already committed to the idea that all the planets originate from the collision of a comet with the sun. That being the case, the earth “needed seventy-six thousand years¹¹⁴ to cool to the level of the present temperature” (Buffon, 2018:126). But when it comes to the antiquity of the universe, Buffon (2018:3) is reticent to restrict the known cosmos to any time limit:

This is the only way to fix some points in the immensity of space, *to place some milestones along the eternal passage of time*... Natural history ... encompasses equally all of space, all of time, and *has no limits* other than those of the universe. (emphasis mine)

For these reasons, as Mayr (1982:336) points out, Buffon “more than anyone else, was responsible for a new chronology of the earth, that is, for the acceptance of a vast time scale.” Buffon’s cosmogony, being the precursor to Kant’s cosmogony, also exchanges the God of Genesis for Nature (Roger, 1997:xii). But Buffon reifies nature to a far greater extent than Kant. Nature does everything a creator would do: she

¹¹² Buffon (2018:20) claims that his motives are pure as he seeks “a great good... a reconciliation forever between the science of Nature and that of theology.” To placate Christians who are “strictly attached to the letter” of Scripture, Buffon (2018:21) claims that his theory of the origin of the universe cannot “harm the revealed truth”.

¹¹³ Here Buffon (2018:35-36) restrains himself from offering a more realistic estimate of the age of the earth, as he points out: “I have perhaps shortened it too greatly” and seventy-five millennia “is not yet long enough for all of the great works of Nature”. According to Zalasiewicz *et al.* (2018:xxvii), “his unpublished manuscripts show that he was stretching his overall time scale some fortyfold, to three million years.”

¹¹⁴ The disparity between the previous figure of seventy-five thousand and this figure, seventy-six thousand, shows that Buffon (2018:88) is limited to approximate estimations, as evident from his comment about the first epoch of nature: “life could have begun at thirty-five or thirty-six thousand years”. Buffon’s estimation for the age of the earth is extrapolated from experiments he performed on heated iron balls, as Zalasiewicz *et al.* (2018:xxv-xxvi) relate: “He heated up variously sized balls of iron and measured how long they took to cool. Measuring the temperature of such objects was not so simple then. Buffon did not trust the crude thermometers of the day—when theories of energetics were not well developed and phlogiston ideas were still current—so he measured instead the time it took for the ball to cool sufficiently to be held by hand for a minute without injury. (Buffon regarded women’s hands, being more sensitive, as the most precise measuring devices.)”

admits, constructs, assigns, places, spreads, establishes, and produces (Buffon, 2018:4, 6, 35-36, 43, 54, 60, 69, 96-97, 125). Nature is “sentient and intelligent” (Buffon, 2018:85). Employing evolutionary language, Buffon (2018:97) believes that Nature made man along with the animals, although he is set apart by a “divine ray” that the “sovereign Being” bestowed on him. Yet even here, Genesis 1-2 is ignored: the origin of man is derived “independently of the authority of the sacred texts” (Buffon, 2018:98).

For Buffon (2018:132, 120), man’s “true glory is science” – not the *imago Dei*; and the “throne of man’s power” rests on the “trunk of the tree of science”. In an interesting twist, Buffon (2018:124) places man as lord of creation, ascribing the final development and perfecting of nature to the power and ingenuity of man.¹¹⁵ It was a vision that captured the heart of one of the greatest mathematicians¹¹⁶ of all time, Pierre-Simon Laplace (1749-1827), sometimes known as the “Newton of France” (Newman, 1954:77).

3.16 Laplace constructs a cosmogony based on gravity instead of Genesis

Like Kant,¹¹⁷ Laplace also abandoned a career in theology for the sciences (Gillispie, 2000:3). Laplace’s prodigious mathematical aptitude quickly earned him a place in the company of the French *philosophes*, d’Alembert¹¹⁸ and Condorcet,¹¹⁹ at the *Académie des Sciences* (Gillispie, 2000:4-5). It had been more than eighty years since Newton’s *Principia* had revolutionised how physicists understood the motion of the planets (Whittaker, 1949:369). But Laplace felt that Newton’s law of gravitation could do more than merely describe the current state of the cosmos; it could also shed light on where the cosmos came from. To date, as far as Laplace (1830b:354) was concerned, Buffon was the only person who had seriously attempted to explain the origin of the universe scientifically. In 1796, Laplace proposed his own cosmogony in a popular-level treatise entitled *Exposition du système du monde*, which he later reworked into the five-volume magnum opus, *Traité de mécanique céleste*¹²⁰ (1799-1805). Taken together, Woodward (1891:52) claims that these two works “constitute the greatest systematic treatise ever published.” As such, their impact on the development of cosmogony – and consequently the interpretation of Genesis 1-11 – cannot be ignored.

Where Newton had ascribed the motion of the planets to “the work of an intelligent and most powerful being”, Laplace (1830b:2, 331-332, 336-337, 362, 366; 1829:xxiii, 256; 1834:xiii-xiv) proposes instead that the origin and motion of these celestial objects can be explained by the condensation of “nebulous

¹¹⁵ Buffon (2018:128) believes that “man can modify the influences on the climate in which he lives, and can secure, so to speak, the temperature to the level at which it suits him.” The power of man’s influence over nature extends even further: “And what could he not do upon himself, I wish to say upon his own species, if the will was always guided by intelligence? Who knows to what point man could perfect his nature, either moral or physical?” (Buffon, 2018:132)

¹¹⁶ Whittaker (1949:369) relates how Laplace “came to be recognized as the greatest living mathematician” when he solved a problem that had eluded both Euler and Lagrange.

¹¹⁷ Kant eventually pursued a career in philosophy, but his first major treatise was scientific (Duboisée de Ricquebourg, 2021:48). It is also important to recognise that, over the course of 56 years, Kant published a total of sixteen scientific treatises (Watkins, 2012:x).

¹¹⁸ Laplace was d’Alembert’s protégé at the *École Militaire* (Gillispie, 2000:4).

¹¹⁹ Condorcet was the permanent secretary of the *Académie des Sciences* when Laplace joined (Gillispie, 2000:5).

¹²⁰ Laplace’s *Traité de mécanique céleste* has been placed alongside Newton’s *Principia* as “the two most important works in the progress of mathematics and physics” (Woodward, 1891:49).

matter” due to nothing more than gravity. For Laplace, gravitation makes God redundant¹²¹ (Cajori, 1894:275-276). It is alleged that when Laplace gave Napoleon a copy of *Mécanique Céleste*, he responded, “M. Laplace, they tell me you have written this large book on the system of the universe, and have never even mentioned its Creator.”¹²² – to which Laplace replied, “Je n’avais pas besoin de cette hypothèse-là”¹²³ (Cajori, 1894:275). Laplace (1830b:365) is confident that the true origin of the universe can be discovered by combining the results of geology with astronomy.¹²⁴ The implication is obvious: Genesis 1-11 serves no real purpose when it comes to the question of origins.

In 1812, Laplace completed a seminal treatise on probability, *Théorie analytique des probabilités*, which was followed two years later by a “haute vulgarisation” for the *boi polloi*, entitled *Essai philosophique sur les probabilités* (1814) (Gillispie, 2000:viii). In these works, Laplace (1995:7, 73) casts doubt on the epistemic value of historical records which he deems “at best dubious”. He predicts that many historical certainties will be doubted in the future (Laplace, 1995:74). In fact, Laplace (1995:97-98) claims it is impossible to trace the history of the earth “back to its origin”, and he calls Leibniz’s argument for *creatio ex nihilo* a “facile metaphysic” based on “puerile prejudices”. Genesis 1-11 is thereby excluded *de facto* from the realm of possibility because creation is an extraordinary event without precedent in the history of human experience.¹²⁵ Or as Laplace (1995:70) puts it, “Some things are so extraordinary that nothing can compensate for their unlikelihood.”¹²⁶ For Hutton (1788:285), that meant rejecting, not just *creatio ex nihilo*, but also the flood.

3.17 Hutton provides a model for how to do geology without Genesis

James Hutton (1726-1797) began his career as a farmer in Berwickshire but later explored his interests in geology where he became close friends of Benjamin Franklin (1706-1790),¹²⁷ David Hume, and Adam Smith (McIntyre, 1999:2).¹²⁸ Since then, Hutton has been widely regarded, albeit erroneously,¹²⁹ as the founder of modern uniformitarian geology (Dean, 1992:1; McIntyre, 1999:11; Repcheck, 2009:209; White,

¹²¹ While Laplace (1830b:332; 1830a:7) is prepared to leave room for an “Author of Nature”, he maintains in principle that “the first causes and intimate nature of beings will be for ever unknown”. In this way, as Laplace (1830b:333) puts it, “final causes” will continue to recede as “the boundaries of our knowledge are extended.” Laplace’s (1830b:341-342) confidence in science can be seen from his praise of astronomy which he calls “the most beautiful monument of the human mind – the noblest record of its intelligence.”

¹²² This did not stop Napoleon from delegating “the reconstruction of the scientific and educational institutions of France” to Laplace and Cuvier (Pearson, 1929:207).

¹²³ i.e. “I have no need of that hypothesis.”

¹²⁴ Geology and astronomy lead Laplace (1834:xiii) to believe that the universe is “several millions of years” old.

¹²⁵ Laplace’s (1995:101) commitment to naturalism is further evidenced by the fact that he attributes belief in the supernatural to the psychological “influence of sympathy”.

¹²⁶ In a section entitled “On the probability of testimony”, Laplace (1995:68) echoes Hume, “On extending this result to all extraordinary matters, we find that the probability of an error or of a lie on the part of the witness increases with the increasing extraordinariness of the matter attested.”

¹²⁷ Franklin (2004:46) was a self-confessing deist who doubted the inspiration of Scripture. At one stage he outlined an idea to start a secret pseudo-religious society called *The Society of the Free and Easy* to accommodate people who shared similar aspirations for minimal religiosity (Franklin, 1904a:204-206). In his discourse *On the providence of God in the government of the world*, he wrote, “I know that no authority is more convincing to men of reason than the authority of reason itself” (Franklin, 1961:265). Franklin is probably “the first American champion of generic religion” (Morgan, 2000:723).

¹²⁸ Adam Smith, Joseph Black (1728-1799) and Hutton “founded a club known as the Oyster Club, which met weekly and epitomized the best features of the Scottish Enlightenment” (McIntyre, 1999:11).

¹²⁹ As both Rudwick (2005:158) and Gould (1996:66) point out, Hutton’s contribution to geology has been greatly exaggerated.

1970:ix). But Hutton's fame is more plausibly derived from his resolve to purge geology of Genesis.¹³⁰ For this reason, when Repcheck (2009:2, 5) celebrates four men responsible for liberating science from Scripture, he lists Copernicus, Galileo, Darwin... and Hutton. Echoing this sentiment, Eyles (1970:xi) asserts that Hutton's geological magnum opus was "the most important contribution to the advancement of the natural sciences made in the eighteenth century". Why? Because his "conception of unlimited geological time" provided the critical foundation for Darwinian evolution (Eyles, 1970:xi).

Hutton presented his geological thesis to the Royal Society of Edinburgh in 1785, published later in 1788 as *Theory of the earth*. In the opening pages of his treatise, Hutton (1788:217) rejects the Genesis record because he is already convinced that fossils come from "a period of time extremely remote". Being aware of how former geologists, like Nicholas Steno¹³¹ (1638-1686) and Woodward,¹³² had employed Genesis 6-8 to explain the fossil record, Hutton (1788:219) insists that "no written history" can account for how fossils might have been formed. His dismissal of Noah's flood rests on the conviction that only naturally-occurring phenomena are credible to history: "there is no occasion for having recourse to any unnatural supposition of evil, to any destructive accident in nature, or to the agency of any preternatural cause, in explaining that which actually appears" (Hutton, 1788:285). Hutton's (1788:217-218) geology, by contrast, follows the example of Buffon, maintaining that the present is the key to the past, and the only means by which a scientific chronology of history can be constructed. From such premises, Hutton (1899:266) is persuaded that the earth is trapped in a perpetual cycle of destruction and construction as land becomes sea and sea becomes land. Within this nonlinear infinite timeframe, any inquiry into the "origin of the earth" is futile, so Hutton (1788:304) ends his treatise with the statement: "The result, therefore, of our present enquiry is, that we find no vestige of a beginning – no prospect of an end." Thus, in his endeavour to construe geology naturalistically, Hutton advocates "the most rigid and uncompromising version of time's cycle¹³³ ever developed by a geologist" (Gould, 1996:79).

At this stage in Europe's cultural enlightenment, Hutton's dismissal of Genesis 1-11 was hardly controversial¹³⁴ (Rudwick, 2005:126). Hutton's geological speculations, therefore, were readily accepted for publication in the very first volume of *Transactions of the Royal Society of Edinburgh* in 1788.¹³⁵

¹³⁰ As one reviewer puts it, "we have heard the walls ring with rapturous joy, when geology *renounced her ecclesiastical tenure*, and demanded a lease of MILLIONS OF MILLIONS of years for the range of their enquiries. Let us now pause a while before this great moral revolution, in which truth has achieved one of her noblest triumphs" (emphasis mine; Anon., 1837:13-14).

¹³¹ Steno (1669:95, 99) ascribes the "origin of bodies, resembling parts of animals, that are dug from the earth" to the action of a global flood as "we learn from Holy Scripture".

¹³² Concerning the origin of fossilised shells and sea creatures, Woodward (1695:72, 113) asserts, "these marine bodies were born forth of the sea by the universal deluge", and of fossilised trees: "they were lodged thus by the Deluge, and have lain here ever since."

¹³³ Hutton derives this infinite time period, not from any observable data, but from an *a priori* commitment to naturalism. Rudwick's (2005:169) analysis holds: "Far from inferring a vast timescale from observation, Hutton deduced it from first principles and then explained away the awkward fact that its effects were unobservable."

¹³⁴ Richard Kirwan (1733-1812), an Irish geologist, was one of the few remaining outliers, retaining the traditional interpretation of Genesis (Gillispie, 1959:224). As one of the first critical reviewers of Hutton's *Theory of the earth*, he found little merit in Hutton's attempt to divorce geology from Genesis. Kirwan's (1778: xi-xii, 54-86) own geology relied upon the explanatory efficacy of Noah's flood, which he took as literal history. This, in turn, led him to reject Hutton's uniformitarian cosmology which, he argued, could not provide a plausible account for the same geological phenomena (Kirwan, 1778:12-13, 433-499).

¹³⁵ The early publications in this significant scientific journal show how the "Scottish Enlightenment flourished in the last quarter of the eighteenth century" (Monro & Crosbie, 1999:161).

Towards the end of his life, after a few passionate discourses on phlogiston,¹³⁶ Hutton returned to develop and broaden his system of thought, publishing three substantial volumes under the title, *An investigation of the principles of knowledge and the progress of reason from sense to science and philosophy* (1794). It was a writing project that lacked originality, echoing the same sentiments espoused by previous *philosophes* and freethinkers. Like Lord Herbert of Cherbury, Hutton (1794b:651) believes that the authenticity of any “received religion” or “pretended revelation” is decided by science. Thus, wherever revelation deviates from the edicts of science, revelation is demonstrably false. Morality, therefore, finds its true foundation – not in theology – but in autonomous reasoning (Hutton, 1794b:625-627, 670). Predictably, Hutton (1794b:661) dismisses Genesis 1-11, declaring that Moses’s understanding of God and creation was “founded on superstitious notions, and suited to the ignorance and inhumanity of rude ages”. Yet he clearly expects more sophistication from his own readership, asserting that he writes “only to the enlightened part of mankind” who have laid aside “vulgar notions, which are formed in ignorance and believed in superstition” (Hutton, 1794a:iii).

Hutton’s ideas might easily have been forgotten¹³⁷ were it not for the enthusiastic endorsement and marketing of his good friend, John Playfair (1748-1819). Playfair wrote the first hagiography of Hutton’s life and repackaged his *Theory of the earth* in more modern geological terms, replacing the latter’s idiosyncratic view of time within a linear sequential framework (Gould, 1996:94-96). What he left unchanged, however, was Hutton’s attitude towards Genesis. In *Illustrations of the Huttonian theory of the earth* (1802), Playfair (1822a:136-137) suggests that the creation story has very little to offer geology or astronomy in terms of the “antiquity of the earth” and is “not intended to resolve physical questions”. Thus, he continues to keep geology separate from Genesis, arguing that science will only progress if “all opinion” is subjected to the final authority of “experience and observation” (Playfair, 1822b:194). Playfair’s preference for science over Scripture meant that precedence would always be given to Hutton instead of Moses on historical matters.

By the nineteenth century, Hutton’s fame, captured pre-eminently by the antithesis between Hutton and Genesis, had been firmly established. To the enlightened mind, Hutton had rescued geology from the “dark age” when “science rested on the two assumptions that the world was made in six days, and was afterwards overwhelmed in the waters of an universal deluge” (Anon., 1837:3). Huttonites could rejoice that:

After having for half a century ‘stumbled on the dark mountains,’ the Church is now feeding her flock on the green pastures of the Huttonian geology... and has commanded the sacred scholar

¹³⁶ The theory of phlogiston suggested that all flammable matter contained a substance called phlogiston which enabled combustion. In 1783, Antoine Lavoisier (1743-1794), one of the principle founders of modern chemistry, refuted the concept of phlogiston by showing the role that oxygen plays in combustion (Guerlac, 1966:xiii, xvii). This did not stop Hutton (1792:viii, 210), however, from chastising anyone who doubted its existence, warning them against falling “into an error the most dangerous to science”, that would “obstruct the progress of science”. Thus he strongly opposes Lavoisier, maintaining that, “There are physical truths which cannot, I believe, be doubted or disputed; and it is upon those truths, as principles, that all our reasoning, in relation to this subject, must be founded” (Hutton, 1792:255; 226). This does little to his credit, given that in his *Theory of the earth*, he had already warned that not every person is “qualified to read that book of nature” (Hutton, 1899:258). In this regard, Reed’s (2008:124) overall assessment of Hutton is compelling: “far from being a pioneering empiricist, Hutton was a deductive system builder in the deist tradition. He did not develop his ideas about deep time from field data, but from the necessity of an eternal world made for an eternally existing human race”.

¹³⁷ By Reed’s (2008:122) assessment, “Hutton was not a pioneer – he was just one member of the elite intellectual herd.”

to accommodate his philology to the Huttonian interpretation of the language of Moses. (Anon., 1837:14)

3.18 Jean-André Deluc attempts to salvage Genesis 6-8

Jean-André Deluc (1727-1817), a contemporary of Hutton and Playfair, was reticent to exclude Genesis completely from his geology. Hutton sent Deluc (1809:77) his first paper on the theory of the earth, to which he responded with four letters in the *Monthly Review* of 1790 and 1791. In summary, Deluc (1809:77, 79-82) “embraced all the principal propositions of [Hutton’s] theory” whilst rejecting the “indefinite antiquity” of the continents. Contending against Hutton and Playfair’s complete rejection of Scripture, Deluc (1809:285, 377, 348; cf. 1831:10, 15, 47-49, 200, 230, 235) believed that the flood in Genesis 6-8 still had geological credibility, thereby “confirming” the later chronology of Genesis 9-11 which “cannot exceed 4000 years.” But the earlier chronology outlined in chapters 1-5 was harder to contend for – and consequently ignored – because Deluc was convinced that the earth had an older pedigree than merely six thousand years. To accommodate these geological convictions, Deluc (1831:82-83, 180) interprets the six days of creation as six geological periods, “not days of twenty-four hours, but certain portions of time of an indeterminate length.” This line of reasoning is also adopted as an apologetic against sceptics who, “with a slight knowledge of geology”, have been able to reject the Bible completely (Deluc, 1831:82-83; 379).

For Deluc, geology establishes the facts to which revelation must cohere. The authority of Scripture is therefore confirmed by science and not vice versa. Thus, in *Traité élémentaire de géologie*¹³⁸ (1809), he does not hesitate to affirm Playfair’s confidence in geology to provide an accurate explanation of earth history, adding his own assertion that science would ultimately attain “a very high degree of certainty” (Deluc, 1809:16-17, 66). The manner in which Deluc (1831:236, 249, 256, 388, 390, 391, 400) defends the historicity of the flood narrative communicates the same sentiment: “Here then is a revelation confirmed by unquestionable facts”, “I have proved from geology...”, “geology teaches us”, geology confirms Genesis “by indisputable facts”, et cetera. Naturally, the epistemic value given to geology has a direct bearing on Deluc’s hermeneutic. Genesis cannot be read on its own terms if the exegete hopes to derive a true history of origins. Henceforth, geology becomes “a science as essential to theologians, as the study of the learned languages” (Deluc, 1809:4). This scientific hermeneutic is made explicit in several places where Deluc (1831:394, 396) engages with the text of Genesis, for example:

Thus, *with the help of Geology*, we already trace in this part of Moses’ concise narrative, that it was the sea-which flowed in to cover the ancient lands: and now, by *consulting Natural History*, we shall find also in the rest of that narrative, that the retreat of water there mentioned, was that of the sea; which abandoned its ancient bed... My attentive reader will already be able to foresee *how geology serves to explain these great points* in the Mosaic history. (emphasis mine)

Thus, the reader is led to believe that the infallibility of the text rests not upon its own authority but upon that given to it by geological reflection and argument (Deluc, 1831:401, 414).

¹³⁸ i.e. “an elementary treatise on geology”

Deluc's influence on future exegetes was secured by his prominence in society. Not only was he closely connected to Rousseau and William Herschel, he was also elected to the Royal Society in 1773 and served as "Reader to Queen Charlotte" in the royal court the following year (Turnbridge, 1971:15, 17-20). His legacy can be found in several Genesis commentaries including Paul (1852:v), MacDonald (1856:92), Wight (1857:174-175) and Arnold (1875:335) who follow Deluc in the interpretation of the days of Genesis as geological periods; and Kalisch (1858:141), Lange (1869:187) and Kurtz (1870:105) who also cite him favourably.

3.19 Paine's polemic against Christianity makes Genesis 1-11 an embarrassment

Thomas Paine (1737-1809), like Hutton, was also a good friend of Franklin. It was in response to Franklin's invitation that Paine initially decided to visit America (Ward, 1943:80). And if the French *philosophes* needed any help making proselytes in America, there could hardly be anyone more willing than Thomas Paine (1737-1809). When Paine arrived in Philadelphia on the 30th of November 1774, he brought the European Enlightenment with him. Paine became "America's first liberal" and a key figure in the development of "American civil religion" that typified the American Enlightenment (Ward, 1943:94; Bush & Webb, 2009:82). Paine was a capable scientist, inventing planing machines, cranes, concentric wheels, smokeless candles, a cast-iron bridge modelled after a spider's web, and he also helped design the first steamboat (Roper, 1944:110-111 Kiley, 1985:59-60). But all these accomplishments were superseded by the notoriety of his political and religious writings.

Just thirteen months after arriving in America, Paine (1995:56) published *Common sense* (1776), a provocative book that gave the people what they were already looking for: a compelling case for America to declare its independence from Britain. Paine easily won the hearts of a nation already in support of the American Revolution (1765-1783), and his book garnered a "literally unprecedented reception" selling over 150 000 copies in less than four years (Greene, 1978:75). Riding on the reputation earned from *Common sense*, Paine (1908a:96) went on to write *The rights of man* (1791-1792), which, in his own words, "had the greatest run of any work ever published in the English language", amounting to nearly half a million sales within a decade. (Greene, 1978:75). For this reason, Thomas Edison (1847-1931) (1925:viii) believes that Paine is "the real founder" of the American republic, and regards *The rights of man* as "the living Constitution of modern England." Together, these books made Paine a public figure on two continents and gave him a prominent intellectual voice in the English-speaking world.

In both *Common sense* and *The rights of man*, Paine (1995:9, 10, 17, 40; 1908b:55) exploits Scripture to his advantage, quoting Genesis as history¹³⁹ wherever it lends support to his thesis (Smith, 1996:752). This is

¹³⁹ For example, in *Common sense*, Paine (1995:9, 10) writes, "In the early ages of the world, according to the scripture chronology, there were no kings; the consequence of which was there were no wars; it is the pride of kings which throws mankind into confusion"; and, "Near three thousand years passed away from the Mosaic account of the creation, till the Jews, under a national delusion, requested a king." In *The rights of man*, Paine (1908b:55) argues that his view of humanity in relation to the monarchy is supported by "The Mosaic account of the Creation, whether taken as divine authority or merely historical".

corroborated by John Adams (1735-1826) who recalls a conversation he had with Paine about his use of the Bible in *Common sense*:

I told him further, that his reasoning from the Old Testament was ridiculous, and I could hardly think him sincere. At this he laughed, and said he had taken his ideas in that part from Milton; and then expressed a contempt of the Old Testament, and indeed of the Bible at large, which surprised me. He saw that I did not relish this, and soon checked himself with these words: 'However, I have some thoughts of publishing my thoughts on religion, but I believe it will be best to postpone it to the latter part of life.' (Adams, 1850:508)

The occasion to publish these incendiary ideas came sooner than expected. Just as Paine's endorsement of the American Revolution in *Common sense* made him famous in America, so his endorsement of the French Revolution¹⁴⁰ in *The rights of man* earned him fame in France. He was awarded honorary French citizenship, a seat on the National Convention and the opportunity to contribute to the new French constitution (Hitchens, 2006:56-57). But Paine's enchantment with the French Revolution was short lived. Within a few months of immigrating, he fell out of favour with the Revolutionaries and ended up on death row (Hitchens, 2006:62). Inspired by Spinoza,¹⁴¹ and the prospect of an imminent execution, Paine (1908c:301) hastily wrote down his honest thoughts on the Bible, convinced that he would not live to face the ramifications. These efforts resulted in *The age of reason*¹⁴² (1794-1807) – possibly the most virulent public attack on Christianity since the eighteenth century, surpassing even Meslier. Although Paine was not the first to present a rational case for deism,¹⁴³ his book quickly became the deistic manifesto in America (Foner, 1981:247). *The age of reason* was so popular, it "could be found in nearly every village in America" (Smith, 1996:757). At Harvard University, many students forewent their studies in order to peruse Paine's book (Roper, 1944:108). Its threat to Christianity was immediately recognised and stimulated the production and publication of "nearly 70 answers" from Paine's contemporaries¹⁴⁴ (Smith 1996:758).

Typifying other polemical works against Christianity from this period, *The age of reason* devotes special attention to Genesis 1-11. To Paine (1908c:14, 62, 72, 82-83), a talking snake is ridiculous, and he cannot

¹⁴⁰ In *The rights of man*, Paine (1908b:144-145) adulates the new *Declaration of the Rights of Man and of Citizens* by the National Assembly of France, quoting Gilbert du Motier, Marquis de la Fayette (1757-1834), "May this great monument [i.e. the French Revolution], raised to Liberty, serve as a lesson to the oppressor, and an example to the oppressed!"

¹⁴¹ Paine's (1908c:167; 1908d:41-42) thoughts on Scripture often reflect those of his intellectual mentor: Spinoza.

¹⁴² The first part of *The age of reason* was written just before and during his incarceration, being sent to the printers in 1794 (Smith, 1996:748-749). In the years following Paine's imprisonment, he added two further parts to his original essay which were published in 1795 and 1810 (Smith, 1996:749-760).

¹⁴³ In emulation of Blount's *The oracles of reason* (1693), Ethan Allen (1738-1789) had already written *Reason the only oracle of man* (1784) which Dwight (1823:388) considers to be "the first formal publication in the United States openly directed against the Christian religion" (Aldridge, 1997:835). Like Paine, in order to establish the "religion of nature and reason", Allen (1836:13-14, 76-81) also tries to undermine "the theology of Moses" by highlighting some of his "blunders" in Genesis, to the point of arguing that the "negro nation, in particular, fully evinces the absurdity of supposing them to be of the same blood and kindred with ourselves... So that the negroes are of a different species of rational beings from us".

¹⁴⁴ Of the numerous rebuttals, Richard Watson's (1737-1816) *An Apology for the Bible* (1796) was adopted as the definitive reply to Paine and copies were disseminated by the faculty to every Harvard student (Smith, 1996:759). In his apologetic, Watson (1796:16-22, 29-30) upholds the historicity of Adam and Eve, the flood, the fall, the longevity of the patriarchs, the origin of nations, and the Mosaic authorship of Genesis. That said, it is worth noting that Watson was less dogmatic about Genesis 1-11 in his earlier book, *An apology for Christianity* (1776), which had been directed against Edward Gibbon (1737-1794). In the latter, whilst Watson (1776:257-258) affirms the historicity of Adam and Eve, he believes that Moses is ambiguous about the antiquity of the earth, thus giving geology room to postulate vast ages for the world without creating any contradictions with the text of Scripture.

conceive how all the world should be damned because a woman once ate an apple.¹⁴⁵ The writer of the “foolish story” in Genesis, who cannot be Moses, shows his ignorance by having three days and nights before the creation of the sun (Paine, 1908c: 59, 114-136, 252, 279). His overall assessment is worth quoting in full:

Take away from Genesis the belief that Moses was the author, on which only the strange belief that it is the Word of God has stood, and there remains nothing of Genesis but an anonymous book of stories, fables, and traditionary or invented absurdities, or of downright lies. The story of Eve and the serpent, and of Noah and his ark, drops to a level with the Arabian tales, without the merit of being entertaining; and the account of men living to eight and nine hundred years becomes as fabulous as the immortality of the giants of the Mythology. (Paine, 1908c:129)

On these grounds, Paine (1908c:21) castigates the church for “calling such paltry stories the Word of God.” Instead, he argues, “it would be more consistent that we called it the word of a demon” (Paine, 1908c:22). By extension, the whole Bible is a “book of lies, wickedness, and blasphemy” exhibiting nothing less than a “school-boy’s eloquence” (Paine, 1908c:132, 180). Paine (1908c:38) warns his readers: to believe the Bible is to despise “the choicest gift of God to man, the GIFT OF REASON” (emphasis in original). True theology should be derived – not from revelation – but from scientifically studying the universe, which he calls the “book and school of science” (Paine, 1908c:54-55, 174). Following this trajectory, Paine (1908c:2) proposes a new ecclesiology: “My own mind is my own church.”

The age of reason was immediately detrimental to Paine’s reputation because it exposed him as an atheist (Smith, 1996:760). Almost all respect earned in America was lost. But the ideas captured by his book nevertheless endured and had far reaching ramifications. This was achieved, in part, through the zeal of Elihu Palmer (1764-1806), a renegade preacher, who was more than eager to champion Paine’s cause from Baptist and Presbyterian pulpits (French, 1979:90). Being clearly enamoured with Paine,¹⁴⁶ in 1794 Palmer wrote a whole book in his defence, entitled *The examiners examined: being a defence of The age of reason*. Then in 1801, he wrote his own version of *The age of reason*, entitled *Principles of nature* which, in due course, came to be known as the “Bible of American Deism” (Brown, 1990:281). Palmer’s (1806:25) portrayal of Scripture echoes Paine’s, as he describes the full corpus of revelation as “a vast variety of fact, fable, principle, wickedness, and error”. The author of Genesis 1-11, in Palmer’s (1806:65-66) opinion, “was neither a good world maker, nor a good astronomer” because the earth experiences three days and nights “without the existence of a sun”.

Like Paine, Palmer (1794:42-43) attacks the historicity of creation on the understanding that, without a literal Genesis, the rest of Scripture “must certainly fall to the ground”. From this perspective Jesus Christ becomes nothing more than an “illegitimate Jew” whose life and teaching has made the world “infinitely worse”¹⁴⁷ (Palmer, 1806:32; French, 1979:99). Paine’s (1859:85) enthusiastic endorsement of *Principles of*

¹⁴⁵ For reasons such as these, Paine (1908c:2) argues that Christianity is a “human invention... set up to terrify and enslave mankind”.

¹⁴⁶ Palmer (1806:139) describes Paine as “one of the first and best of writers, and probably the most useful man that ever existed upon the face of the earth.”

¹⁴⁷ This is the central point of a sermon that Palmer (1806:29) preached on Christmas day in New York, 1796.

nature is evident merely from how he dates his letter to Palmer: “February 21, 1802, since the Fable of Christ.”

Thomas Jefferson (1743-1826) became another influential admirer and promoter of Paine. In 1802, Jefferson invited Paine back to the United States to stay with him in the White House while he was president, even after he had fallen out of favour with the general public (Smith, 1996:760; Philp, 1998:xiv). In a letter to Francis Eppes (1801-1881), he contends, “No writer has exceeded Paine in ease and familiarity of style, in perspicuity of expression, happiness of elucidation, and in simple and unassuming language” (Jefferson, 1903a:305). In 1802, Jefferson joined ranks with Paine and Palmer,¹⁴⁸ producing his own demythologised cut-and-paste version of the Bible which completely omitted the Old Testament and most of the New Testament, except for the gospels. These he scrutinised carefully, cutting out all the parts¹⁴⁹ that were – to use his own words – “of the fabric of very inferior minds. It is as easy to separate those parts, as to pick out diamonds from dunghills” (Jefferson, 1903b:72).

Jefferson’s presidential predecessor, John Adams (1735-1826), may not have entertained the same affection for Paine,¹⁵⁰ but his views on Scripture were nevertheless closely aligned. Adams (1865:93) shares Jefferson’s conviction about the need to purge the Bible of everything that is contrary to reason,¹⁵¹ and believes that Genesis 1-11 “is either an allegory, or founded on uncertain tradition, that it is an hypothesis to account for the origin of evil, adopted by Moses, which by no means accounts for the facts.” In his assessment of Christianity, he asks, “how has it happened that millions of fables, tales, legends, have been blended with both Jewish and Christian revelation that have made them the most bloody religion that ever existed” (Adams, 1865:235)?

The third influential American president¹⁵² to propagate Paine’s religious scepticism was Abraham Lincoln (1809-1865). Although Lincoln did not write anything explicit on Genesis 1-11, he often quoted *The age of reason* “in his disputes with religious sectarians” and considered Paine to be one of his favourite authors (Hitchens, 2006:142; Roper, 1944:107; Ward, 1943:80). Lincoln’s approval of Paine is noteworthy because, as Noll (2004:86) observes, “He is the defining figure of America’s Golden Age... Enlisting him on a particular side in modern political, moral, economic or religious debate is, thus a very big deal indeed.” Towards the end of his life, however, it is evident that Lincoln’s sceptical predisposition against orthodox Christianity was tempered by the apologetic writings of his local pastor, James Smith (1798-

¹⁴⁸ In 1802, Palmer (2011:333) sent a copy of *Principles of nature* to Jefferson, accompanied by a letter in which he states, “know that the Book which I send you contains nothing new to you and furnishes only an evidence [*sic*] of sincere attachment to you and the Principles for which you have contended.”

¹⁴⁹ The Jefferson Bible excludes any mention of the virgin birth, angels, miracles, healings, prophecy, casting out of demons, raising of the dead, and the resurrection (Jefferson, 1904:1-82). It ends with a dead Christ. One of the great ironies is the fact that Jefferson (1904:8) chose to keep Matthew 5:18.

¹⁵⁰ Adams’s (1927:31) written denunciation of Paine is eminently quotable: “I know not whether any Man in the World has had more influence on its inhabitants or affairs for the last thirty years than Tom Paine. There can be no severer Satyr on the Age. For such a mongrel between Pigg and Puppy, begotten by a wild Boar on a Bitch Wolf, never before in any Age of the World was suffered by the Poltroonery of mankind, to run through such a Career of Mischief. Call it then the Age of Paine.”

¹⁵¹ In a letter to Jefferson, on 15 November 1813, Adams writes, “I admire your employment in selecting the philosophy and divinity of Jesus, and separating it from all mixtures. If I had eyes and nerves I would go through both Testaments and mark all that I understand” (*in* Jefferson, 1903c:440-441).

¹⁵² i.e. John Adams, Thomas Jefferson, and Abraham Lincoln.

1871).¹⁵³ The book partially responsible for this effect was *The Christian's defence, containing a fair statement, and impartial examination of the leading objections urged by infidels against the antiquity, genuineness, credibility and inspiration of the Holy Scriptures* (1843) (Noll, 2004:80-81; Smith III, 1988:151-153). In this two volume work, Smith (1843:61-67) defends Genesis against Paine, Volney, Gibbon and other sceptics by arguing that the days of creation could be construed as epochs or time to satisfy the “myriads of years” required by contemporary geologists and astronomers. Whether or not this concession made Christianity more acceptable to Lincoln, it demonstrates how Genesis was reinterpreted to satisfy a readership committed to deep geological time. Thus, Paine’s influence on Genesis persisted well into the nineteenth century.

3.20 Geddes presents the exegesis of Genesis 1-11 as a futile exercise

Paine’s provocative prose found another proselyte in Alexander Geddes (1737-1802), a Catholic Priest, who was more than willing to subject the Bible to sceptical scrutiny.¹⁵⁴ Serving a key role in both the Scottish and English Enlightenments, Geddes has been considered “the most wayward, unorthodox, iconoclastic, and intellectually adventurous priest to emerge from the British Catholic community in the eighteenth century” (Aspinwall, 1977:334; Goldie, 2010:61). His treatment of Scripture and promotion of German higher criticism in Britain¹⁵⁵ places Geddes in league with Jean Astruc for the dubious honour of being a “pioneer of Biblical Criticism” (Drummond, 1966:73; Goldie, 2010:69). Indeed, Eichhorn regarded Geddes as “almost the only person” who held his respect as a fellow Bible critic (Cheyne, 1893:6). Yet, Geddes (1792:xviii) pushed Astruc’s and Eichhorn’s critical approaches even further, expunging Moses completely from Genesis and replacing their documentary hypotheses with his own more radical “fragment-theory” of redaction (Cheyne, 1893:9; Drummond, 1893:9; Goldie, 2010:68).

In the first volume of his audacious project¹⁵⁶ to produce a new translation of the Bible, Geddes (1792: vi, xi) calls the six days of creation “an ingenious piece of ancient mythology”¹⁵⁷ which the “Hebrew historiographer invented” to coerce Israelites into obeying the Sabbath. Geddes (1792:xi-xii; 1800:41) believes that the Pentateuch is “a mere human composition” which has been “adapted to the ideas of a stupid, carnal people”, a “credulous multitude”. Within this scheme, Genesis 1-11 is seen as a “philosophical fiction... dressed up in the garb of real history, adapted to the shallow intellects of a rude barbarous nation” (Geddes, 1800:26). But to the “attentive unprejudiced mind” of Geddes (1792:ii), it is

¹⁵³ As Ninian W. Edwards (1809-1889), Lincoln’s brother-in-law, relates, “A short time after the Rev. Dr. Smith became pastor of the First Presbyterian Church in this city, Mr. Lincoln said to me, ‘I have been reading a work of Dr. Smith on the evidences of Christianity, and have heard him preach and converse on the subject, and am now convinced of the truth of the Christian religion’” (cited by Barton, 1920:164 & Reed, 1873:338-339).

¹⁵⁴ In a sermon preached at the University of Cambridge, Geddes (1796:6, 15) expressed his admiration for Paine, calling him “That high-priest of the present day” (Goldie, 2010:81). Like Paine, Geddes also offered his unreserved endorsement of the French Revolution (Goldie, 2010:80).

¹⁵⁵ According to McGann (1986:309), Geddes was the “chief conduit” through which the higher-critical German views on Scripture were channelled into England.

¹⁵⁶ By Drummond’s (1966:78) estimation, this writing project, entitled *The Holy Bible or the books accounted sacred by Jews and Christians*, would have spanned at least eight volumes; but he only managed to complete the first two. As the translation progressed, Geddes supplemented these volumes with his own critical commentary, published separately in *Critical remarks on the Hebrew Scriptures* (1800).

¹⁵⁷ As far as Geddes was concerned, the writers of the Old Testament could never attain to the ranks of Homer, Herodotus, Thucydides, Virgil or Livy (Drummond, 1996:78-79).

obvious, *contra* Genesis 1-2, that the earth has existed for “millions and millions of years... before it was made the habitation of man.” Yet, this does not discourage him from employing an imaginative reinterpretation of the text (Geddes, 1792:iii, v-vi). Taking the words “In the beginning” from Genesis 1:1 to refer to “some prior epoch”, Geddes (1792:iii; 1800:1, 11) proposes that the world was made out of “pre-existent unfashioned matter” not *ex nihilo*. He even argues that the “Hebrew cosmologist” responsible for this “philosophical fiction” believed that “matter was co-eternal with God” (Geddes, 1800:9, 26).

Geddes (1792:iii, v-vi; 1800:14) cannot conceive how light could originate from any other source but the sun, moon and stars, which leads him to believe that these luminaries were created many years before Moses’s fourth day of creation. The presence of Satan in the garden of Eden is equally preposterous, which Geddes (1800:43) regards as “a mythological moral figment...a bungling tale indeed”, the product of a “disingenuous historian”. Surprisingly, he does not rule out the possibility of a universal flood, though he thinks it improbable because “a good deal of the fabulous is mixt with the history of Noah’s flood” (Geddes, 1800:72). Like the rest of his enlightened compatriots, Geddes (1800:vi) places “pure reason” pre-eminently as his “prompter and preceptress”, the ultimate arbiter of truth. From this standpoint, it is obvious that the Old Testament makes “grotesque” and “ridiculous” claims, “evident marks of human fallibility and human error” (Geddes, 1797:iv, xiii). Siding with Diderot, Paine, Bolingbroke and Voltaire, he categorically rejects the infallibility of Scripture¹⁵⁸ (Geddes, 1797:xii).

Thus, for Geddes, the only way to save the respectability of Christianity from the embarrassment of Genesis 1-11 is to admit that it was originally contrived as a work of pure fiction,¹⁵⁹ completely bereft of any scientific or historical relevance. The efforts of early church fathers to allegorise the text still do not mask the “insurmountable” difficulties that he has with the “Hebrew cosmogony” (Geddes, 1800:33). Geddes (1800:33) is convinced that the only way to exonerate Christianity from embarrassment is to accept that Genesis 1-11 is the “poetic mythos” of a “rude unphilosophical people”.

3.21 Priestley popularises the fallibility of Genesis 1-11

One of Geddes’s contemporaries, Joseph Priestley (1733-1804), also played a critical role in the English Enlightenment (Kennedy, 2008:172-173, 184). Although they disputed with each other on the divinity of Jesus, they were close friends and Priestley (1821?:428-445) actively encouraged his readers to take Geddes seriously (Cooper, 1806:710-712; Goldie, 2010:84; Aspinwall, 1977:335, 339-440). As his commentary on Genesis shows, Priestley (1803:41, 42, 43, 45, 46, 54, 58, 68, 77, 81, 82, 84, 90, 91, 94, 100, 112) adopts much of Geddes’s interpretation. Likewise, Locke’s essay on human understanding was

¹⁵⁸ Geddes (1797:iii) argues that divine inspiration is untenable once it is recognised that “the Hebrew historians, like all other historians, wrote from such human documents as they could find; popular traditions, old songs or public registers; were, like other historians, liable to mistakes; were not more intelligent and judicious, and were at least equally credulous: than to maintain, that their manifest errors, inconsistencies and contradictions are the immediate dictates of the Spirit of God? – Indeed I know not if any proposition be more insulting to reason, more injurious to truth, more prejudicial to the cause of genuine religion, than this.”

¹⁵⁹ It is highly probable that Geddes helped inspire William Blake’s (1757-1827) *Book of Urizen*, a parody of Genesis, being the first book of his larger project: *The Bible of Hell* (McGann, 1986:304, 310-311, 316-318, 323-324).

also seminal to Priestley's development as a rationalistic thinker (Wykes, 2008:22, 32; Brock, 2008:69; Dybikowski, 2008:86; Fitzpatrick, 2008:115-116). As Priestley (1818:27) puts it, Locke's epistemological system is "the corner-stone of all just and rational knowledge of ourselves."

Although Priestley is remembered today mainly for his discovery of oxygen and contribution to pneumatic chemistry, he was also proficient in history, grammar, rhetoric, politics, physics and philosophy (Rivers & Wykes, 2008:1, 14). But, like Newton, it was his theological interests which captivated him more than any other intellectual pursuit, leading him to write "four times as much on religion and theology as on science" (Wykes, 2008:20; Kennedy, 2008:172). Priestley reshaped the "religious landscape" in England at the turn eighteenth century (Rivers & Wykes, 2008:1-2). He helped found the first unitarian denomination on the continent and developed a historical-critical approach to Scripture in *An History of the Corruptions of Christianity* (1782) which quickly became a best-seller. A translated copy of the latter work was published three years later in Berlin and Hamburg where it stimulated the growth of German higher criticism (Kennedy, 2008:192-193).

In his *Notes on all the books of Scripture for the use of the pulpit and private families* (1803), Priestley (1803:42) believes that the "history of Adam" has the "air of fable" and is "less to be depended upon" than the rest of Scripture.¹⁶⁰ Priestley (1803:42) agrees with Geddes (1792:ii) that "the earth might have existed in some form, long before" the words "in the beginning". Citing Charles-François Dupuis¹⁶¹ (1742-1809), he asserts that Genesis 1-3 is merely a literary "hypothesis" "adopted by Moses" to "account for the origin of evil" (Priestley, 1820:336). Priestley (1803:47) suggests that the rivers mentioned by Moses in Genesis 2 are a "geographical mistake". And, like Newton, he suggests that the days of creation could be long periods of time (Priestley, 1803:43, 46; 1822a:305-306). All this he does in the interests of proving "the genuineness and divine authority of the books of Scripture, especially those of the Old Testament" (Priestley, 1803:8). But whilst contending for "divine authority", Priestley (1822b:102) denies that Moses's writings were "divinely inspired" because that is an "absurd opinion". He posits instead that Moses was misled by the fallible "testimony of others" which, in turn, had been corrupted by generations of oral communication (Priestley, 1822a:304-305, 311). Yet, at the same time, he contends that "the ideas of Moses are just and sublime" (Priestley, 1822a:312).

This is how Priestley reserves a place for the Bible in the face of contradictory claims made by geologists and Moses. He excuses Moses for any factual errors and reinterprets the text to conform with the science of his day. It is worth noting that Priestley's views on earth history are mostly derived from Richard Kirwan (1733-1812) whose essay on geology elicited much praise from him. Regarding the latter, he

¹⁶⁰ This sentiment can also be found in his *Essays on inspiration* where, citing Burnet, he claims the story of the fall is "either an ill-founded tradition, or the allegorical representation of some real fact" (Priestley, 1822a:310).

¹⁶¹ Dupuis (1872:228-230) was a French pantheist and freethinker who not only rejected the historicity of Genesis 1-11, but also that of Jesus Christ, arguing that for "Christ to be a historical fact, it was of course necessary that the event of Adam and Eve and the Serpent should be equally historical; because one is inseparably connected with the other" (Bradlaugh, 1882:59). Here Dupuis cites the Jewish philosopher, Moses Maimonides (1135-1204) (2002:217), who believed that the fall of man should be taken allegorically otherwise it would be "most absurd".

writes to Theophilus Lindsey¹⁶² (1723-1808), “I shall make much use of it in my notes on the first chapter of Genesis” (Priestley, 1832:470). Unlike Priestley, Kirwan (1978:84-85) takes most of Genesis as history, but he struggles to believe that Noah’s ark was able to preserve all kinds of animals so he suggests that God only created the carnivores after the flood. Priestley (1803:44-45; 1832:470) finds this explanation “so agreeable to reason” for removing “all the great difficulties attending the history of the flood and the ark”, that he adopts it in his own commentary. Thus, the idea of “successive creations” was popularised (Priestley, 1832:470).

Priestley (1832:276-277) was concerned by the eager dissemination of Paine’s *Age of Reason* and other deistic books authored by the likes of Voltaire, d’Alembert, Dupuis and Volney¹⁶³ (Scofield, 2004:375-378; Smith, 1996:757). But the apologetic he employed to rescue the Bible from critical scrutiny ended up promoting a historical method of Biblical criticism that propagated a “rational interpretation” of Scripture (Kennedy, 2008:172, 192, 195, 201; Gordon, 1895:120, 122). And as Priestley’s fame and reputation grew, so did his views on Genesis become widely known and accepted (Rivers & Wykes, 2008:14).

3.22 Erasmus Darwin, the first Darwinist

The man primarily responsible for ensuring that Priestley would be funded and supported¹⁶⁴ in his scientific enterprise was none other than the famous grandfather of Charles Darwin: Erasmus Darwin¹⁶⁵ (1731-1802) (King-Hele, 1968:20). Erasmus, like Priestley, was a prodigious polymath (Priestman, 2016:12). King-Hele (1977:321-322) lists “seventy-five subjects in which he was a pioneer”, ranging from artesian wells, speaking-machines and biological pest control to submarines, exercises for children and windmills. The great English poet and philosopher, Samuel Taylor Coleridge (1772-1834) (1895:152), declares Erasmus to have had “a greater range of knowledge than any other man in Europe,” and calls him “the most inventive of philosophical men.” Erasmus’s poetry was considered by many¹⁶⁶ to equal even that of Milton and Shakespeare (King-Hele, 1988:164; Coleridge, 1966:738).¹⁶⁷ He added more than a hundred words to the English language (King-Hele, 1988:176). More recent appraisals beggar belief. King-Hele (1977:323; 1968:11; 1988:149) believes him to be “the greatest Englishman of the eighteenth century”, and claims:

No once since Darwin’s day has equalled him in the scope and variety of his accomplishments, and in our fragmented culture few can even appreciate the full range of his achievements.

¹⁶² Lindsey was a prominent Unitarian who had also established “an influential Unitarian congregation” in London (Whelan, 2009:417).

¹⁶³ Constantin François de Chassebœuf, comte de Volney (1757-1820) and Dupuis were the first proponents of the “Christ myth” (Priestley, 1820:320-321). Volney (1991:4), inspired by his relations with d’Holbach, thought of Christianity as man’s attempt to make “God after the image of man” (Fischer, 2016:516). For Volney (1991:93-94, 112), Genesis is merely a farcical “pretended history”. Instead, the law of nature is the only “true religion” that is “worthy of God” (Volney, 1796:19-21).

¹⁶⁴ Both Erasmus and Priestley were members of the radical Lunar Society of Birmingham. See section 4.2.

¹⁶⁵ Hereafter I will refer to Erasmus Darwin by his first name in order to avoid ambiguity with his grandson.

¹⁶⁶ Even the famous evangelical hymn-writer William Cowper (1731-1800) wrote a short poem in honour of Erasmus (Darwin, 1807:xv). Others lauded him as “immortal”, enriching mankind with “genius”, “ambrosial rivers”, “wit”, and “glory” (Darwin, 1807:x-xvi).

¹⁶⁷ His poetry was also good enough to influence the likes of William Wordsworth (1770-1850), Coleridge and Percy Bysshe Shelley (1792-1822) (King-Hele, 1977:11). Although Coleridge (1895:164) eventually came to “nauseate Darwin’s poems.”

Consequently, as King-Hele (1988:149) observes, it was his “misfortune to possess the same surname as his grandson Charles” by which his legacy was largely eclipsed.

Erasmus was on friendly terms with many prominent enlightenment thinkers. He exchanged letters with Rousseau and Hutton, extended hospitality to Hume on at least one occasion, met Franklin, and was a close friend of Hermann Samuel Reimarus’s¹⁶⁸ (1694-1768) son, Johann Albert Heinrich Reimarus (King-Hele, 1968:17; Krause, 1879:33; Butel, 2000:18; King-Hele, 1988:151; Priestman, 2016:13). Moreover, he was prominent enough to be noticed by Kant (1988c:122). Erasmus became a Freemason whilst at Edinburgh along with his friend, the Scottish chemist, James Keir (1735-1820) (Priestman, 2016: 13, 140, 160-164). This is significant because Freemasonry served as a “crucial channel for the ‘radical Enlightenment’, providing “the Enlightenment’s nearest thing to a Deist church” (Priestman, 2016:164).¹⁶⁹

In 1789, Erasmus published a lengthy poem entitled *The loves of plants* which earned him “extraordinary success” and made him “the most famous English poet of the 1790s” (King-Hele, 1988:163). It ended up becoming the second half of a larger treatment on the same subject, later published as *The botanic garden* (1791). It was a poem that tried to obscure the distinction between vegetables and humanity by ascribing to plants the capacity to love, marry and even commit adultery, as well as engage in romance, sex and seduction (Darwin, 1806:3, 11, 17, 93, 101, 126, 134, 164, 208, 211, 217, 234-235, 237). It is evident that these anthropomorphisms are not merely whimsical from his notes on the first half of *The botanic garden*, which he titled, *The economy of vegetation*.¹⁷⁰ In these notes, Erasmus presents the reader with the complete panorama of his materialistic universe. Appropriating the language of Genesis¹⁷¹ where it serves his scheme, he presents a world that has gradually evolved over millions of years, beginning with “explosions or earthquakes” that produced the sun “out of Chaos”; followed by further explosions that created all the planets and stars; and yet another “explosion of water” to eject the moon from the earth (Darwin, 1807:9-10, 45, 213). Erasmus believes that flowers eventually evolved into insects, and after a “long process of time” transformed into other insects and animals, “some acquiring wings, others fins, and

¹⁶⁸ Hermann Reimarus was “the most significant biblical critic in eighteenth-century Germany”, maintaining a hidden, but strong hostility towards historic Christianity (Muslow, 2011:vii; Israel, 2001:472; Priestmann, 2016:13). Reimarus believes that Genesis 1-11 should be treated metaphorically in the same manner as Aesop’s fables and denies the existence of any prophecy in the Pentateuch referring to Christ (Goldenbaum, 2011:92-93). Moreover, Reimarus (1879:27, 31-47) contends that Jesus failed his mission, did not expect to die on the cross, and certainly did not rise from the dead afterward. Calling the miracles of the Old Testament, “outrageous and disgusting”, he laments, “The most childish writer could make such miracles as these, and in order to believe them one would have to abandon all the maxims of a healthy mind” (Reimarus, 1879:72). According to Schweitzer (1956:13) the liberal quest for the so-called historical Jesus began with Reimarus.

¹⁶⁹ The “deist church of Freemasonry”, as Priestman (2016:167) explains, could “serve as a mask for some radical levels of Freethought”, especially in England where the tides of Christianity had not completely turned.

¹⁷⁰ He also unambiguously states his views on flowers in *Zoonomia* and *Phytologia*, where he writes, “To these must be added the indubitable evidence of their passion of love, and I think we may truly conclude, that they are furnished with a common sensorium belonging to each bud, and that they must occasionally repeat those perceptions either in their dreams or waking hours, and consequently possess ideas of so many of the properties of the external world, and of their own existence” (Darwin, 1794:107; 1800:139).

¹⁷¹ For example, When Love Divine, with brooding wings unfurl’d,
Call’d from the rude abyss the living world.
‘—Let there be light! proclaim’d the Almighty Lord,
Astonish’d Chaos heard the potent word;—
Through all his realms the kindling Ether runs,
And the mass starts into a million suns; (Darwin, 1807:9)

others claws, from their ceaseless efforts to procure their food, or to secure themselves from injury” (Darwin, 1807:264; cf. 9).

These ideas reached their fruition in his magnum opus, *Zoonomia* (1794-1796), a two volume “biological-medical” work that sought to explain “the laws of animal life” (King-Hele, 1988:168). At its heart, Erasmus wants to prove to his readers that all living things are “one family of one parent”;¹⁷² a “single living filament” which evolved into everything “from the mouse and bat to the elephant and whale” (Darwin, 1794:1, 498-499, 502). The driving force behind evolution is desire. When a plant or animal needs to evolve, it does. The necessity itself is enough to sustain the “constant improvement” required (Darwin, 1794:502-504). This is how the elephant got its trunk, how predators “acquired their strong jaws or talons”, and how “Cattle have acquired a rough tongue and a rough palate to pull off the blades of grass” (Darwin, 1794:504). In this way, any “new parts” can be obtained whenever they are wanted through the mere agency of “irritations, sensations, volitions, and associations” (Darwin, 1794:505). As evidence, Erasmus appeals to the metamorphosis of tadpoles into frogs:

And all this exactly as is daily seen in the transmutations of the tadpole, which acquires legs and lungs, *when he wants them*; and loses his tail, *when it is no longer of service to him*. (emphasis mine; Darwin, 1794:502)

Disregarding the fall of man and the curse in Genesis 3, Erasmus maintains that the world is continually improving from one degree of perfection to the next (Darwin, 1794:528-530). Yet, at the same time, he finds support for this evolution in Genesis 2:

This idea of the reproduction of animals from a single living filament of their fathers, appears to have been shadowed or allegorized in the curious account in sacred writ of the formation of Eve from a rib of Adam. (Darwin, 1794:489)

Indeed, Erasmus goes on to claim that the evolutionary worldview brings more glory to God than the doctrine of creation (Darwin, 1794:533). To discover the true nature of “the Great First Cause”, Erasmus takes for his sacred text, not Scripture, but “the modern discoveries in chemistry and in geology... as well as those in astronomy” (Darwin, 1794:533). His conclusion is both disingenuous and devious.¹⁷³ He ends the first volume of *Zoonomia* with two quotes from Psalm 19:1-4 and Psalm 104:24.

After *Zoonomia*, Erasmus developed his anthropology of plants even further in *Phytologia* (1800). Here we read that vegetables have brains which can think and choose; and plants go through “puberty”, experience “impregnation” and find pleasure in sex (Darwin, 1800:132, 136, 139, 375, 378-388, 557). Upon such grounds, Erasmus offers us his theodicy, taking the Second Polish War (1812) as a case in point:

¹⁷² Erasmus believes that all living creatures share common traits for this reason (Darwin, 1794:502). He claims that animals marry each other in the same way that people marry (Darwin, 1794:169). He compares birds to women (Darwin, 1794:172).

¹⁷³ Not surprisingly, *Zoonomia* elicited ridicule. Critics found Erasmus’s thesis farcical, in that “the whole human species are accidentally descended from a remarkable family of monkies” or that, “Man as man owes his existence to a species of ape on the Mediterranean Sea” (King-Hele, 1988:170).

Forty thousand human creatures dragged from their homes and their connexions cease to exist, and have manured the earth; but the quantity of organized matter, of which they were composed, presently revives in the forms of millions of microscopic animals, vegetables, and insects, and afterwards of quadrupeds and men; the sum of whose happiness is perhaps much greater than that of the harassed soldiers, by whose destruction they have gained their existence! – Is not this a consoling idea to a mind of universal sympathy? (Darwin, 1800:558)

From this evolutionary reinterpretation of death, he views the massacre of human beings as a “benevolence of the Deity” (Darwin, 1800:560).

Erasmus’s final work, *The temple of nature; or the origin of society* (1803), offers us the most comprehensive version of his materialistic worldview in a poem that borrows as much from Genesis as it does from pagan mythology (Darwin, 1803a:4-7). Erasmus finds romance in the fall of man as he depicts Adam choosing sin for the sake of love (Darwin, 1803a:6). He questions whether the eating of the “tree of the knowledge” was necessarily evil (Darwin, 1803a:122). Denying the *imago Dei*, he asserts that man made God in his own image (Darwin, 1803a:28). Following in step with Buffon and Claude Adrien Helvétius¹⁷⁴ (1715-1771), Erasmus suggests that “mankind arose from one family of monkeys on the banks of the Mediterranean” as they “acquired clear ideas, and gradually became men” (Darwin, 1803a:54). Yet, this does not stop him from offering his readers a poetic rendering of the creation of Eve,¹⁷⁵ which allows him to speculate further on how plants evolve from “sexual flowers” (Darwin, 1803a:55-57). Erasmus attributes the story of Eve to a “hieroglyphic design of the Egyptian philosophers” in which the human being was originally a sexless creature without the distinction of male or female (Darwin, 1803b:42). This type of historiography merely corroborates his preconceived idea that all people and animals were originally hermaphrodites (Darwin, 1803a:53). Therefore, although Erasmus quotes liberally from Genesis, he still views the account of creation as “dumb language by tradition taught” (Darwin, 1803a:119). Indeed, this censure of Scripture comes from one of the most controversial passages of this poem:

Say, did these fine volitions first commence
From clear ideas of the tangent sense;
From sires to sons by imitation caught,
Or in dumb language by tradition taught?
Or did they rise in some primeval site
Of larva-gnat, or microscopic mite;
And with instructive foresight still await
On each vicissitude of insect-state?
Wise to the present, nor to future blind,
They link the reasoning reptile to mankind!
Stoop, selfish Pride! survey thy kindred forms,
Thy brother Emmets, and thy sister Worms! (Darwin, 1803a:119-120)

¹⁷⁴ Helvétius was a French philosopher and Freemason.

Almost eighty years later, Charles Darwin (1882:313), like his grandfather, returned to the subject of worms at the end of his life to derive some kind of existential purpose, where he writes, “It may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organised creatures.” As will be evident in the following chapter, the dependence of Charles upon Erasmus was considerable.

Another foretaste of *Origin of species* can be found in Erasums’s idea of “progressive improvement” (Darwin, 1803a:19). Put simply, everything came from an “exploding mass” and society evolved from shells (Darwin, 1803a:19, 21). Foreshadowing Ernst Haeckel’s (1834-1919) theory of recapitulation by more than sixty years, Erasmus claims that all animal and human embryos “resemble gnats and frogs” being, at that stage, “aquatic animals” (Darwin, 1803a:26; Sander, 2002:523). As in his earlier works, Erasmus insists that living creatures can acquire new features by “successive reproductions” over “millions of ages” (Darwin, 1803a:29). He even goes so far as to treat the resurrection of Christ as a type of Pythagorean reincarnation or example of “the perpetual transmigration of matter from one body to another” in his evolutionary scheme¹⁷⁶ (Darwin, 1803a:161, 163-164).

In summary, Erasmus’s prejudice against Genesis 1-11 is symptomatic of his overall rejection of Christianity.¹⁷⁷ He disliked the God of the Bible and abhorred the doctrine of hell (Darwin, 1803a:137). Erasmus therefore formulates a materialistic alternative to Christianity and a materialistic origin for the universe. His creative speculations captured the imagination of many radically-minded sympathisers, including, most prominently, that of his own grandson, Charles Darwin. For this reason, as Grigg (2003:18) has observed, “Almost every topic discussed, and example given, in *Zoonomia* reappears in Charles’s *Origin*.”¹⁷⁸ In fact, the true beginning of Darwinism starts with Erasmus, not Charles (Young, 1970:14). But decades before Erasmus was read by Charles, he found his first disciple in the French biologist, Jean-Baptiste Lamarck (1744-1829) (Krause, 1879:212). In the same way that *Origin of Species* pays a tribute to *Zoonomia*, Lamarck’s *Philosophie Zoologique* (1809) “were almost certainly influenced by *Zoonomia*” (King-Hele, 1977:317).¹⁷⁹

3.23 Lamarck’s hatred of Genesis

Jean-Baptiste Lamarck (1744-1829) produced “the first major evolutionist synthesis in modern biology”, and became the most prominent evolutionist of the early nineteenth century (Corsi, 1988:xi, 230). But as with Kant and Laplace, Lamarck’s early education was religiously-oriented, being initially enrolled in a Jesuit seminary in Amiens (Cuvier, 1836:2). This was followed by a brief spell in the military, after which

¹⁷⁶ This led one reviewer in the *British Critic* to expostulate, “We are full of horror, and will write no more” (Anon, 1804:175).

¹⁷⁷ Although he was never an atheist, he was often called one and consistently “disbelieved in any revelation” (Krause, 1879:43-44). For Erasmus, even “unitarianism was a feather-bed to catch a falling Christian” (Krause, 1879:44-45).

¹⁷⁸ Comparing a passage in *Zoonomia* with that from *Origin of Species*, Nora Barlow (1885-1989), granddaughter of Charles and great-great-granddaughter of Erasmus, admits, “This might be mistaken for a sentence written by Charles himself sixty-five years later; for here Erasmus has groped towards the idea of selection” (Darwin, 1958:151).

¹⁷⁹ It is therefore highly probable that Lamarck has been credited with views he did not originate. Moreover, references to Erasmus’s evolutionism as “Lamarckism” are unjust and anachronistic (Krause, 1879:190). Were it not the unavoidable ambiguity between Erasmus and Charles, Lamarck should be regarded as Darwinian (Darwin, 1861:xiv; Krause, 1879:113).

Lamarck decided to pursue a career in botany in Paris (Packard, 1901:9, 15-18). During his first 10 years as a botanist, he became friends with Rousseau and “the two philosophers made botanical excursions together” (Elliot, 1963:xviii). Lamarck’s botanical proficiency eventually earned the attention of Buffon who arranged for Lamarck to travel with him as a “Royal Botanist” to Holland, Germany and Hungary from 1781 to 1782 (Packard, 1901:18; Gillispie, 1968:279). In 1794, Lamarck was appointed professor of zoology at Muséum d’Histoire Naturelle, which afforded him the opportunity to write his most memorable work, *Philosophie zoologique*¹⁸⁰ (1809) (Elliot, 1963:xx). *Philosophie zoologique*, published exactly half a century before *Origin of Species*, should be regarded, according to Elliot (1963:xxii), as “the most advanced philosophical position taken up by men of science in the pre-Darwinian era... against the theory of special creations”.

In *Philosophie zoologique*, Lamarck (1963:1, 12) sets out to show how human beings evolved from worms via the Great Chain of Being – an idea that had recently been re-popularised by Charles Bonnet (1720-1793),¹⁸¹ a Genevan entomologist. Lamarck’s (1963:12, 36, 50) intention is to free mankind from “a prejudice so harmful to the progress of knowledge” by letting science, instead of Genesis, determine the history of the earth and the origin of species.¹⁸² Put succinctly, Lamarck (1963:38-39, 107) believes that the environment causes the gradual evolution of one species into another over long periods of time. Central to his thesis are two laws:

First law: the frequent use or disuse of any organ leads to its development or deterioration in proportion to the amount of time it is used or disused.

Second law: all modifications to organs are preserved and passed on to the next generation by reproduction. (Lamarck, 1963:113)

This is how Lamarck (1963:122, 368, 170-171) explains from where the giraffe got its long neck, how the elephant got its trunk, and how apes evolved into humans. As long as nature has needs, those needs will eventually supply the means (Lamarck, 1963:173).¹⁸³ But Lamarck (1963:184) admits that the origin of life is one of the most difficult problems to resolve naturalistically. This does not stop him from supposing,

¹⁸⁰ i.e. Zoological philosophy

¹⁸¹ The Chain of Being is an idea with a pedigree as old as Plato and Aristotle who had originally proposed their own version of *scala naturae* in the fourth century BC, albeit without any evolutionary connotations (Wolters, 1997:205-206). More than two millennia later, this concept was revisited and revitalised such that, as Lovejoy (2001:184) relates, it became the “sacred phrase” of the eighteenth century along with the word “nature”, enjoying a prominence that would only be rivalled by the word “evolution” in the nineteenth century. Both Kant (2008:152) and Locke (1836:326-327) assumed this great chain, the latter believing that all species could be ranked in their perfection by “gentle degrees” from the lowest life form to the highest. But it was Charles Bonnet (1769:15-19, 26, 28; 1782:228, 365) who pushed this concept of “l’enchaînement universel” or “la Chaîne des Etres” to the limit by his claim that the concept of species was merely illusory (Lovejoy, 2001:230-231). Following Buffon, Bonnet (1782:436-437) even proposed that orangutans were closely related to Hottentots and provided ample evidence of the former prototype of human beings. In the 1779 edition of *Traité d’insectologie* he provided a chart outlining the great chain from “more subtle materials” (lit. “Matières plus subtiles”) via orangutans and monkeys to man (Bonnet, 1779:xxxiv).

¹⁸² Or in his own words, “It behooves us to assert most courageously, because it is one of the most obvious of truths, that natural history is the first, the most important, the most useful of human sciences” (Lamarck, 1933:194).

¹⁸³ As Cuvier (1836:14-15) observes, Lamarck’s hypothesis assumes that it is not the organs that determine what a creature wants or desires but the wants and desires themselves which give birth to the organs. The desires must come first. In this way, any transformation – given enough time – is deemed possible as long as the desire exists.

however, that the earliest forms of life originated by spontaneous generation¹⁸⁴ with only “heat, light, electricity and moisture” (Lamarck, 1963:243-244, 187-189). Showing some awareness of how these ideas might be received, Lamarck (1963:244, 50) explains that his theory of origins will only make sense to those who are free “from the most ubiquitous prejudices”, specifically: the “prejudices of special origin”. But to placate any who remain “obstinate” or who reason like a “complete lunatic”, Lamarck (1963:40-41) quickly points out that all things are possible, given that the “Supreme Author” is perfectly capable of endowing nature with its own power to create, organise, multiply and evolve. With deistic flare, God is nominated as the unknown *Who* or *What* behind creation, but no further.¹⁸⁵ What Lamarck refuses to accept is that this God might also provide mankind with the *how* of creation, as articulated in Genesis 1-11.

One of the challenges that Lamarck faces in trying to establish his naturalistic theory of origins is the lack of empirical evidence for evolution. He explains that this is because evolution is an imperceptibly slow process (Lamarck, 1963:43, 106, 180). What this requires, therefore, is an enormously long period of time (Lamarck, 1963:39-40, 45, 50, 58, 103, 180). Time supplies the magical ingredient to transform Lamarck’s primordial soup into every living organism past and present. To get this time, Lamarck (1963:45, 50) appeals to geology, where he cites his former treatise on the subject, *Hydrogéologie*¹⁸⁶ (1802).

Hydrogéologie was a largely-unread¹⁸⁷ self-published book that “essentially had no impact on contemporary scientists” (Carozzi, 1964:v). But the thesis of this work nevertheless remained seminal to his overall evolutionary scheme, preparing the ground for *Philosophie zoologique* by establishing the geological basis for his “uniformitarian earth history” (Gillispie, 1968:266; Carozzi, 1964:v). Deriving inspiration and insight from Buffon, *Hydrogéologie* became Lamarck’s (1964:52-53) own *Theory of the earth*, developed independently of both Hutton and Cuvier (Carozzi, 1964:6-10).

Lamarck’s primary objective in *Hydrogéologie* is to expunge Genesis from geology to establish the great antiquity of the earth. Thus, in his discussion on the Pyrenees, Lamarck (1964:28-29, 34) insists that Noah’s flood,¹⁸⁸ which he calls a “gratuitous hypothesis”, is not needed to explain the formation of these mountains. Instead, he suggests that mountains are formed cumulatively by the successive decomposition of generations of animals, layer by layer, over “a considerable length of time” (Lamarck, 1964:25-26, 67). The evidence for these long ages is derived, ingeniously, from the imperceptibility of any evidence for the

¹⁸⁴ Although Redi and Leuwenhoek had already disproved the spontaneous generation of larvae from rotting meat, Lamarck (1963:237-238) maintains that the generalisation still holds when applied to the origin of most basic life forms. By way of example, he declares that intestinal worms “are direct generations of nature” (Lamarck, 1963:247).

¹⁸⁵ Lamarck’s (1963:183-184) belief in a “First Cause” or “Supreme Power which brought nature into existence” is based entirely on the fact he conceives the eternality of the universe to be philosophically impossible. The god-hypothesis serves no other theological purpose for Lamarck. To quote him: “Since I can have no positive knowledge on this subject, ... I prefer to think that the whole of nature is only an effect: hence I imagine and like to believe in a first cause or in short a supreme power which brought nature into existence and made it such as it is” (cited by Elliot, 1963:lxxxviii-lxxxix).

¹⁸⁶ Lamarck (1964:18) defines hydrogeology as “a theory of the earth’s external crust”.

¹⁸⁷ As Packard (1901:80) relates, “the *Hydrogéologie* died stillborn, with scarcely a friend or a reader, never reaching a second edition, and is now, like most of his works, a bibliographical rarity.”

¹⁸⁸ Lamarck (1964:42, 56) does not deny the fact that every part of the planet was once under water (which he infers from the abundant evidence of marine fossils in mountains and plains), but he claims that this state of affairs was brought about by “gradual displacement” and occurred “a very long period of time in the past.”

geological process itself. Thus, what might be construed as a weakness of the theory is employed by Lamarck as one of its strengths.¹⁸⁹ An “imperceptibly slow process” is hard to confute (Lamarck, 1964:50, 42, 63). Maintaining this scepticism of Genesis,¹⁹⁰ the fossil record is also reenvisioned as a result of undisclosed “natural factors” unrelated to any alleged universal deluge (Lamarck, 1964:59-61).¹⁹¹ As expected, the supernatural assumption behind the Genesis flood is antithetical to Lamarck’s (1964:72) philosophical naturalism,¹⁹² and therefore impossible by definition. To those who believe otherwise, he expostulates:

Oh, how very ancient the earth is! And how ridiculously small the ideas of those who consider the earth’s age to be 6,000 odd years! (Lamarck, 1964:75)

It is evident that time serves a crucial role in Lamarck’s cosmogony. Lamarck (1964:61) believes that time can solve all problems in nature and has “unlimited power”. In other words, with enough time, anything is possible. Indeed, all living species can be brought into existence this way without any need for the God of Genesis (Lamarck, 1964:77).

Although *Philosophie zoologique* was marginally successful at first, the unsolicited endorsements of Jean-Baptiste Bory de Saint-Vincent (1778-1846) and Étienne Geoffroy Saint-Hilaire (1772-1844) for *Histoire naturelle des animaux sans vertèbres* eventually led to a “boosted demand” for the former book (Corsi, 1988:266). That Lamarck cannot be properly appreciated apart from his antagonism towards Genesis is well-expressed by one of his earliest disciples, Charles Augustin Sainte-Beuve (1804-1869), who writes:

M. de Lamarck was the last representative of that great school of naturalists and general observers who held sway from Thales and Democritus right down to Buffon. He was the mortal enemy of the chemists, of experimentalists and petty analysts, as he called them. *No less severe was his philosophical hostility amounting to hatred for the tradition of the Deluge and the Biblical creation story, indeed for everything which recalled the Christian theory of nature.*¹⁹³ (emphasis mine; Sainte-Beuve, 1834:211 in Gillispie, 1968:276-277)

It was a legacy that became a “key factor” in the development and reception of Darwin’s own *Origin of species* (Corsi, 1988:268).

¹⁸⁹ Cuvier (1836:16) also makes this observation in one of the earliest critiques of *Philosophie zoologique*: “If none of these things have fallen under our observation, it is on account of the excessive slowness with which these operations are carried on. Time is always necessary to account for them; unlimited time, which plays such an important part in the religion of the magi, is no less necessary to Lamarck’s physics, and it was to it that he had recourse to silence his own doubts, and to answer all the objections of his readers.”

¹⁹⁰ In Lamarck’s (1964:76) view, the story of creation is merely a legend, not based on fact.

¹⁹¹ The following argument is picked up in *Philosophie zoologique*. Lamarck (1963:46) realises that the Genesis flood precludes a uniformitarian reinterpretation of the fossil record – thus undermining his thesis – so he denies that there is any evidence of a universal deluge in the rocks. His geological paradigm restricts all evidence to imperceptibly slow evolution “by successive stages” (Lamarck, 1963:46). His argument rests, in part, on Cuvier whom he credits for showing how all creatures can be ranked in their complexity – and hence their development – from lowest to highest (Lamarck, 1963:64).

¹⁹² Here is one articulation of Lamarck’s (1933:181) philosophical naturalism: “Facts belong to nature, which alone provides us with them... Apart from nature no fact is known or can be known.”

¹⁹³ Original: “M. de Lamarck était dès lors comme le dernier représentant de cette grande école de physiciens et observateurs généraux, qui avait régné depuis Thalès et Démocrite jusqu’à Buffon; il se montrait mortellement opposé aux chimistes, aux expérimentateurs et analystes *en petit*, ainsi qu’il les désignait. Sa haine, son hostilité philosophique contre le déluge, la création génésiaque et tout ce qui rappelait la théorie chrétienne, n’était pas moindre.” (Sainte-Beuve, 1834:211)

3.24 Conclusion

Where the seventeenth century had opened the door to new-fangled interpretations of Genesis 1-11, these efforts were largely construed as an endeavour to rescue Moses from redundancy and make the text more intellectually respectable. Spinoza had his followers, but they still had to write cryptically or publish posthumously to survive the waning hegemony of ecclesiastical authority in the sciences.

With the eighteenth century, however, Genesis 1-11 was subjected to the most extensive vitriolic attack ever imposed on any other portion of Scripture throughout antiquity. These eleven chapters were publicly ridiculed in print and held up as the great embarrassment of Christianity. We are told that Genesis is a “puerile, romantic, and absurd” “fairy tale”, an “abbreviated fable”, a “philosophical fiction”, a “stupid falsehood”, “an absurd fable” “written by fools”, a “book of lies, wickedness, and blasphemy” “founded on superstitious notions, and suited to the ignorance and inhumanity of rude ages”, contrived by “the vainest and most credulous mortals in the universe”, “a barbarous and ignorant people”, “invented only to amuse the credibility of a stupid and infant people”, and consequently is “less to be depended upon” than the rest of Scripture (Bolingbroke, 1967a:479-481, 495; Meslier, 1864a:114; Herder, 1833b:15, 17; Geddes, 1800:26; Voltaire, 1819:8, 12; Paine, 1908c:132, 180; Hutton, 1794b:661; de Maillet & Le Mascrier, 1750:74; Hume, 1992:87-88; d’Holbach, 1819:50-51; Priestley, 1803:42). Seen in this light, it is hard to avoid Diderot’s (1841:4) summary of the Christian faith: “The God of the Christians, for an apple, punished all the human race and killed his own son”. Where a previous generation saw fit to accommodate the creation story to fit the science, in the eighteenth century, Genesis 1-11 was reduced to an irrelevant, intellectually offensive curiosity.

Chapter 4. The hermeneutical revolution of Genesis 1-11 in the nineteenth century

4.1 Introduction

With the nineteenth century came, cameras, cars, electric batteries, escalators, elevators, telephones, typewriters, sewing machines, and even the humble paper clip (Daguerre, 1839; Matteucci, 1970:22-23; Finger & Piccolino, 2011:326; Hazen, 1997:26-27, 49-50, 57; Ward, 2014:4). Understandably, the growing confidence in science did not wane. And with this enthusiasm, as in the previous century, came the conviction that the history of the world could also be decided by the sciences. The naturalistic tenets of the Enlightenment gradually reappropriated research in astronomy, geology and palaeontology to this end. With time, botanical and zoological studies eventually followed suit. In the hundred-year period from 1740 to 1840, evolutionary thinking garnered increasing scientific respect (Mayr, 1982:323). By 1859, Genesis 1-11, having lost most of its scientific and historical value, presented very little impedance to the rise of Darwinism. This chapter will therefore explore the intricacies of how Genesis fared in the nineteenth century and what new methods of interpretation were devised to meet these challenges.

4.2 The seduction of scientific societies

From 1765 to 1813, a monthly dinner club convened in Birmingham, ostensibly motivated by the desire to discuss various scientific matters, but more insidiously, by a common irreligious radicalism (Scofield, 1966:146). The five men responsible for instigated these meetings were Erasmus Darwin, Matthew Boulton (1728-1809),¹ James Watt (1736-1819),² Priestley and Josiah Wedgwood (1730-1795),³ the future grandfather of Charles Darwin (Uglow, 2002:xiv). They eventually became known as the Lunar Society of Birmingham, a society whose “enlightened thoughts and attitudes” exceeded that of all other scientific societies in the eighteenth century (Scofield, 1966:146, 160). The Lunar Society exerted much influence within the Royal Society, with eleven of the most active members becoming fellows of the Royal Society by the late eighteenth century (Scofield, 1966:144-145, 149, 151). Uglow (2002:xx) argues that the “seductive” ideas of these Lunar men “changed the world.”

In 1807, the Geological Society of London was formed and began having meetings in the Freemason’s Tavern (Mortenson, 2004:29). From the outset, it was a society overtly opposed to the literal interpretation of Genesis 1-11 (Mortenson, 2004:29-30). George Bellas Greenough (1778-1856) who first presided over the society from 1807 to 1813 was largely responsible for this impetus (Rudwick, 1963:325).

¹ Boulton’s religious disposition can be inferred from the simple fact that he and Erasmus had the “strongest friendship” (Uglow, 2002:80).

² Watt was probably a deist (Dickinson & Jenkins, 1989:78; Carnegie, 1905:201-202; McCabe, 1920:874).

³ Wedgwood was a close friend of Priestley and eagerly endorsed his unitarian views (Herbert, 2009:8-9). The Wedgwoods and the Darwins were even more intimately related. Erasmus’ son, Robert Darwin (1766-1848), married Josiah’s daughter, Susannah Darwin (née Wedgwood) (1765-1817) (Herbert, 2009:3).

In *A critical examination of the first principles of geology* (1819), he states that there is “no positive evidence to determine whether the deluge took place before or after the creation of man” (Greenough, 1819:186). He also endorses Laplace’s estimate of the universe being a “vast number of years” old (Greenough, 1819:199).

In 1831, the British Association for the Advancement of Science was founded in York (Mortenson, 2004:39). Like the Geological Society, the BAAS was immediately recognised as a society populated by deists and other radicals committed to the “de-Christianizing of the universities” (Mortenson, 2004:39; Orange, 1975:287; Bowden, 1839:42). Finding no real scientific purpose for the God of Scripture, the society replaced him with the undefined “Author of Nature” (Orange, 1975:287; Bowden, 1839:36). Moreover, the founder and first president of the BAAS, William Vernon Harcourt (1789-1871) found no scientific value in Genesis 1-11 or in any of the attempts made by scientists to try and salvage its relevance by reinterpretation (Orange, 1975:292-293). In one of the general meetings held in 1839, he addressed the members, categorically stating that Genesis is not a “book of chronology” and that the results of geology should be taken as “undeniable” in any instance where there is a “point of discordance” between the Bible and science (Harcourt, 1839:653-654). What he has in mind are the six days of creation when compared to the “unnumbered ages” of astronomy and geology (Harcourt, 1839:654). It did not take long for the BAAS to become known as a haven for Unitarians, Latitudinarians and heterodox Christians (Orange, 1975:286-287).

Therefore, despite protestations to the contrary from the likes of Chalmers, Buckland, Whewell and Sedgwick, these scientific societies did much to undermine the authority of Scripture and the credibility of Genesis in Britain (Orange, 1975:289-290).

In 1666, just six years after the inauguration of the Royal Society, *L’Académie des sciences* was established in Paris (Fauré-Fremiet, 1966:20, 26). Like its English counterpart, *L’Académie* facilitated the membership of many radical Frenchmen. From his appointment in 1697, de Fontenelle served as secretary to *L’Académie* for forty-four years (Marsak, 1959:3). Both Cuvier and Condorcet also served as permanent secretaries to the society (Appel, 1987:64; Gillispie, 2000:5). In fact, Laplace enrolled in *L’Académie* the same year, 1773, that Condorcet became its secretary (Gillispie, 2000:5). In 1744, Buffon became the permanent treasurer (Roger, 1997:58). With Buffon’s help, Lamarck was also able to join the society (Buckley, 1876:389). As discussed earlier, all these men actively discouraged the interpretation of Genesis as history.

Meanwhile on the other side of the Atlantic, in 1817, the Lyceum of Natural History was founded, later renamed to the New York Academy of Sciences (Rubinstein, 2012:392). Like the aforementioned European societies, this American fraternity also facilitated a membership of scientists committed to the obsolescence of Genesis 1-11. One of the founding members, Samuel Rafinesque (1783-1840) became the first American evolutionist, decades before Darwin’s *Origin of species* went to print (Fitzpatrick, 1911:24, 43; Anon., 1975:8). In 1838, he wrote a book, appealing to the Bible societies, entitled *Genius and spirit of the Hebrew Bible*. In it, he insists that wherever the historical sciences clash with Scripture it is

because of “false translations or unsound explanations” of the text⁴ (Rafinesque, 1838:44). In his concluding paragraph, Rafinesque (1838:260) speaks of pre-Adamite races, gives his endorsement to the day-age theory and maintains that the best commentary on the Bible is to be found in the “records of science”. In 1836, Darwin’s zealous evangelist, Asa Gray (1810-1888), became the curator and librarian of the society (Dupree, 1988:50, 56). Gray was immensely successful at propagating the doctrines of Darwin to a broad Christian audience (Brown, 2006:93). James DeKay (1792-1851) was the first vice-president of the society and another influential promoter of Darwinism in America (Anon., 1975:9). Thomas Jefferson was also celebrated member of this society and a close friend of its founding chair, Mitchill (Rubinstein, 2012:392; Mitchill, 1826:1-67; Fairchild, 1887:8). Mitchill (1803:xv-xxix) introduced Erasmus Darwin’s evolutionary views to his fellow Americans through the American edition of *Zoonomia* published in Boston in 1803. And when Cuvier’s influential *Essay on the theory of the earth* was published for an American readership, Mitchill eagerly supplemented the work with his own observations from North America to bolster the argument (Cuvier *et al.*, 1818:1-431).

4.3 The days of Genesis succumb to Georges Cuvier’s deep time

Following the aftermath of the French Revolution, in 1795, Cuvier was appointed to a strategic position at the “world’s premier natural-history museum”, the *Muséum national d’Histoire naturelle* in Paris (Larson, 2004:6). The museum willingly provided him with all the specimens he needed to become the “founder of modern comparative anatomy and paleontology” (Larson, 2004:9). Cuvier was fascinated by fossils and believed that history could be reconstructed by simply studying them. In his early research on fossilised quadrupeds, he became convinced that all living creatures showed a marked difference from those found in the rocks (Cuvier, 1997a:52-53; 1997b:70; 1997c:85). This, in turn, leads him to conclude that the world had gone through several catastrophic extinction events or “revolutions” spanning “thousands of centuries” (Cuvier, 1997d:185-186, 252). Cuvier (1997e:124) also notices in the fossil record a “certain succession in the forms of living beings”. To a modern reader, an evolutionary explanation seems inescapable. But Cuvier is not convinced. He points out that the fossil record lacks the intermediate forms necessary to prove that any “species has gradually changed” (Cuvier, 1831:73; cf. 1997d:226). Critically, Cuvier (1997d:228) denies that even “thousands of centuries” would provide enough time to supply the changes required by evolution. But this does not make Cuvier a biblical creationist. He does not believe that the creation and the Flood is sufficient to explain how the earth reached its present form (Cuvier, 1997d:199). Thus, not only does he reject the atheistic theories of de Maillet and Buffon; he also rejects the physico-theological theories of Burnet, Woodward, Scheuchzer,⁵ Whiston, Leibniz, and Kepler (Cuvier, 1997d:199-201). Noah’s flood might have some basis in history, but only to the extent that its details are corroborated by other sources (Cuvier, 1997d:240-246). Genesis, like any other “ancient book”

⁴ Rafinesque (1838:193, 221-222) espouses an esoteric Kabbalistic view of revelation, claiming that Adam, Noah, Job and Moses all had different religions.

⁵ i.e. Johann Scheuchzer (1672-1733) who argued in *Piscium querelae* (1708) and *Herbarium plantarum* (1709) that fossils were the remains of creatures that had died in the Noahic flood (Leu, 2015:331).

must be sifted to extract the “real facts” from the “self-interested fictions that mask the truth” (Cuvier, 1997d:239). In the end, Cuvier (1997d:205) believes that only fossils can provide him with “certainty” about what happened at the beginning of the world.

Dismissing those who sabotage their investigation of natural history by restricting the world to merely six thousand years, Cuvier (1997d:185, 193) suggests instead that man will find his “glory” from knowing “how to burst the limits of time” wherein lies an “ancient chronology” corresponding to the true history of the earth. This is why Cuvier’s true legacy is his emphasis on deep time,⁶ and his preference for fossils over Scripture as a key to unlocking history (Rudwick, 1997:ix-x; Larson, 2004:29). Thus, despite his opposition to evolution and the more radical elements of Enlightenment, his influence upon biology in the nineteenth century meant that, as Larson (2004, 5, 9, 24) wryly remarks, “the history of the modern scientific theory of evolution rightly begins with him—its staunchest foe”.

With Genesis expunged from the subject of origins, Cuvier also found room to speculate on the beginning of mankind. And like his French predecessors: La Peyrère, de Maillet, de Fontenelle and Buffon, Cuvier’s (1997d:246) anthropology completely ignores Adam, and in the process, construes “negroes” as an inferior race, closely related “to that of the beast”.⁷

Cuvier tried to walk a middle road between the “religiously conservative writers” who took Genesis as history and the antireligious materialists⁸ who wanted to rid the sciences of any vestiges of Christianity (Rudwick, 1997:83-84). It was a model that pleased nominal Christians.⁹ For this reason, his *Preliminary discourse*, prefixed to the four volumes of *Recherches sur les ossements fossils* (1812) was “immensely influential” in the nineteenth century, being reprinted and translated into many languages even decades after Cuvier’s geological views had become obsolete (Rudwick, 1997:x, 173). In these works, there are only a few oblique allusions to Genesis. And even here, it is evident that Cuvier is merely capitulating to readers with religious concerns (Rudwick, 1997:259). Taking a leaf out of Buffon’s playbook, he is more than happy to allow the Bible to “bolster his scientific case” as long as the text corroborates his paleontological views of earth history (Rudwick, 1997:262). The effectiveness of this approach was proved by the writings of the Scottish mineralogist, Robert Jameson (1774-1854), who became convinced that Cuvier’s theory of fossils could be appropriated in support of Genesis, albeit in a less-than-literal manner. His English translation of the *Preliminary discourse* took various liberties with text thereby leading his readership to believe that Cuvier had written it to add scientific credibility to Noah’s flood and thereby prove the inspiration of Scripture (Rudwick, 1997:xi, 254; Jameson, 1815:v).

⁶ The concept of “deep time”, as developed by McPhee (1998:90), describes the antiquity of the universe as being too old for the human mind to comprehend.

⁷ Similar sentiments can be found in his extensive treatment on the natural history of animals where he describes the “Negro race” in the following terms: “The projecting muzzle and thick lips evidently approximate it to the Apes: the hordes of which it is composed have always continued barbarous” (Cuvier, 1854:50).

⁸ Cuvier was a close acquaintance of Laplace (Gillispie, 2000:276-277).

⁹ Cuvier himself was commonly regarded as “a religious skeptic, or even an atheist” keeping his faith “strictly private” and separate from science and politics (Rudwick, 1997:259; Larson, 2004:10). His own daughter, who had evangelical convictions, “grew to doubt her father’s salvation and prayed for his conversion” (Larson, 2004:10; Rudwick, 1997:259).

To marry Genesis to Cuvier, Jameson (1815:vi) interprets the days of creation as “indefinitely long” periods of time. And in doing so, he promoted Cuvier’s usefulness to a great number of commentators¹⁰ of Genesis, the evidence of which can be found in Faber (1823:123-124, 131, 134, 137-138, 141, 144-146, 147-156, 161-164), Horne (1828:169), Taylor (1836:25, 30-31, 77-78, 93), Lange (1869:186, 187), Doddridge (1835:51), Murphey (1850:219-220), Wight (1857:235), Jacobus (1867:81, 86), Kurtz (1870:76), Thompson (1870:68), Arnold (1875:138, 290, 315, 317-318), Whitelaw (1881:25), Gladstone (1885:26-27, 75-76; cf. Huxley, 1885:46-47), Hirschfelder (1885:32, 42, 225) and Jones (1897:47).¹¹ Thus Cuvier’s writings lent further support to the idea that the days in Genesis should be read as long ages.

With Cuvier’s writings republished in Edinburgh, they soon made a proselyte out of the famous preacher, Thomas Chalmers (1780-1847). Chalmers (1836c:349; cf. 1836a:233, 240-241; 1836b:309-310; 1836c:369) was easily persuaded by Cuvier’s theory of natural history, but he felt that his treatment of Genesis could be improved upon (Cannon, 1961:16).

4.4 Thomas Chalmers finds a gap in Genesis for geology

Chalmers had a remarkable influence over many commentators of Genesis. And not without due cause. He was an “electrifying” preacher whose oratory “transfixed” and “mesmerized London”, filling church buildings to capacity wherever he was appointed to speak (Noll, 1997:762). Chalmers has been described as “the greatest British preacher-cum-theologian-cum-religious writer of his age”; “the most important author who flourished in the first part of the nineteenth century”; the “new Savonarola” and “a ruler among men” (Noll, 1997:762; Alexander, 1848:530; Wilson, 1923:134; Brown, 1861:62). He was a natural polymath, accomplished in geology, astronomy, moral philosophy; a pioneer in social reform, economics, and theology (Noll, 1997:765-766). The fame of Chalmers even caught the attention of Karl Marx (1818-1883) (1990:767) who referred to him as “the arch-parson” in the first volume of *Das Kapital* (1867). John Cairns (1818-1892) compared him to the likes of “Plato, Descartes, Pascal, Leibnitz and Kant” (Cheyne, 1985:9). When Chalmers died, it was said of him, “A sun is extinguished” (Brown, 1861:59). According to Noll (1997:764), nearly half everyone living in Edinburgh attended his funeral (Noll, 1997:764). For all these reasons, Chalmers’s views on creation were widely disseminated and taken seriously.

Where previous commentators had tried to allegorise Moses to placate geological dogmas, Chalmers (1836a:229-230) maintains that the first week of creation ought to be taken literally. At the same time, he insists that the geologists of his day will merely confirm the accuracy this written record (Chalmers, 1836a:248). Chalmers (1836a:248, 250) is convinced that Scripture and science can always be reconciled. But this leaves him with a real challenge, because contemporary geologists were demanding an “indefinite antiquity of the globe” – a tenet not obviously reconcilable to a literal Genesis (Chalmers, 1836a:250; 1836b:309). Chalmers’s solution to this problem typifies how most scholars dealt with Genesis in the

¹⁰ i.e. biblical commentators

¹¹ Cuvier is also cited critically by the following commentators: Faber (1823:135-136), Taylor (1836:85), MacDonald (1856:92), Kalisch (1858:141), Arnold (1875:105, 335), Nisbet (1881:93-94).

nineteenth century: instead of rethinking the science to fit the text, he reinterprets the text to satisfy the science. Following the example of Simon Patrick¹² (1626-1707) and Johann Georg Rosenmüller¹³ (1736-1815), an unspecified “interval of time” is inserted between Genesis 1:1 and 1:2 to “permit an indefinite scope to the conjectures of geology” (Chalmers, 1836a:251-253; 1836c:370). All the revolutions and millions of years and layers of fossils could then be attributed to this nebulous gap.

Whilst not being entirely original,¹⁴ this allowed Chalmers to cast Moses into a suitable mould. Thus, geology finds its place in between the first two verses of the Bible. This solution, as he sees it, will grant geologists the liberty to determine the longevity of earth history without impinging on the inerrancy of Genesis. If the six days of creation have no bearing upon when the world began, Chalmers (1836a:256) reasons, then the naturalists have free reign to decide the “indefinite antiquity of the globe”. But for those “zealous defenders of Christianity” who fail to provide enough room for geology, the “enemies of religion” will be granted “a most unnecessary triumph” (Chalmers, 1836a:256). In fact, Chalmers (1836a:256) warns, they will have “done an injury to the cause.” To correctly interpret Genesis, geology is not merely suggestive; it is decisive.¹⁵ If the earth is millions of years old, the “gap theory”¹⁶ is exegetically inescapable (Chalmers, 1836b:309-310). Chalmers (1836c:369) is compelled by scientific evidence to reinterpret Genesis to satisfy the science. Moreover, if Christians are to rescue the Bible from disrepute, he insists that they maintain an agnostic stance towards any details pertaining to time found in the first chapter of Genesis (Chalmers, 1836c:365).

Because of Chalmers’s fame, his “gap theory” was accepted by many other scholars, scientists and laymen in their commentaries including Wight (1857:14-28, 138, 144), Hoare (1860:144-145), Taylor (1840:v), Groves (1861:10, 14-15), Jacobus (1867:v, 62), Hitchcock (1851:52), Exell (1885:14) and Buckland (1837:19).¹⁷

Chalmers’s other notable contribution to the future reception of Genesis can be found in *Discourses on the Christian revelation, viewed in connection with the modern astronomy* (1817). It was a resounding success, requiring “nine printings” and selling “twenty thousand copies in 1817 alone” (Noll, 1997:762-763). Echoing the controversial sentiments of de Fontenelle’s *Entretiens sur la pluralité des mondes*, Chalmers (1817:26-27, 32, 34, 41) suggests in these discourses that there are many other planets besides the earth that are inhabited by intelligent beings. Aware of the theological ramifications, he goes on to postulate that Christ “may

¹² Simon Patrick was a prominent self-professing latitudinarian (Jacob, 1976:31; Birrell, 1963:i-iv). Latitudinarians were Cambridge men who believed that faith required rational justification, and that “scientific knowledge and natural philosophy are the most reliable means of explaining creation” (Jacob, 1976:28, 34-35). As mentioned in an earlier footnote, Patrick (1846:2-3) put forward one of the earliest versions of the “gap theory” and suggested that the six days encompassed only the creation of the earth, without reference to the rest of the universe. He apparently gets this insight from Maimonides (Patrick, 1846:3).

¹³ Rosenmüller (1776:27) argues that the ו (vav) in Genesis 1:2 should be read as “Afterwards...” (Penn, 1822:163-164).

¹⁴ Buffon (2018:116) had proposed this idea in 1778. Even earlier, in 1677, Matthew Hale (1609-1676) (1677:308) envisioned a long period of time existing between the creation of chaotic matter in Genesis 1:1 and its subsequent formation over six days.

¹⁵ i.e. geology decides what exegetical conclusions the text cannot sustain.

¹⁶ Known as the “restitution theory” at this time in history (Arnold, 1875:332; Haber, 1959:204). By the time Whitcomb and Morris’s (1961:93) book, *The Genesis flood* (1957), was published it had become known as the “gap theory”.

¹⁷ In a similar vein, Chalmers’s restriction of Genesis to “geological facts” was taken up by MacDonald (1856:82) and Sime (1897:309-310). Rendell (1852:21-22) finds some merit in the gap theory but points out that it does not resolve all the scientific problems presented by Genesis 1.

have had the government of many sinful worlds laid upon his shoulders” (Chalmers, 1817:81; cf. 77, 123). This type of reasoning encouraged Christians to rethink the purview of Scripture in light of the ever-growing domination of science. In terms of earth history, Genesis was largely redundant.

Finally, in 1834, Chalmers wrote *On the power wisdom and goodness of God* which was published along with seven other volumes in a collective project entitled the *Bridgewater treatises* (1833-1840).

4.5 The Bridgewater Treatises

Prior to the 1830s, the Earl of Bridgewater, Francis Egerton (1756-1829), commissioned in his will a writing project to scientifically validate and illustrate the power, wisdom and goodness of God in creation (Mortenson, 2004:39). Following William Paley’s (1743-1805) example, a collection of eight treatises were compiled by prominent scientists, in which they attempted to revise the argument of *Natural theology* (1802) with the most recent scientific discoveries. The result was the *Bridgewater treatises*.

These treatises were widely distributed among the middle class and were used extensively in the education of the masses (Topham, 1992:398). These eight volumes quickly reached “celebrity” status becoming the “most popular” English treatments on science and religion in the nineteenth century (Topham, 1992:397; Ford, 2000:11).¹⁸

While these treatises were successful in promoting a renewed interest in the argument from design, at the same time, they advocated a less-than-literal interpretation of Genesis.¹⁹ As expected, the popularity of the treatises disseminated these views widely. And because they lacked a robust scriptural appreciation for the historicity of the fall, they failed to adequately address the problem of pain, disease, suffering and death in creation. As Mortenson (2004:39) points out, “they either ignored the problem or dealt with it superficially, attributing the evil in a mysterious way to divine beneficence.” This would later prove to be the Achilles’ heel of Paley’s argument and would drive Darwin (1958:90) to reject the notion of an intelligent designer.²⁰

Of the eight Bridgewater monographs, William Whewell’s (1794-1866) contribution came first and was, arguably, the most popular²¹ (Cannon, 1960:10; Ruse, 1977:245; Snyder, 2011:200).

4.5.1 William Whewell subjugates Moses to Laplace

In addition to writing two important books on the history and philosophy of science, Whewell is most famously remembered for inventing and popularising the word “scientist” in 1833 (Hannam, 2011:346; Yeo, 2003:3-5; Wilson, 2011:344). He also coined key terms like “anode”, “cathode” and “physicist”

¹⁸ Ford (2000:12) adds, “Despite relatively high prices, they became bestsellers and were widely read by the clergy. Some sold twice as many copies as *The Times* and three times as many as the *Edinburgh Review*. Historians have concentrated on the heavyweight journals, but the popular magazines were often more influent.”

¹⁹ William Kirby (1759-1850) was a notable exception. See section 4.5.3.

²⁰ By ignoring Genesis 3, Spinoza (1891b:81) also rejected God on similar grounds: “If all things follow from a necessity of the absolutely perfect nature of God, why are there so many imperfections in nature? such, for instance, as things corrupt to the point of putridity, loathsome deformity, confusion, evil, sin, etc.”

²¹ It went “through nine editions in Whewell’s lifetime” (Snyder, 2011:200).

(Yeo, 2003:3). Not unlike the other authors of the *Bridgewater treatises*, Whewell was as serious about Christianity as he was about science. Being ordained in 1826, he preached regularly in Cambridge for more than four decades (Wilson, 2011:344-346). Whewell had substantial influence at Cambridge as the “appointed Master of Trinity”, regarded by some to have been the most prestigious academic chair in the world (Snyder, 2011:1).

Whewell’s *Bridgewater treatise*, published in 1833,²² focused on astronomy and general physics in their relation to natural theology. In essence, he wanted to provide ample evidence of intelligent design, thereby showing how science harmonises with theism (Whewell, 1834:1-2). To make his case, Whewell (1834:163, 200, 206) relies heavily upon Laplace’s nebula hypothesis along with the obligatory “millions of millions” of years required to satisfy its evolutionary²³ framework. His point is simply this: such a process still requires a beginning and therefore an “Intelligent Author” or “First Cause” (Whewell, 1834:184, 189, 206). Apart from one passing reference to Genesis 1:3,²⁴ Whewell’s (1834:191) treatment on the creation of the universe completely ignores the biblical account. Laplace has evidently usurped Moses as the reigning authority on cosmogony. All that Whewell (1834:171) proposes is a modest modification: to reinstate God instead of gravity as the principal cause of Laplace’s machine. But Whewell’s God falls egregiously short of the God described in the Bible (Ruse, 1977:251). Although he insists repeatedly that this God is good and benevolent in his design, he fails to give an account for how the world ended up in this evil state (Whewell, 1834:69, 145, 172, 190-191, 253, 304, 378). By ignoring the historicity and ramifications of the fall, Whewell’s cosmology made Darwin’s vilification of intelligent design even easier. Darwin not only knew Whewell personally from his time at Cambridge, he also read through Whewell’s *Bridgewater treatise* twice (Ruse, 1977:264). At the outset of Darwin’s scientific career, Whewell even actively promoted him via the Geological Society, although by 1864 he became increasingly critical of Darwin’s views on the origin of species (Ruse, 1977:261, 264).

Whewell’s (1845:68-69) disregard of Genesis receives further clarity in the second volume of *History of the inductive sciences* (1837), where he states that the “earliest portions” of the “Sacred Narrative” are “obscure and mysterious”, “seemingly contradictory”, and scientifically “inaccurate”. For example, he cannot conceive how God might create light without first creating the sun (Whewell, 1845:70). He exhorts exegetes of Genesis to realise that, “the meaning which any generation puts upon the phrases of Scripture, depends, more than is at first sight supposed, upon the received philosophy of the time” (Whewell, 1845:15). In other words, hermeneutics should always be governed by the currently-accepted philosophy of the day (Whewell, 1845:15).

Whewell’s aspirations resonate loudly with the mantra of Enlightenment. Indeed, he expressly states that his generation must allow “enlightened” commentators to challenge the orthodox interpretation of Scripture unlike in the days of Copernicus and Galileo (Whewell, 1845:14-15, 71-72). Whewell (1845:71)

²² i.e. *Astronomy and general physics, considered with reference to natural theology* (hereafter referred to as *Astronomy and general physics*).

²³ i.e. cosmological evolution (Chaisson, 2005; Coles & Lucchin, 2002).

²⁴ In his later writings it becomes evident that Whewell (1845:21) sees the words “Let there be light” as an endorsement of the nebula hypothesis.

assures his readers that the authority of Scripture will not be compromised by any “new interpretation” arising from the “progress of science”. But his efforts to salvage a reputation for Christianity in the wake of scientific progress came at a cost. The propitiation of science required the sacrifice of Genesis.

4.5.2 William Buckland restricts Genesis to religion and morality

Whewell’s Bridgewater treatise might have been the most popular, but it was not the most controversial. That dubious honour went to William Buckland’s (1784-1856) two volume work on geology and mineralogy (Brock, 1966:174). Like Whewell, Buckland was both a theologian and a scientist (Lawson, 2004:30). Not only did he serve as the Dean of Westminster, he was also a fellow of the Royal Society and president to both the Geological Society and the British Association for the Advancement of Science (Lawson, 2004:30).

From the outset of his career with the Royal Society, *contra* Cannon (1960:20), Buckland tried to reconcile geology with Genesis. His first short treatise to this effect was entitled *Vindiciae geologicae; or the connexion of geology with religion* (1819). In it, Buckland (1820:5-6) praises Cuvier as “one of the most enlightened philosophers, and the greatest anatomist of this or any other age” for employing geology to unveil “the history of thousands of ages which preceded the existence of his race”. Put simply, geology, not Genesis, is the key required to decipher the true history of the earth (Buckland, 1820:6, 12, 18, 21-22). But, even more provocatively, this geological key becomes a hermeneutical key to Genesis.²⁵ Not only does it confirm the recent antiquity of man recorded by Moses along with “decisive and incontrovertible” proof of “an universal deluge”, it also provides the exegete with the conclusions the text must assert (Buckland, 1820:23). So wherever the *prima facie* interpretation of Genesis contradicts geology, a “fair and liberal interpretation” must be employed (Buckland, 1820:22, 26). Essentially, Buckland (1820:23-24) proposes that we reject the “popular and literal interpretation” of Genesis in order to bring the Mosaic account into “perfect harmony with the discoveries of modern science”. To achieve this end, he reinterprets the word “beginning” in the first verse of Genesis to mean an “undefined period of time”,²⁶ and the days of creation as aeons (Buckland, 1820:31-32).²⁷ Buckland thereby promotes both the day-age theory and gap-theory as a viable means to conform Genesis to geology. Not surprisingly, these interpretive decisions are governed by Buckland’s (1820:26, 30) *a priori* geological certitude of cataclysmic events and “previous worlds” that predate the Genesis record. Once again, the spectres of Copernicus and Galileo are summoned to the fore. This is what happens, says Buckland (1820:23, 25), when dogmatists adhere to the literal interpretation of Scripture. Lifting up Buffon as an exemplar of how to reconcile Genesis with science, he naively asserts that the French naturalist found no inconsistency between Moses and geology (Buckland, 1820:27).

²⁵ To quote him, this is “the great master key whereby we may unlock the secret history of the earth” (Buckland, 1837:113, 128).

²⁶ It appears that he and Chalmers arrived at this position independently, although Buckland (1837:19, 595) finds “great satisfaction” in the fact that this interpretation was also espoused by “One of the most distinguished and powerful theological writers of our time”.

²⁷ Buckland (1820:32) cites Samuel Horsley (1733-1806), the Bishop of Rochester, in support of a non-literal interpretation of the six days in Genesis 1.

In 1828, whilst avoiding any obvious references to the Scriptural account of the Flood, Buckland (1828:228) presented a case for “the universality of a recent inundation of the earth” in a book unambiguously titled: *Reliquiæ diluvianæ; or observations on the organic remains contained in caves, fissures, and diluvial gravel, and on other geological phenomena attesting the action of an universal deluge*. As a piece of geological reasoning and argument, it was one of the last scientific treatments to be written by a high-profile geologist in favour of a global flood.²⁸ Just three years later, Adam Sedgwick (1785-1873),²⁹ Buckland’s counterpart at Cambridge, publicly distanced himself from geological diluvialism in an official address to the Geological Society of London.

Less than decade later, motivated by the prospect of earning Egerton’s £1000,³⁰ Buckland expanded his work on the relationship between geology and Genesis, resulting in his own Bridgewater treatise in 1836. By this time, his views on a global flood had changed. After having received criticism from Charles Lyell³¹ (1797-1875) and John Fleming (1785-1857), Buckland joined Sedgwick in renouncing the geological significance of a global flood (Mortenson, 2004:32). The cultural tide had turned against any science that sounded like Genesis. Geology had “proved by physical evidence” and “undeniable conclusions” that “very long periods of time” had passed on earth (Buckland, 1837:10-13).

Buckland’s interpretation of Genesis continues in the same vein as before.³² In an effort to allay any concerns about his orthodoxy, Buckland (1837:14) reassures his readers that these hermeneutical compromises will not jeopardise the authority or authenticity of God’s word. Instead, the Bible-believing Christian should realise that it is a “gratuitous expectation” to look for “historical information” in the book of Genesis because the Bible is “intended only to be a guide of religious belief and moral conduct” (Buckland, 1837:14-15). In what was destined to become a hallmark concession,³³ Buckland (1837:33) explains that the Mosaic account was not intended to tell us *how* the world was created but *who* created the world. Thus, by reducing the epistemic domain of Scripture to the exclusion of all things historical or scientific, he is able to make good on his claim: “no one who believes the Bible to be the word of God, has cause to fear any discrepancy between this, his word, and the results of any discoveries respecting the nature of his works” (Buckland, 1837:9).³⁴

Interestingly, Buckland’s maxim to ignore all scientific and historical detail given in Genesis does not preclude him from accepting the historicity of the Flood (Buckland, 1837:95). What he does not accept,

²⁸ The general popularity of this book is evident in the fact that both the first and second editions quickly sold out and were eagerly reviewed on both sides of the Atlantic (Rupke, 1983:37).

²⁹ Sedgwick is discussed further in section 4.8.

³⁰ Brock (1966:171-173) states that private correspondence between Whewell and Buckland reveal strong pecuniary motives for contributing to the *Bridgewater treatises*. In Whewell’s case, this remuneration made him “a wealthy man for the first time in his life” (Snyder, 2011:199).

³¹ Lyell is discussed further in section 4.10.

³² Once again, he reinterprets the word “beginning” in Genesis 1:1 to allow a gap of “millions of millions of years” (Buckland, 1837:17-21). Buckland (1837:27, 29) then assigns the creation of the sun, moon and stars to that “indefinitely distant” period of time denoted by the word “beginning”. Buckland (1837:32) also questions whether light was created in Genesis 1:3 because “recent discoveries” from John Herschel show that “light is not a material substance”.

³³ Buckland’s maxim quickly became a common trait amongst those arguing against the literality of Genesis 1 (Rendell, 1852:19; Paine, 1872:444; Newton, 1864:8; McCalla, 2006:72; Wortman, 1865:621; Trimmer, 1841:38; Klaver, 1997:97; Milner, 1857:79).

³⁴ Citing the support of Adam Sedgwick (1785-1873), he asserts that the intention of Genesis 1-11 is “not to state *in what manner*, but *by whom*, the world was made” (emphasis in original; Buckland, 1837:44-34).

however, is that it left any lasting geological evidence in the rocks. It was apparently, a “comparatively tranquil inundation” (Buckland, 1837:95). And, in contrast to his *Vindiciae geologicae*, he changes his mind on the six days of creation, finding no reason for why these days should not be taken in their ordinary sense (Buckland, 1837:597-598). But even here, it is a concession that carries no exegetical weight behind it. For Buckland (1837:18) is quick to point out that he is completely indifferent to how the word ‘day’ is interpreted. His real reason for rejecting the day-age theory is entirely scientific: six long periods of time do not reconcile with “geological facts” (Buckland, 1837:17-18). Evidently, Buckland’s exegetical commentary provides little more than a veneer to his science. This is even more evident when he begins to discuss his views on “the progressive stages of animal creation” (Buckland, 1837:167). Here we discover that the days of Genesis, whilst having ordinary lengths, are emptied of any acts of creation. Instead, the origin of plants and animals is ascribed to “immeasurably distant periods” of time far removed from these days (Buckland, 1837:202). Buckland (1837:113, 128) insists that the true account of creation is not to be found in the Bible, but in the rocks.

This is Buckland’s (1837:135, 166, 335, 401, 523, 586) “geological chronology”: a natural history to provide the scaffolding for a “natural theology” or “physico-theology”. But this is where his treatise fails in the same way as that of Whewell’s. Without the historicity of the fall, the fossil record ascribes millions of years of death and suffering to the direct acts of a less-than-benevolent Creator. A theodicy was required. Buckland (1837:131) addresses the problem by redressing death as a divine mercy to creatures that are feeble, disabled and suffering. It is reduced to an “infinitely small” evil that kindly rescues animals from inevitable starvation and a long lingering death (Buckland, 1837:132). Carnivory is portrayed as a blessing: “a dispensation of benevolence” (Buckland, 1837:133).³⁵ As with Whewell, these rationalisations did little to hinder Darwin from rejecting such an unlikeable god. In fact, if anything, Buckland’s views on progressive creation conceded half of Darwin’s argument for evolution: by admitting that “progressive changes”³⁶ in species could be inferred from the fossil record (Buckland, 1837:585; cf. 292-295).

Buckland’s dissertation received high praise in the *Edinburgh Review*. Writing on behalf of those who had little regard for Genesis, one reviewer rejoiced³⁷ to see how Buckland had “removed this stumblingblock” from geology and rescued geologists from the “chains forged by a presumptuous theology” (Anon., 1837:12, 17). Other reviewers were not as enthusiastic. Cannon (1961:21) relates, “Buckland’s treatise satisfied no one, neither Uniformitarians nor Catastrophists, and especially not the old and new Bibliolaters, from whom it called forth several agonized protests.” In particular, the scriptural geologist, William Cockburn (1773-1858) (1845:42), lamented:

³⁵ What this explanation concedes may be worse than what it solves: the fact that an intelligent First Cause could only create defective, suffering Creatures for a world that could not sustain them without the intervention of carnivory and death.

³⁶ Here Buckland (1837:585) tries to distance himself from Lamarck who argues for the “derivation of existing species from preceding species, by successive *transmutations*”.

³⁷ This reviewer claims, “We have ourselves never perused a work more truly fascinating, or more deeply calculated to leave abiding impressions on the heart ; and if this shall be the general opinion, we are sure that it will be the source of higher gratification to the author than the more desired, though on his part equally deserved, meed [*sic*] of literary renown” (Anon., 1837:38).

Oh Oxford! so long the seat of learning, religion, and orthodoxy – who could have believed that out of thee should come a cherished voice leading the children committed to thy care directly to infidelity and indirectly to atheism?

4.5.3 William Kirby tries to stem the tide against Genesis

The seventh Bridgewater treatise was written by William Kirby (1759-1850). Like Whewell and Buckland, Kirby played a prominent role in the church, being the rector of Barham for sixty-eight years (Essig, 1965:671). Yet this did little to hinder him from also becoming widely recognised as the “father of entomology in England” (Essig, 1965:670). From 1815 to 1826, he collaborated with William Spence (1783-1860) to produce the “standard text on entomology” in most of Europe for the greater part of the nineteenth century: *Introduction to entomology* (Clark, 2006:29-30).

Unlike his fellow contributors, Kirby’s Bridgewater treatise, *On the history, habits and instincts of animals* (1835), stands out as distinctly conservative and radically out-of-step with the general Genesis trend in the nineteenth century. Where others had tried to diminish the role of Scripture in science, he eagerly sought bring the two together again (Kirby, 1835:xviii). In the first paragraph of his treatise, Kirby (1835:xvii) maintains that, “in order rightly to understand the voice of God in nature, we ought to enter her temple with the Bible in our hands.”³⁸ Kirby (1835:xix-xxiii) claims that “grievous errors” arise when scientists ignore the word of God, citing two cases in point: Laplace, in his speculations concerning a primitive nebulous cause for the universe; and Lamarck, when he thinks that organisms can undergo transmutations because of their desires. Where many of his contemporaries would insist that the Bible cannot be understood without science, Kirby (1835: xlvi-xlvii) adds, “neither can we perfectly understand his works without the knowledge of his *word*.”

Kirby’s introductory remarks testify to how Genesis was esteemed in the nineteenth century. Comparing the era of Bacon to that of his own generation, he ruefully observes that whilst there is no danger from heterodoxy any longer, a man could easily be persecuted for thinking that the Bible retained any scientific value (Kirby, 1835:xlvi). In particular, he laments how it is the “fashion” to avoid the literal sense of Genesis even in cases where “there is no room for metaphor” (Kirby, 1835:74). But Kirby (1835: lxi-lxviii, 2-27, 36, 39--50, 73-78) is willing to challenge the mainstream narrative. He unapologetically treats Genesis as history: accepting the order of creation; the *imago Dei*; the creation of man on the sixth day; a world created without carnivory, suffering or death; a world that succumbed to sin and consequently all these latter evils; a universal flood and literal ark; and finally, the dispersion of nations from Babel (p. lxi-lxviii, 2-27, 36, 39--50, 73-78). Strangely, he does not comment explicitly on the days of creation or the age of the world. Yet his stance against the non-literal approach to Genesis is unambiguous: “It must be borne in mind that the scriptural account is not a *figurative* one” (emphasis in original; Kirby, 1835:377-378).

³⁸ He adopts this motto from the German naturalist and entomologist, Heinrich Moritz Gaede (1795-1834).

Kirby's reliance on Scripture is evident throughout his scientific treatise. His engagement with the text is rigorous, indicating a thorough understanding and working knowledge of both Greek and Hebrew (Kirby, 1835: lvii-lxii, lxv, lxx-lxxi, lxxviii-lxxix). He does not hesitate to develop his views on the Flood and fossils from his exegesis. Because of what he sees in the first chapter of Genesis. He also rejects the possibility that dinosaurs³⁹ were a separate creation (Kirby, 1835:39-40). The idea of progressive creation meets a similar fate. Kirby (1835:51-52) points out that it makes no sense of the preservation of animals on the ark. Unlike Whewell and Buckland, he both anticipates and addresses Darwin's problem of evil. His answer? Consider the fall of man (Kirby, 1835:13). And in reference to some of the "pestiferous creatures" (like tape-worms and other parasites), he states:

No one can believe that all these instruments of punishment were at work in the first pair when they came from the hands of their Maker, and nothing, except death, can prove with a greater strength of evidence, that he is fallen from his original state of integrity and favour with God, than such an army of scourges set in array against him. (Kirby, 1835:325)

For Kirby (1835:377, 386-387), geology and the fossil record furnish substantial proof of the Noachic deluge. There is true harmony between the text of Genesis and discoveries of science. Kirby was an anomaly in the nineteenth century. Charles Babbage (1791-1871), however, was not.

4.5.4 Charles Babbage makes God the programmer of a closed system

Babbage was a mechanical genius and polymath, a veritable "forerunner of the information age" by designing the first prototype of the modern computer⁴⁰ (Halacy, 1970:2; Whalen, 1999:250-251). But to his disappointment and frustration, it could not be built (Collier & MacLachlan, 1998:10; Snyder, 2011:5). The technology required at the time was not available to him (Collier & MacLachlan, 1998:104). Yet, this did not stop him from describing the world itself as a large computer with God as its "divine programmer" (Snyder, 2011:195; Halacy, 1970:98). These ideas made their way into *The ninth Bridgewater treatise* (1838), and from there into Robert Chambers' (1802-1871) infamous *Vestiges of the natural history of creation* (1844)⁴¹ which, in turn, proved highly influential in the development of Darwin's *Origin of Species* (1859) (Snyder, 2011:195).

Whilst there had been eight treatises officially sponsored by the Earl of Bridgewater, Babbage cheekily funded and published his own. It was, in part, a direct response to Whewell's own treatise that had been published four years earlier (Babbage, 1838:iv). Babbage (1838:xii) was irked by a paragraph in *Astronomy and general physics* concerning the relevance of mathematics to natural theology. Whewell (1834:334) had stated that mathematicians had nothing useful to offer on the "administration of the universe". Being a mathematician himself, he took this as a personal attack. Babbage's treatise sought to address this

³⁹ Kirby (1835:33-34) believes that some dragons may still exist and dwell under the earth.

⁴⁰ Collier and MacLachlan (1998:111) qualify the impact of Babbage's unbuilt machine on future computers and the computing age by making the point that "while he cannot be credited with the engineering detail of electronic computers, he was very much their intellectual and spiritual ancestor and a heroic pioneer of the new computer era."

⁴¹ Hereafter abridged as *Vestiges*. For more discussion on Robert Chambers and *Vestiges*, see section 4.11.

contention by showing how mathematics and his “calculating engine” could be used to explain how God engineered and programmed the world at the beginning.

To this end, Babbage (1838:33) argues that the laws of nature can be approximated by the programming instructions that govern his engine. In his analogy, the world is God’s engine, designed and programmed by him to behave autonomously throughout all ages without any intervention (Babbage, 1838:41). Babbage (1838:24) does not believe in divine providence, because this would imply a God who is “perpetually interfering” with his creation. Instead, the laws of nature are seen as inviolable instructions, completely determining all events: past, present and future. Babbage’s universe is, in effect, a closed system. Any miracles, if they are permitted, cannot violate the laws of nature. Therefore, a miracle must be defined as “an effect which is not the consequence or effect of any *known* laws of nature” (emphasis mine; Babbage, 1838:121; 1864:489).

The miracles that Babbage has in mind are those imposed by progressive creationists (like Buckland) who need them in order to explain the introduction of new species at distinct moments in geological history. Here Babbage (1838:48-49) does not dispute the reality of “abrupt” transitions in the fossil record; all he proposes is that these changes be attributed to “new subsidiary laws” arising from a “more comprehensive law” that was inaugurated at the beginning of time. This primary law is said to govern all the transformations that take place in nature, and is therefore in complete accord with Darwin’s law of transmutation (Babbage, 1838:50). Both men argue for a world completely reducible to the laws of nature. It is even possible that some of Darwin’s initial inspiration came from one of Babbage’s public presentations on the subject in 1832.⁴²

Babbage (1838:54, 63-64), like Darwin, has little patience for “darkened intellects” who derive the history of creation from Moses, presuming the world to be only six thousand years old in the face of obvious evidence to the contrary. Only those who are “incapable of observing facts”, guilty of “moral turpitude” and “gross ignorance” could suggest such things (Babbage, 1838:67-68, 70). Babbage (1838:70) warns that doing so will make the inspired text nothing more than a “forgery”. His apparent concern is to rescue Moses from embarrassment (Babbage, 1838:71). But despite these protestations, Babbage (1838:73-75) does not believe that the Bible is anything more than mere human testimony. On his terms, the autographic text of Genesis has been lost forever. All that remains are corrupted copies of the original in a language which itself has “so far changed as to prevent us from understanding generally the history it narrates” (Babbage, 1838:77). The apparent proof of this corruption is inferred directly from the “irresistible evidence” of “millions of years” (Babbage, 1838:78-79). His treatise ends with a common warning, summoning the spectre of Galileo to the fore:

We must not imitate the bigoted Romanists who imprisoned Galileo; and step forward Bible in hand (like the profane Israelites carrying the ark of God into the field of battle) to check the

⁴² Darwin was a regular guest at Babbage’s soirées (Browne, 1995:354, 404, 428). Snyder (2011:194-195) even asserts that Darwin was present to hear Babbage make the comparison between his Difference Machine and God, which may have allowed him to plant a provocative thought in the young naturalist’s mind.

inquiries of the Geologist, the Astronomer, or the Political-economist, from an apprehension that the cause of religion can be endangered by them.⁴³ (Babbage, 1838:174; Whately, 1837:53)

For someone who had very little respect for Christianity,⁴⁴ Babbage did not hesitate to lecture others on how to read the Bible.

4.6 Hugh Miller promotes the day-age theory

Unlike Babbage, Hugh Miller (1802-1856) was a serious-minded Christian who served as a well-respected minister in the church. In 1843, at the Great Disruption, when more than four hundred ministers left the state church, Miller (1873:472-479) helped establish the Free Church of Scotland.

Miller was a close friend and admirer of Chalmers.⁴⁵ And like Chalmers, he excelled not only in theology, but also science. For his geological accomplishments, Miller has been called “the supreme poet of geology” and the “Victorian equivalent of David Attenborough” (Jackson, 2004:94; O’Connor, 2007:393, 414; Francis & Dise, 1997:40). Buckland once said that he “would give his left hand to possess such powers of description as this man” (Haygood, 1866:301). Testifying to such proficiencies, it has been said that Miller’s prose “enthralled the middle-class reading public on both sides of the Atlantic” (O’Connor, 2007:393). But Miller was a troubled man. On the 24th of December 1856, he committed suicide, having literally finished his magnum opus, *The testimony of the rocks* (1857), the day before (Gould and Lincoln, 1857:viii). As it happened, this last fateful project had a singular focus: the reinterpretation Genesis 1-11.

In this final work, Miller hopes to improve upon Chalmers’ attempt to reconcile Genesis with geology. In particular, he is not convinced that the gap theory provides enough room for geology in the text (Miller, 1857:vii, 143, 147-148). Once again, the proposed solution is to extend the six days of creation. Keeping in step with Newton, de Maillet, Buffon and Cuvier, Miller argues that the days in Genesis 1 are actually “prophetic days” spanning “millenniums of centuries” stretching back in time to an unknowable beginning (Miller, 1857:viii). The governing principle of Miller’s (1857:158) exegesis is to avoid any interpretation of Genesis that might contradict the edicts of science. Put simply, his mind is entirely beholden to the infallible authority of “[t]he geologist, in those tables of stone which form his records” (Miller, 1857:178; cf. 175). The Bible, however, is a book completely devoid of science, with authority only to determine “religious truths” (Miller, 1857:189, 192, 280-281). Anyone who appeals to Genesis for scientific facts will end up in “monstrous error” (Miller, 1857: 300-301).

Following the science of the day, Miller (1857:102-103) finds no problem ascribing death, suffering and torture – what he refers to as a “reign of violence” – to a pre-fall world described by God as “good” in Genesis 1. Fully aware of the theological problems created by this framework, Miller (1857:103) leaves the

⁴³ Here he quotes the Archbishop of Dublin, Richard Whately (1787-1863).

⁴⁴ Babbage (2864:11-12) relates in his autobiography how on one occasion he “resolved to raise the devil” by drawing circles in his own blood and reciting the Lord’s prayer backwards. He also used to write parodies of sermons to entertain his friends (Halacy, 1970:3). Babbage (1838:402-403) expresses “utmost disgust” for the Athanasian Creed, preferring to derive his knowledge of God from the world instead of “human testimony” – by which he means the Bible.

⁴⁵ He even spoke at Chalmers’s funeral. In his eulogy, Miller (1864:203) states, “Chalmers, like all the truly great, may be said rather to have created than to have belonged to an era.”

matter unresolved. Geology trumps theology. Or as Miller (1857:212) puts it, “Geology takes up the master volume of the greatest of the natural theologians” and “authoritatively decides” the true history of our world. Miller (1857:231-232) even comes close to accepting a pre-Darwinian form of evolution from fish to reptiles to birds, eventually culminating in man, whom he refers to as, “the sum total of all the animals”.⁴⁶ Distancing himself from Lamarck, however, he calls this progression “Geologic prophecies” (Miller, 1857:232). This line of reasoning, liberated from any absolute adherence to Genesis,⁴⁷ gives Miller (1857:268) room to class Adam as Caucasian and racially profile all non-Caucasian people groups. With uncharacteristic vitriol, he heaps derogatory epithets upon the non-white races of mankind comparing darker-skinned races to pigs and baboons (Miller, 1857:268-270). In apparent disregard for the creation and dissemination of nations from the Tower of Babel, Miller (1857:270) assumes that these “degraded races” have “lapsed from the original Caucasian type.”

Noah’s flood is also subjected to reinterpretation. Appealing to Matthew Poole (1624-1679), Edward Stillingfleet (1635-1699), John Pye-Smith⁴⁸ (1774-1851), and Edward Hitchcock⁴⁹ (1793-1864), Miller (1857:182, 191, 300-319) argues that the Flood was never universal, but the story was embellished by the misconceptions of a scientifically-illiterate bygone generation. Belabouring the point, he states that whenever “plain men” make deductions from Scripture concerning the “truths of physical science”, they are bound to result in “extravagant error” “until corrected by the geologist” or other scientifically competent commentators (Miller, 1857:305-306). Citing Pye-Smith’s views on Genesis, Miller (1857:349) goes so far as to say that if Noah’s flood were understood in literal terms, it would constitute a miracle greater than the resurrection of Jesus Christ.

Reproducing some of Washington Irving’s (1783-1859) dubious historiography,⁵⁰ he resorts to the same hackneyed moralistic tale of Galileo, along with Columbus and all the villains who impeded the progress of science (Miller, 1857:157, 373-377). To avoid such horrors, Miller reduces the account of creation to an idle curiosity of limited religious value.

⁴⁶ In his earlier work, *Footprints of the Creator* (1849), Miller (1849:13-14) explicitly states that Creation and evolution are not antithetical concepts: “God might as certainly have *originated* the species by a law of development, as he *maintains* it by a law of development” (emphasis in original). But because of geological, zoological, and phytological evidence, he rejects the evolutionary hypothesis put forward by Maillet, Lamarck and Robert Chambers (1802-1871), the undisclosed author of *Vestiges of the natural history of Creation* (1844) (Miller, 1849:204-205, 212, 237, 257). Miller (1849:313) regards evolution as a “misreading of the geologic record”.

⁴⁷ This does not stop Miller (1857:229) from asserting, with quotations from Richard Owen (1804-1892) and Louis Agassiz (1807-1873), that this concept of progressive creation somehow confirms Scripture.

⁴⁸ Although Pye-Smith (1855: 186, 249-250, 255-256, 274) views Genesis 1-11 as narrative, he believes that the story does not depict the creation of the world, but describes events restricted to a location in Western Asia. Thus the flood is treated as a localised event of inconsequential geological effect (Pye-Smith, 1855: 116, 148, 265-279).

⁴⁹ As in Miller’s case, although Hitchcock (1839a:16, 21-22) claims that “geology strictly accords with revelation”, it is evident that this is achieved by reinterpreting Scripture to match the “facts of geology”. In his popular book, *Elementary geology* (1840), Hitchcock (1855:351-353) agrees with Pye-Smith’s interpretation of the flood being localised and mostly-placid (see previous note). For further discussion on Hitchcock, see section 6.2.6.

⁵⁰ Irving (1828:77) propagates the idea, now known as the flat earth myth, that Catholics discouraged Columbus from setting sail because they believed the world to be flat. This has been exposed by many historians as demonstrably false (see Stark, 2016:2; Lindberg & Numbers, 1986:342; Gould, 2011a:38-50).

4.7 Mary Somerville, the naturalistic proselytiser

Mary Somerville (1780-1872) has been lauded as the “first great populariser of science”, being crowned “queen of 19th-century science” (Baraniuk, 2017:40-41; Patterson, 1969:311). In 1827, she was asked by the Society for diffusion useful knowledge, founded by Henry Brougham (1778-1868), to rewrite Laplace’s *Mécanique céleste* at a popular level for an English readership (Patterson, 1969:319). The resulting book, *Mechanism of the heavens* (1831), was published four years later and quickly became the standard undergraduate textbook at the University of Cambridge for the next 50 years (Baraniuk, 2017:40-41).

Somerville’s (1831:v, vi, 144) anglicised version of *Mécanique céleste* replaces Laplace’s dogmatic materialism with a more palatable deism that allows for a “great First cause” at the beginning of creation. Accordingly, Laplace’s naturalistic chronology is left untouched, granting the plausibility of a universe millions of years older than the one inferred from Genesis (Somerville, 1831:v, xv, xvi, xvii). Somerville (1831:xlvi) confesses her excitement at the prospect of reconstructing human history to harmonise with this astronomy. But to deal with any objections from the book of Genesis, she also offers a hermeneutic which might be employed to reinterpret the six days as long ages. Quoting from 2 Peter 3:8, Somerville (1831:lxix) suggests that God’s days amount to thousands of years. With this biblical rationale in place, the reader is encouraged to believe that there have been vast epochs of time before the creation of man (Somerville, 1831:395). Thus, via Somerville, Laplace’s nebula hypothesis was repackaged for the next generation of intellectuals in Britain.

Her second book, *On the connexion of the physical sciences* (1834) became John Murray’s best-selling publication for the next twenty-five years, succumbing eventually to Darwin’s *Origin of species* in 1859 (Baraniuk, 2017:41). It remained in print for forty years, going through ten editions, to become one of the most important scientific books to be written in the nineteenth century (Patterson, 1974:273). Unlike *Mechanism of the heavens*, which was largely a translation, *Connexion* was a comprehensive literature review of the current state of the physical sciences (Neeley, 2003:13). *Connexion* continues to promote a several key themes from *Mechanism of the heavens*, but most importantly, the idea that the universe is millions of years old (Somerville, 1834:20, 41, 46, 66, 411). And once again, Somerville (1834:411) resorts to 2 Peter 3:8 as her hermeneutical apologetic to help Christians reinterpret Genesis.

In 1848, she finished her third and “most successful book”: *Physical geography* (Patterson, 1974:275). It went through seven editions and earned her several medals including “the Victoria Gold (Patron’s) Medal of the Royal Geographical Society” (Patterson, 1969:325). In *Physical geography*, Somerville (1855: 21, 29, 32, 37, 45, 56, 80, 161, 480) appeals to Lyell, Cuvier, Murchison,⁵¹ Sedgwick and Darwin to argue that there have been many ages before human beings appeared on earth, and that it is not possible to determine “the actual period of man’s creation” because of “discrepancies in the chronological systems”.

⁵¹ Roderick Murchison (1792-1871) was a renowned British geologist who, along with Lyell, attended Buckland’s lectures at Oxford University (Mortenson, 2004:30). Murchison (1834:3-4), like many of his contemporaries, believed that Genesis should not meddle with geology, citing the story of Galileo as a case in point. Historical reconstruction, in his mind, was perfectly attainable through the study of rocks without any need for written records. His influence on the interpretation of Genesis can be measured from his significant contribution “in working out the Devonian and Silurian systems of strata” (Mortenson, 2004:50).

Again, it is evident that she is aware of how this contradicts Genesis 1, but informs the reader that the days of creation might well encompass “unnumbered ages” (Somerville, 1855:14).

Following Cuvier – and to some extent, Darwin⁵² – Somerville (1855:35) attributes the origin of species to evolution. It is evident that she doubts the account given in Genesis 1-11 because she claims that there is no evidence for the garden of Eden or Noah’s Ark (Somerville, 1855:58). But she does not hesitate to employ the language of Genesis to persuade readers to accept this new cosmology: “time has not yet fully revealed the sublimity of that creation, when God said, ‘Let there be light and there was light’” (Somerville, 1855:323). Somerville was well-placed to influence the world with her popular scientific writings, being friends of Laplace, Herschel, Whewell, Lyell, Sedgwick and Darwin (Patterson, 1969:319, 327-328).

4.8 Adam Sedgwick recants from treating Genesis as history

Adam Sedgwick (1785-1873) was the Buckland of Cambridge. His appointment to the chair of geology even coincided with the commencement of William Buckland’s post at Oxford in 1818 (Lawson, 2004:35). And Sedgwick, like Buckland, believed that Genesis should not meddle with geology. In his early years, encouraged by Buckland’s *Reliquiae Diluvianae*, he toyed with the possibility that “a great diluvian catastrophe” might have had a geological impact on the earth (Sedgwick, 1825:34). But in 1831, he issued a public recantation to the Geological Society of London, calling any geological inference based on Noah’s flood a “philosophic heresy” (Sedgwick, 1834:313).

Consequently, Sedgwick had little time for geologists who appealed to Noah’s flood in their interpretation of rocks and fossils. These were the “idle dreams of an irrational cosmogony” (Sedgwick, 1835:151; cf. 1830:310). Any scientists who approached their studies in such a manner were accused of having “a shameful want of knowledge” (Sedgwick, 1835:150). They have “committed the folly and the sin of dogmatizing on matters they have not personally examined, and, at the utmost, know only at second hand – of pretending to teach mankind on points where they themselves are uninstructed” (Sedgwick, 1835:151). Sedgwick (1835:152) claims that such men are completely inept: “Before a geologist can condescend to reason with such men, they must first learn geology”.⁵³ Evidently, Sedgwick (1835:148-149) believes that the history of the earth is determined by astronomy and geology, not Scripture. Indeed, this truth can only be unlocked by scientists who study the “leaves of nature’s book” to discover the true revelation of God on these matters (Sedgwick, 1835:150). The inferences drawn from the rocks are “exactly true” based on “incontrovertible evidence” (Sedgwick, 1835:26, 149). What Sedgwick (1835:30) means by this is that there have been successive generations of living creatures created in a progressive manner over millions of years. The “few thousand years of man’s existence” depicted in Genesis cannot

⁵² Somerville (1855:330, 466, 483) disagrees with Darwin on the mutability of species – in particular, the evolution of man: “no circumstances whatever can degrade the form of man to that of the monkey, or elevate the monkey to the form of man.”

⁵³ These pejorative remarks have little basis in reality. As Mortenson (2004:233) has demonstrated, there were many competent geologists, like George Young (1777-1848), George Fairholme (1789-1846), John Murray (1786-1851) and William Rhind (1797-1874), who did not share Sedgwick’s anti-Scriptural stance in geology.

account for these vast periods of time (Sedgwick, 1835:25-26). Sedgwick (1835:154-155) therefore has little patience for the various methods of harmonising geology with the six days of creation. Genesis has nothing to say about the history of the world; it is only a “moral history of our race” (Sedgwick, 1835:149). Curiously, Sedgwick’s (1835:26) stance on the Mosaic account did not preclude him from appealing to aspects of the creation story in order to refute *Vestiges of the natural history of creation*⁵⁴ which he called a “phrensied dream”. As his conclusion intimates, aspects of Genesis 1-11 still retained some historicity:

Lastly, and above all, while he rejects the Word of God, (which tells him that God made man and woman in his own image, and breathed into their nostrils the breath of life,) and thinks he can make man and woman far better by the help of a baboon, he believes that he may still remain a good Christian. (Sedgwick, 1845:12)

But Sedgwick’s rejection of the transmutation of species was not enough to placate many churchmen who maintained that his geological position continued to undermine the authority of Scripture. Henry Cole (1792-1858) (1834:6, 9, 72), an Anglican curate, called Sedgwick an “infidel Geologist”, “a public Captain of revelation-denying geologists”; and described Sedgwick’s “new science” as a “revelation-ejecting scientific delusion”. The growing antithesis between geology and Genesis was no secret. From Cole’s (1834:50) perspective, Sedgwick had only two options: to deny his “geological doctrine” or deny the word of God. Sedgwick’s student, Charles Darwin, eagerly chose the latter. In a curious twist of fate, Sedgwick found himself playing the role of Henry Cole in the life of his evolutionary-minded protégé. As in the case of *Vestiges*, Sedgwick (1860:285) thought Darwin’s views on the origin of species were “intensely mischievous” for encouraging a “cold atheistical materialism”.⁵⁵ Sedgwick was prepared to jettison Genesis to accommodate his geology and belief in progressive creation, but he was not ready to give up the agency of a Creator completely. So, although Sedgwick (1890:361) had helped Darwin discover “a law governing the succession of forms”, he had not expected his student to use this law to discount the credibility of creation itself.

4.9 John Herschel provides astronomical reasons to reject Genesis

John Herschel (1792-1871), following in the footsteps of his successful father, William Herschel (1738-1822), became the first person to survey the sky from both the northern and southern hemispheres by telescope (Case, 2018:7). Adding to this, he also wrote the first “explicit treatment of the philosophy of science in English”, entitled *A preliminary discourse on the study of natural philosophy* (1830) (Case, 2018:7). Darwin (1991:371) considered this book to be so magisterial that he said of it, “Scarcely anything in my life made so deep an impression on me”. For the nineteenth century, in Cannon’s (1961:301) estimation, Herschel “was not merely the most famous scientist in England: he was looked up to very much as though he were a god.”

⁵⁴ For further discussion on Robert Chambers and *Vestiges*, see section 4.11.

⁵⁵ In one of his letters to a Miss Gerard, Sedgwick (1890:360) complains about Darwin’s book: “From first to last it is a dish of rank materialism cleverly cooked and served up... And why is this done? For no other solid reason, I am sure, except to make us independent of a Creator”.

When Herschel (1830:38, 304) wrote his discourse on natural philosophy, he was willing to maintain that the subject of origins or creation was a matter of inquiry outside the bounds of natural philosophy. But this does not stop him from asserting that the earth existed for “myriads of ages” before the advent of man (Herschel, 1830:14). He also commends Lyell’s naturalistic replacement for Genesis, *Principles of geology*,⁵⁶ which was published that same year (Herschel, 1830:146-147). In 1836, Herschel (*in* Cannon, 1961:307) wrote a letter to Lyell in which he calls the influence of Genesis on the sciences an “indolent weakness of a priori dogmatism”. Subjecting Moses to his own geological and astronomical convictions, he states:

Time! Time! Time!⁵⁷ – we must not impugn the Scripture Chronology, but we must interpret it in accordance with whatever shall appear on fair enquiry to be the truth for there cannot be two truths. And really there is scope enough: for the lives of the Patriarchs may as reasonably be extended to 5000 or 50000 years apiece as the days of Creation to as many thousand millions of years. (Herschel *in* Cannon, 1961:308)

The geological reasons which precipitated Herschel’s (1872:4-5) position on creation can be found in various lectures on scientific subjects. On his treatment on volcanoes and earthquakes he tells his readers, in a Buffonian manner, that the earth has frequently been at the “bottom of the sea”.⁵⁸ In his lecture on the sun, Herschel (1872:62) suggests that the first human beings arose “millions of ages” after the beginning of creation. These types of claims are found just pages after he has already stated that, “Geology does not pretend to go back to the creation of the world, or concern itself about its primitive state” (Herschel, 1872:3). Herschel’s departure from the Mosaic chronology was also shaped by his astronomical research. In *A treatise on astronomy* (1833), he calculates that starlight has taken almost two million years to reach earth (Herschel, 1833:379; 1912:213).

In *Physical geography of the globe* (1859), he continues to reconstruct the past, citing the “revelations of geology” as “unmistakeable evidence” of this world being so old that its antiquity cannot even be imagined (Herschel, 1867:9, 11). In some passages, this book even resembles Darwin’s *Origin of species*. For example, Herschel (1867:11-12) asserts that new species of animals and plants have been introduced at different stages of history, as “successive creations” in increasing complexity, as the continents submerged and reappeared repeatedly, till at last man arrived on the scene. Darwin eventually sent Herschel a copy of *Origin of species*, which encouraged Herschel to footnote his paragraph on evolution to distance himself from Darwin’s naturalistic version of evolution. Herschel’s (1867:12) evolution required “an intelligence, guided by purpose”. That said, Herschel (1867:12) is cautiously sympathetic towards Darwin’s naturalistic scheme, admitting that the subject is mysterious and open to further investigation. He is even prepared to “emphatically” recommend James Cowles Prichard’s (1786-1848) anthropology as a “great work” on human origins (Herschel, 1867:393). As expected, Prichard (1813:233, 235-236, 254,

⁵⁶ This matter is discussed in more detail in the following section on Lyell.

⁵⁷ It is worth noting that the expression “Time! Time! Time!” was also employed by Herschel’s contemporary, George Scrope (1858:209), to similar ends in his geological treatment on volcanos.

⁵⁸ For similar language concerning geological revolutions and aquatic origins, see Herschel (1867:9, 11-12, 98).

275) also departs from Genesis on this subject, suggesting that the first humans were black or “very similar to Negroes”, being most closely related to the “tribe of monkies”.

Herschel’s prominence in England for the nineteenth century and his close relations with Darwin made his dismissal of Genesis a popular feature in contemporary apologetic works and commentaries. The following commentators all cite the Herschels (William and John) favourably in their discourses on Genesis: Henry, Scott & Doddridge (1835:555), Clarke (1843:34), Murphey (1850:45, 171), Kalisch (1858:24), Hoare (1860:177-178), Groves (1861:22, 26), Jacobus (1867:63), Lange (1869:182), Warrington (1870:113), Arnold (1875:219, 256), Warring (1875:225-226), Whitelaw (1881:23), Gladstone (1885:27, 75), Hirschfelder (1885:17) and Kipp (1893:184). In particular, MacDonald (1856:4, 75), Kalisch (1858:23) and Nisbet (1881:31), cite the Herschels to motivate a long-age interpretation of Genesis. And Kalisch (1858:11) and Kipp (1893:43), under the influence of William Herschel, put forward the nebula hypothesis as a viable interpretive framework for the creation.

4.10 Charles Lyell purges geology of Genesis

Charles Lyell (1797-1875), the next in line to champion the cause of uniformitarianism, was born the same year that Hutton died (Herbert, 2009:39; Reed, 2008:122). Although Lyell began his career as a lawyer, he was eagerly converted to the world of geology after enrolling in two of Buckland’s courses at Oxford from 1817 to 1818 (Lawson, 2004:46). By 1825, he was appointed the president of the Geological Society of London and was given an influential platform from which he could completely eradicate the influence of Genesis on geology. Confident that “the age” would finally accept his “anti-Mosaic conclusions”,⁵⁹ he insisted that geological questions be answered “as if the Scriptures were not in existence” (Brook, 1981:62; Rudwick, 1976:150). In a letter from 1830, he conveyed his agenda to George Julius Poulett Scrope⁶⁰ (1797-1876), a fellow geologist:

I am more anxious than I can tell you that you should hit it off well for Q.R.⁶¹ Of such an article as many reviews would jump at, there is no fear; but if Murray⁶² has to push my vols., and you wield the geology of the Q.R., we shall be able in a short time to work an entire change in public opinion. (Lyell, 1881:273)

Not surprisingly, Lyell’s 3-volume magnum opus, *Principles of geology* (1830–1833), was deemed “theologically radical” (Browne, 2006:30). In the first volume, Lyell (1830:76) complains that Scriptural geology has hampered the progress of science by distracting men with “fabulous tales”. It was only when

⁵⁹ This phrase comes from a letter he sent Murchison in 1829 (Mortenson, 2004:225-226).

⁶⁰ Scrope (1825:242) shared Lyell’s unwavering confidence in uniformitarianism, constructing a history of the earth entirely from natural processes which “are all still in operation”. Equally synonymous with Lyell, he maintained a low view of Genesis and denied the historicity of Noah’s flood, calling any geological inferences made from it, “false, foolish, and mischievous” (Scrope, 1825:242-243; 1858:207-208). According to Scrope (1862:3), the “true history of our planet’s surface” depends upon geology, not Genesis.

⁶¹ i.e. the *Quarterly Review*

⁶² i.e. John Murray III (1808–1892), the publisher

enlightened “men of superior talent” realised that they had been “blinded by authority”, did they finally discover that Genesis was geology’s nemesis (Lyell, 1830:30, 72, 76, 302).⁶³

In the second volume, Lyell (1832:11, 179) applies his geological framework to the organic world which leads him to believe, like Buckland and Sedgwick, in the “successive creation of species” followed by their “successive extinction” over many millennia. Although this seems to support the “doctrine of the transmutationists”, Lyell (1832:8-9, 47, 60) insists that this inference is too tenuous.

In his third and final volume of the *Principles of geology*, Lyell (1833:97) continues to reiterate how dependence on Genesis 1-11 has impeded the progress of science. Appealing to John Fleming (1785-1857),⁶⁴ a Scottish clergyman and geologist, Lyell (1833:271-274) belabours the point by presenting the flood in Genesis 6-9 as a placid phenomenon not violent enough to effect radical changes in the topography of the globe, and therefore inapplicable to geology.

Lyell may have proved unwilling to allow his uniformitarian presuppositions to govern the interpretation of fossils and the origin of species, but Darwin eagerly applied himself to the task. Lyell’s uniformitarianism led directly to Darwin’s evolutionism (Gillispie, 1959:131). Put differently, “Darwin became biology’s Lyell” (Costa, 2009:892). The first volume of *Principles of geology* was published just in time to take aboard the *Beagle* (Darwin, 1958:77). For those enamoured by the Darwinian revolution, Lyell’s book might be “the most important scientific textbook ever written” (Gould, 2011b:152).⁶⁵ Darwin’s (1903a:117) attribution to Lyell speaks for itself:

I always feel as if my books came half out of Lyell’s brain, and that I never acknowledge this sufficiently... the great merit of the *Principles* was that it altered the whole tone of one’s mind, and therefore that, when seeing a thing never seen by Lyell, one yet saw it partially through his eyes.⁶⁶

Of all the many influences contributing towards Darwin’s intellectual development, and consequently, the reception of Genesis 1-11, Lyell was, arguably, the most important (Rajendran, 2009:855). Browne (2006:33) goes so far as to claim that, “Without Lyell... there might not have been any Darwin”. But Lyell also left an indelible impression upon an amateur geologist named Robert Chambers (1802-1871). In one of the nineteenth century’s most provocative books, Chambers (1845:52, 128, 133) applied Lyell’s uniformitarian “history of the earth” to the “history of life” (Young, 1970:15-16; Browne, 1995:461).

⁶³ Like Sedgwick (1835:152), Lyell (1827:482) dismisses any Scriptural geologists as “wholly destitute of geological knowledge” and “every page of their writings proves their consummate incompetence.” In this way, as Gould (1975:16-17) relates, “Lyell relied upon true bits of cunning to establish his uniformitarian views as the only true geology. First, he set up a straw man to demolish. In fact, the catastrophists were much more empirically minded than Lyell. The geologic record does seem to require catastrophes: rocks are fractured and contorted; whole faunas are wiped out. To circumvent this literal appearance, *Lyell imposed his imagination upon the evidence*. The geologic record, he argued, is extremely imperfect and we must interpolate into it what we can reasonably infer *but cannot see*.” (emphasis mine)

⁶⁴ Fleming (1826:213-215) advocated the notion of a tranquil flood in order to uphold the “authority of the Mosaic history” by reinterpreting Genesis 6-8 to conform to the “discoveries of modern science”.

⁶⁵ Even John Herschel (1792-1871) esteemed Lyell’s book highly. In a letter to Lyell, he claims to have read the *Principles of geology* three times “with increased interest” (Herschel *in* Cannon, 1961:305).

⁶⁶ In gratitude to Lyell for his *Principles of geology*, Darwin dedicated to him the *Journal of Researches* from his voyage on the *Beagle*.

4.11 Robert Chambers arouses a growing interest in evolution

In 1844, Chambers anonymously published *Vestiges of the natural history of creation*. It quickly became the most controversial book of its time, a Victorian sensation, fuelling spirited discussions and debates, stimulating lengthy reviews in print and from pulpits (Secord, 2000:1, 3, 11-13, 18, 34, 37, 39). *Vestiges* was sacrilegiously iconoclastic, supplying secular fodder for “freethinking plebian radicals”⁶⁷ (Secord, 2000:17, 36). It was a book eagerly read. *Vestiges* sold more than 25,000 copies by 1860 (Young, 1970:16). Initially, even *Origin of species* was less successful, selling only “16,000 copies by 1876 and 47,000 by 1895” (Young, 1970:16).

From Chambers’ (1845:405-406) perspective, his book was the first serious attempt explain the history of creation naturalistically. In essence, the origin of all things, organic and inorganic, reduces down to two laws:⁶⁸ the law of gravity and the law of development (Chambers, 1845:366). To achieve this end, *Vestiges* takes the reader on a journey from the beginning of time when all was merely “a diffused mass of nebulous matter” to a world populated by plants, animals and humans (Chambers, 1845:20). All the changes along the way are due to natural laws acting independently of God, although they are ultimately a result of his initial “primitive almighty will” (Chambers, 1845:25-26). Chambers (1845:22) argues that this evolutionary version of history presents the world with a “sublime chronology”. What he is doing at this point is, in fact, advancing a theological argument for evolution. He asserts that cosmogonies based loosely or strictly on Genesis do a disservice to the grandeur of God. But by reducing everything to natural laws, Chambers (1845:160-161) declares that God is “infinitely exalted” and the resulting scheme is “[m]uch more worthy of him”. Strategically, he suggests that if Moses is read with an “awakened mind”, the reader will find that there is harmony between Genesis and science (Chambers, 1845:159). Chambers is obviously not naïve about the authority that Genesis holds over a significant portion of his readers (Chambers, 1845:406-407). Not questioning the immutability of his science, he proposes a “liberal interpretation”: all that pertains to the “mode of creation” in Genesis must be treated as irrelevant literary glosses (Chambers, 1845:159-160, 407). Echoing Buckland’s maxim, Chambers (185:159-160) states that the text only tells us *that* God has created, not *how*. Thus, by reducing Genesis to a bare minimum, all textual objections to his evolution suddenly disappear (Chambers, 1845:160). This approach, he tells us, will protect the reader from the “less enlightened of our race” and rescue them from the foolish doctrine of creation, arising from ignorance (Chambers, 1845:160-161). Pushing this argument even further, Chambers (1845:161-162) claims that evolution provides the Christian with a powerful apologetic for the existence of God.

In addition to the theological reasons given for his naturalistic view of history, Chalmers (1845:3-19, 27, 40, 50-51, 56, 72, 153, 190-192, 226-227, 231) appeals to the nebular hypothesis, geology, fossils,

⁶⁷ Secord (2000:37) relates that “the country’s most notorious woman atheist” advertised “an entire series of lectures on the book”.

⁶⁸ Chambers (1845:366) adds that these two laws might be “only branches of one still more comprehensive law... flowing immediately from the One who is First and Last.”

embryology,⁶⁹ zoology, phrenology, spontaneous generation,⁷⁰ electricity,⁷¹ and the transmutation of species⁷² via reproduction and gestation. He also cites numerous scientific authorities including Herschel, Lyell, Cuvier, Buckland,⁷³ Owen, Copernicus,⁷⁴ Babbage⁷⁵ and even Darwin⁷⁶ (Chambers, 1845:44, 52, 56, 57, 110, 119, 130, 153, 191, 210-217).

With Genesis out of the way, Chambers redefines mankind on his own terms. And without the *imago Dei*, man is an evolved animal (Chambers, 1845:343). Of course, as with Kant, Chambers (1845:314) places Europeans right at the end of the evolutionary process, after “the Negro, Malay, American, and Mongolian nations”.⁷⁷ Skin colour becomes the measure of evolutionary development (Chambers, 1845:315-316).⁷⁸

Chambers is aware of the theological ramifications that follow from espousing an evolutionary cosmogony. If God used evolution to “create” all things, how can God be exonerated from all the death and suffering he employed in the process? Investing the language of Genesis 1:31 with new meaning, Chambers (1845:386-387) argues that death should be seen as a blessing not a curse because death eliminates the weak and inferior, so that “upon the theory of law, everything is very good.” Finally, after demonstrating how Scripture can be altered to accommodate his evolutionism, Chambers (1845:408) advances the following conclusion in the last sentence of his treatise:

Thus we give, as is meet, a respectful reception to what is revealed through the medium of nature, at the same time that we fully reserve our reverence for all we have been accustomed to hold sacred, not one tittle of which it may ultimately be found necessary to alter.

Given that Chambers was a “moderate deist” who “hated evangelical enthusiasm” and kept God distant, this professed “reverence” for Scripture is both insincere and deceitfully manipulative (Secord, 2000:85).⁷⁹ Early critics were not fooled by these “dishonest principles and methods of persuasion” to try and soften an “undisguised materialism” (Churchill, 1851:600, 606). In a letter to Lyell, Sedgwick (1890:83) judged

⁶⁹ Echoing the speculations of Erasmus Darwin, Chambers (1845:72, 153) asserts that the development of embryos recapitulates the process of evolution. He states, “every individual amongst us actually passes through the characters of the insect, the fish, and reptile, (to speak nothing of others,) before he is permitted to breathe the breath of life” (Chambers, 1845:242).

⁷⁰ Chambers (1845:190) provides examples of spontaneous generation of insects out of “gelatinous matter” from William Henry Weekes’ (1790-1850) experiments with potash and electricity.

⁷¹ According to Chambers (1845:172) plants evolve due to “the result of a law in electricity”.

⁷² The example he provides is of oats evolving into rye (Chambers, 1845:226-227).

⁷³ Buckland rejects “evidence of the Noachian deluge”, which helps Chambers (1845:140) advance his argument.

⁷⁴ Chambers (1845:191) encourages those who doubt the possibility of spontaneous generation to consider how Copernicus was rejected in his time by those who were ignorant.

⁷⁵ Chambers (1845:210-217) quotes extensively from Babbage’s discussion of the calculating machine in the ninth Bridgewater treatise. This helps him illustrate how, in the absence of God’s providence, natural laws could sustain evolution over vast ages.

⁷⁶ At this stage Darwin was still making a name for himself, having just completed his voyage on the Beagle and written articles on various species indigenous to the Galápagos Islands (Chambers, 1845:110). The world had to wait a further fifteen years for *Origin of species* to be published.

⁷⁷ He explains, “*The leading characters, in short, of the various races of mankind, are simply representations of particular stages in the development of the highest or Caucasian type.* The Negro exhibits permanently the imperfect brain, projecting lower jaw, and slender bent limbs, of a Caucasian child, some considerable time before the period of its birth” (emphasis in original; Chambers, 1845:315).

⁷⁸ He states, “colour is deepest in the least perfectly developed type” (Chambers, 1845:316).

⁷⁹ The content and overall argument of *Vestiges* is enough to validate this religious appraisal of Chambers. That said, in his memoirs, his brother William mentions the curious fact that Robert had been working on an unfinished manuscript entitled, *the Life and Preachings of Jesus Christ, from the Evangelists* along with “a number of prayers, and graces to be said at meals” (Chambers, 1872:323). Unfortunately, the content of these are unpublished and therefore unknown.

the book as “false, shallow, worthless”, and responsible for promoting “Gross credulity and rank infidelity”. The implications of *Vestiges* were well understood from the beginning:

If the book be true, the labours of sober induction are in vain; religion is a lie; human law is a mass of folly, and a base injustice; morality is moonshine; our labours for the black people of Africa were works of madmen; and man and woman are only better beasts! (Sedgwick, 1890:84)

Therefore *Vestiges* was criticised and censured by both the church and many prominent scientists as patent nonsense (Secord, 2000:37, 383-384). Yet, even with these failings, the world eagerly received and read *Vestiges*. As Browne (2006:51) surmises, “It was a book that tapped into the progressive aspirations of the age.” The zeitgeist of the nineteenth century was evolutionary at its core (Secord, 2000:39-40). Genesis would be replaced at any cost; or as Lyell put it, “the popularity of *Vestiges* arises from any theory being preferred to... a series of miracles” (Yeo, 1984:20). Consequently, both Alfred Wallace (1823-1913) (1898:138) and Darwin were easily excited by *Vestiges*. And despite some misgivings, Darwin (1861:xv-xvi) offers this tribute:

The work, from its powerful and brilliant style, though displaying in the earlier editions little accurate knowledge and a great want of scientific caution, immediately had a very wide circulation. *In my opinion it has done excellent service in calling in this country attention to the subject, in removing prejudice, and in thus preparing the ground for the reception of analogous views.* (emphasis mine)⁸⁰

In a sermon preached four days after Chamber’s burial, a Reverend Mr L. Tuttiett declared that he had “very greatly served the cause of religion, by humanising and elevating the mind, and thus prepar[ed] it for the direct teaching of divine truth” (Chambers, 1872:345). The converse, however, was true. If Chambers had prepared the world for anything, it was not the reception of “divine truth” but the doctrine of Charles Darwin.

4.12 Charles Darwin, the archetype of the European Enlightenment⁸¹

Darwin has been called the “greatest scientist who ever lived” for writing “one of the greatest scientific books ever written” containing “the single best idea anyone has ever had” (Hopkinson, 1894:121; Reidy et al., 2007:131; Browne, 2006:1; Dennett, 1996:21; Rajendran, 2009:854; c.f. Bergman, 2011:108).⁸² Such superlatives beggar belief until it is understood how and why Darwin came to be revered by so many.

Fundamentally, Darwin’s greatness is inseparable from the central focus of his life and writings: his “vital mission to discredit the supernatural”, “to release men and women from the hegemony of the supernatural” and to provide the world with “a secular religion – a full-fledged alternative to Christianity” (Berry et al., 2009:98; Mellman & Warren, 2000:99; Ruse, 2000:B3). Therefore, before he ever embarked

⁸⁰ Some readers even thought *Vestiges* had been written by Darwin (1887c:333) – to which he was both “much flattered and unflattered.” Not surprisingly, as Secord (2000:39) explains, “*Vestiges* was the one book that all readers of the *Origin of Species* were assumed to have read.”

⁸¹ A significant portion of this section has been adapted, with permission, from my previous dissertation on Charles Darwin’s *Origin of species* and *Descent of man* (Dubois de Ricquebourg, 2011).

⁸² As Jonathan Wells (2006:71) has wryly pointed out, “You’d think Darwin created the internet.”

on his intellectual quest to find an origin for species, Darwin (1958:86-87) first rejected the God of Genesis:

But I had gradually come, by this time to see that the Old Testament from its manifestly false history of the world, with the Tower of Babel, the rainbow as a sign, etc., etc., and from its attributing to God the feelings of *a revengeful tyrant*, was no more to be trusted than the sacred books of the Hindoos, or the *beliefs of any barbarian*... By further reflecting that the clearest evidence would be requisite to make any sane man believe in the miracles by which Christianity is supported... I gradually came to disbelieve in Christianity as a divine revelation... *I can hardly see how anyone ought to wish Christianity to be true*; for if so the plain language of the text seems to show that the men who do not believe, and this would include my Father, Brother and almost all my best friends, will be everlastingly punished. *And this is a damnable doctrine.* (emphasis mine)

This hostility is not surprising, given that his own grandfather, Erasmus, was a committed deist and sceptic of Scripture; his father, Robert Darwin (1766-1848), an outspoken atheist, and Darwin's older brother, Erasmus, even more so (Herbert, 2009:8). On his mother's side, his grandfather, Josiah Wedgwood (1730-1795), made sure that the family was well-versed in the radical tenets of Unitarianism,⁸³ after the likes of Priestley,⁸⁴ whom Josiah greatly admired (Herbert, 2009:9-11).

Darwin's later education did little to abate the radical orientation of his early childhood. He initially enrolled at Edinburgh University, known as a haven for all those united by their anti-Christian sentiment and partiality for Enlightenment (Herbert, 2009:17). There he learnt to distrust Genesis under the tutelage of lecturers like Robert Grant (1793-1874) who was a committed evolutionist and admirer of Lamarck and Darwin's (1958:49) own grandfather. Moving to Cambridge University in 1828, he considered pursuing a career in the Church of England, anticipating that this might afford him time to pursue his real interests in the natural sciences (Herbert, 2009:23). The theological training he received to this end "blended indistinguishably into politics" (Browne, 1995:91). At the end of Darwin's (1903b:31) degree, he thought that Ussher's date of 4004 BC was part of the inspired text. Consequently, the only theology which Darwin (1958:59) recollects is his study of natural theology⁸⁵ in Paley's *Evidences of Christianity* and *Moral Philosophy*. He was also instructed by Sedgwick who, like many others at Cambridge,⁸⁶ attributed greater authority to geology than Genesis on the subject of origins.⁸⁷ These are just a few of the intellectual seeds which would germinate and grow in Darwin's mind, finding their fruition in his inevitable stance:

⁸³ When he was eight years old, in 1817, Darwin (1958:21-22) was first sent to the Unitarian Chapel day-school in Shrewsbury where he stayed until his mother died later that year.

⁸⁴ See section 3.21 for the discussion on Priestley.

⁸⁵ Mayr (1982:309) makes the observation: "Curiously, it was theology, in the form of natural theology, which prepared the way for evolutionary thinking to a far greater degree than philosophy." Bergman (2006:29) even suggests that *Origin* can be seen as a rewrite of Paley's *Natural theology* (1802). In fact, both Paley and Darwin subject the created order to the same Enlightenment methodology: human reason – but arrive at antithetical results. Where Paley concludes with design and a designer; Darwin concludes with chance and natural selection. In retrospect, it was to the detriment of Paley's argument that he never appealed to an authority higher than human reason.

⁸⁶ As Mortenson (2004:38) relates, "Probably more than any other group, the Cambridge network contributed to the 19th century theological revolution in Britain, which saw the traditional orthodox view of Scripture held by evangelicals and high churchmen dwindle into relative insignificance."

⁸⁷ Ironically, Sedgwick eventually became one of the biggest critics of Darwin's *Origin of Species* (Herbert, 2009:32).

Science has nothing to do with Christ; except in so far as the habit of scientific research makes a man cautious in admitting evidence. For myself I do not believe that there ever has been any Revelation. (emphasis in original; Haeckel, 1882:60)

When Darwin set out to investigate the origin of species, Genesis had already been relegated by most scholars to the realm of mythology (Browne, 2006:2; Snyder, 2011:338). By 1830, hardly any scientists and theologians in England believed that the earth was only six thousand years old (Gould, 1975:16). Even the famous evangelical preacher, Charles Spurgeon (1834-1892) (1856:115; 1857:78), had come to believe that Adam was not the first human being and that the world was “many millions of years” old.⁸⁸ For these reasons, it is unlikely that Darwin was ever made to consider Genesis as anything more than an idle curiosity.

By 1859, Darwin had finished writing the first version of his magnum opus: *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*.⁸⁹ It was an ingenious synthesis of many pre-existing ideas cobbled together imaginatively to finally establish a credible alternative to creation. From 1859, he took a further 12 years to reshape and expand on this book, subjecting the work to six major revisions.⁹⁰

In its final form, Darwin’s *Origin* employed the abiogenesis⁹¹ and transmutational theories of his grandfather, Erasmus; the uniformitarianism of Lyell; the population struggle of Thomas Malthus (1766-1834); the natural selection of Edward Blyth (1810-1873), William Charles Wells (1757-1817) and Patrick Matthew⁹² (1790-1874); Lamarck’s inheritance of acquired characteristics; the embryology of Saint-Hilaire and Haeckel; the scepticism of Hume; the deep time of Laplace, Hutton and Buffon; the logical positivism of Auguste Comte⁹³ (1798-1857), the mechanistic natural laws of Babbage; the utilitarianism of John Stuart Mill (1806-1873); and the evolutionary vision of Chambers (Duboisée de Ricquebourg, 2011:4-15, 33-39). Darwin’s tree of life did not grow upon shallow soils, but instead, had its roots reaching far back into the archives of ancient ideas.

Consequently, when Darwin’s *Origin* came to press in 1859, his thesis was hardly controversial (Browne, 2006:86).⁹⁴ By comparison, *Essays and reviews* (1860), published just four months after *Origin*, stimulated

⁸⁸ In later years, Spurgeon (1886:403) came to recognise the antithesis between Genesis and the “dogma of evolution”, of which he declares, “There is not a hair of truth upon this dog from its head to its tail, but it rends and tears the simple ones. In all its bearings upon scriptural truth the evolution theory is in direct opposition to it. If God’s word be true, evolution is a lie.”

⁸⁹ Hereafter referred to as *Origin*.

⁹⁰ Peckham (2006:9) documents that, “Of the 3,878 sentences in the first edition, nearly 3,000, about 75 per cent, were rewritten from one to five times each. Over 1,500 sentences were added, and of the original and added sentences plus these, nearly 325 were dropped. Of the original and added sentences there are nearly 7,500 variants of all kinds.” During this time he also worked relentlessly on its sequel, *Descent of Man*, which he finished in 1871. Together they encapsulate the full extent of his argument for the naturalistic origin of species.

⁹¹ As MacArthur (2008:9-10) has discerned, there is a great irony to be found in the fact that Louis Pasteur (1822-1825) conclusively disproved abiogenesis only two years after Darwin finished *Origin*.

⁹² Sutton (2017, 2022) presents compelling evidence to show how Darwin plagiarised his central thesis from Matthew.

⁹³ A few years after his Beagle voyage, Darwin was invited, at Lyell’s invitation, to join the exclusive Athenaeum Club. It was here that he read a review of *The course of positive philosophy* (1830-1842) and “saw the usefulness of Comte’s position in eliminating the necessity of God from the operation of a lawful universe” (Herbert, 2009:61).

⁹⁴ The dramatic retelling of this moment is often overstated: “The *Origin of Species* came into the theological world like a plough into an ant-hill. Everywhere those rudely awakened from their old comfort and repose swarmed forth angry and confused” (Henkin, 1963:62).

much more debate.⁹⁵ Over the first ten-year period, only 8,000 copies of *Origin* were sold in Britain (Herbert, 2009:107). *Essays and reviews* (1860), however, sold more than 20,000 copies in two years (Herbert, 2009:112). This did little, however, to hinder the inevitable success of *Origin*. In fact, the greater controversy precipitated by *Essays and reviews* directly abetted Darwin's cause. In one of the essays, Baden Powell⁹⁶ (1796-1860) (1860:139) enthusiastically promotes *Origin* as a "masterly volume" that "now substantiates on undeniable grounds... *the origination of new species by natural causes*" (emphasis in original).⁹⁷ In the same way, Frederick Temple's⁹⁸ (1821-1902) opinion on Genesis in the first essay of *Essays and reviews* elicited a grateful response from Darwin. Temple (1860:47) argues for the infallibility of geology at the cost of Genesis, whilst at the same time suggesting that "historical investigations" will expose errors and "forgeries in that Book". Darwin (1994:419) expressed his "sympathy and our thanks" to Temple for "such enquiries" which "must tend to elicit truth, and to foster a spirit of sound religion" by establishing "religious teaching on a *firmer and broader foundation*" (emphasis mine).⁹⁹ As Altholz (1994:50) has observed, "The intellectual crisis of Victorian faith was a tale of two books": Darwin's *Origin* and *Essays and reviews*.

Thus, whilst the thesis of *Origin* was only deemed moderately provocative in the 1860s, it resonated powerfully with the revolution that was taking place. The 19th century zeitgeist had been looking for an official substitute for Genesis, and it did not take long for enlightened voices cast their vote with Darwin's book.¹⁰⁰ As such, the success of Darwin can be attributed to the many faithful friends who were prepared to propagate his ideas.

Thomas Huxley (1825-1895), Herbert Spencer (1820-1903) and Joseph Hooker (1814-1879) all held strategic positions in both the *Royal Society of London* and the *British Association for the Advancement of Science* and were therefore able to control and promote Darwin's evolutionary ideas from prominent positions in the higher academic circles of British society (Herbert, 2009:112-113). Huxley's (1896:52-53) agenda to discredit the "cosmogony of the semi-barbarous Hebrew" is palpable in his 1860 review of *Origin*, where

⁹⁵ In a letter from Richard William Church (1815-1890) to Asa Gray (1810-1888), Church (1894:157) says he has "no doubt" that *Origin* "would be the subject still of a great row, if there were not a much greater row going on about *Essays and Reviews*."

⁹⁶ Powell was a well-renowned Church of England clergyman and mathematician. In his contribution to *Essays and reviews*, Powell (1860:124, 129) categorically rejects the infallibility of the Bible because of "palpable contradictions disclosed by astronomical discovery with the letter of Scripture", the irreconcilable "discoveries of geology", "the antiquity of the human race, and the development of species". Claiming that only the ignorant and unscientific believe in miracles, he questions whether the "Gospel records" should be treated as history (Powell, 1860:107, 111-112, 115).

⁹⁷ Darwin (1993:39-40) considered Powell an ally in his war against creationists. In fact, just two months before *Essays and Reviews* was published, he wrote to thank Powell for his sympathetic treatment of *Vestiges*: "your work must have had a great effect with philosophical minds in removing prejudices on the subject" and "induced them to give up the doctrine of creation" (Darwin, 1993:39-40).

⁹⁸ Temple's influence in the Church of England can be weighed in light of his appointments as Bishop of Exeter (1869-1885), then Bishop of London (1885-1896) and finally, Archbishop of Canterbury (1896-1902).

⁹⁹ This so-called "firmer and broader foundation" is advocated by other writers in *Essays and reviews*. The Egyptologist, Charles Wycliffe Goodwin (1817-1878) (1860:250-253), in his essay on *Mosaic cosmogony* dissuades people from taking Genesis as anything more than the fallible opinions of primitive men. In the same volume, the Oxford theologian, Henry Bristow Wilson (1803-1888) (1860:201-204), also questions the historicity of Adam and Eve, the flood and the destruction of Sodom and Gomorrah, arguing instead for a more metaphorical approach to Scripture.

¹⁰⁰ This synopsis was apparently evident even during Darwin's lifetime. In his commentary on Genesis, John Muehleisen Arnold (1817-1881) writes, "A theory so bald would never have made any real impression on scientific minds, had there not existed the strong bias of the age, which warped the judgment and predisposed men for its reception. It did not really matter whether it was a new or an old theory, whether of Lucretian, Hindu, or Zoroastrian origin, *if only it were consistent with the spirit of the age*, and in harmony with the materialistic views of many of the savants" (emphasis mine; Arnold, 1875:66).

he derides the “Extinguished theologians” who “lie about the cradle of every science as the strangled snakes beside that of Hercules”. Likewise, Spencer (1891:6-7) who considers any scientific reference to Genesis to be “an insult.” In a similar vein, Hooker, writing to Darwin (1887b:242) shortly after the publication of *Origin* thanked him for “the wonderful amount of facts” he had amassed and his “skill in marshalling them and *throwing them on the enemy*” (emphasis mine). In fact, it was to Hooker that Darwin (1887b:23; 1887c:18) describes his naturalistic thesis against the God of the Bible “like confessing a murder” and refers to “the Pentateuchal term of creation” as “mere rubbish”. Abroad, there was Asa Gray (1810-1888), a prominent American botanist, who eagerly syncretised Darwin’s views with Scripture to help Darwinism gain traction in the church (Browne, 2006:93). Meanwhile, in Germany, Marx also ensured that Darwinism would not be easily forgotten in the 20th century.¹⁰¹ In the 1888 revision of *The Communist Manifesto* (1848), he and Friedrich Engels (1820-1895) believed that their manifesto would “do for history what Darwin’s theory [had] done for biology”¹⁰² (Marx & Engels, 1908:5). In 1873, Marx sent a copy of the second edition of his magnum opus, *Das Kapital* (1867), to Darwin with the following inscription inside: “Mr. Charles Darwin/On the part of his sincere admirer/(signed) Karl Marx” (Gruber, 1961:582). In reply, Darwin (2014:154) naïvely wrote back, “I believe that... this in the long run is sure to add to the happiness of Mankind.”

Darwin was aware of what he was striving for with *Origin*. In his letters he even refers to himself as the “devil’s chaplain” and his ideas as “the devil’s gospel” (Darwin, 1903b:94; 1887b:331). Before he finished the sequel to his magnum opus, *The descent of man*, Darwin (1887c:126) wrote to Bartholomew Sullivan (1810-1890) in June of 1870, “I shall this autumn publish another book partly on man, which I dare say many will decry as very wicked.” Today, Darwin’s treatment of Genesis continues to be viewed in these terms:

First and foremost, *The Origin* is an exorcism of the doctrine of special creation, and conducted by one of the most skilled exorcists science has ever seen.¹⁰³ (Berry et al., 2009:102)

Indeed, this exorcism touches the heart of Darwin’s crusade. Whether or not his arguments withstand scrutiny,¹⁰⁴ the legacy of Darwin is his unwavering antagonism toward the God of Genesis. One of his most zealous propagandists argues this point today stating that, “even if there were no actual evidence in favour of the Darwinian theory... we should still be justified in preferring it over all rival theories” (Dawkins, 1986:287). Indeed, it was Darwin’s *theology* of nature, imbibing a passion to expunge the God of

¹⁰¹ Courtois *et al.* (1999:4) estimate that at about 100 million people lost their lives due to communism in the 20th century.

¹⁰² Imbibing Darwin’s theology of nature, Marx and Engels’ (1908:16) manifesto was predictably ruthless: “a class of laborers, who live only so long as they find work, and who find work only so long as their labor increases capital. These laborers, who must sell themselves piecemeal, are a commodity, like every other article of commerce, and are consequently exposed to all the vicissitudes of competition, to all the fluctuations of the market.”

¹⁰³ This opinion is expressed by Simon Conway Morris, professor of evolutionary palaeobiology in the earth sciences department at Cambridge.

¹⁰⁴ Wallace (1898:142) implies that Darwin’s evolutionism should be taken as axiomatic, with or without evidence: “The only thing discussed now is, not the fact of evolution, – that is admitted, – but merely whether or no the causes alleged by Darwin are themselves sufficient to explain evolution of species, or require to be supplemented by other causes, known or unknown”. Wallace had independently contrived the idea of evolution via natural selection whilst in a trance in Papua New Guinea (Browne, 2006:62).

Scripture completely from the natural world, which has endeared him to millions over the last 150 years (cf. Herbert, 2009:86). He admits as much in a letter written to Hooker in 1870:

My theology is a simple muddle; I cannot look at the universe as the result of blind chance, yet I can see no evidence of beneficent design, or indeed of design of any kind, in the details. (emphasis mine; Darwin, 1903a:321)

This is the true heart of Darwinism: an alternative theology. Herbert's (2009:115) annotations of a passage in *Origin* help illustrate the point:

It may metaphorically be said that Natural Selection is daily and hourly scrutinising, throughout the world, the slightest variations [omnipresence]; rejecting those that are bad, preserving and adding up all that are good [omniscience]; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life [omnipotence]. We see nothing of these slow changes in progress, until the hand of time has marked the lapse of ages and then we see only that the forms of life are now different from what they formerly were. (Darwin, 1859:84)

Using such language, natural selection adopts both anthropomorphic and theistic attributes. Darwin makes Nature the god of his materialistic scheme, and in doing so, he dethrones the God of Genesis. For this reason, Darwin became the Enlightenment's messiah.

After *Origin*, many commentators, whether for or against him, could not afford to ignore Darwin. Among those who reworked Genesis to accommodate the infallible tenets of this new evolutionism were Bradlaugh (1870:26-27), Thompson (1870:38, 54, 78-80), Warrington (1870:109-112, 132), Whitelaw (1881:28) and Kipp (1893:214-216). Among Darwin's dissenters were Jacobus (1867:81-82, 86), Lange (1869:183, 190, 295), Arnold (1875:53-54, 64-98), Warring¹⁰⁵ (1875:178), Exell (1885:17, 30), Hirschfelder (1885:106-109), Delitzsch (1888:v) and Gridley (1913:66-67, 76, 83, 87). Other commentators, being sceptical of Darwin, nevertheless left appreciable room in Genesis 1-11 for his evolutionism should the need arise (Driver, 1904:xxxvi, 32-33, 36, 55, 57; Nisbet, 1881:48-54; Huntingford, 1891:75-77; and Jones, 1897:119-128, 139-140). One way or another, Genesis and Darwin, unequally yoked yet inextricably connected, had begun their troubled marriage.

Today, more than 150 years later, well-renowned commentaries on Genesis continue to engage with Darwin directly and indirectly (Hamilton, 1990:27, 55; Wenham, 1987: xlviii; Matthews, 1996:88, 108; Walton, 2009:125-126, 128-129, 153, 163-166; Kidner, 1967:28, 48, 56; Sailhamer, 2011:37, 195, 202-203; McKeown, 2008: 6, 295).

4.13 Conclusion

At the turn of the nineteenth century, Genesis 1-11 had already been reduced to an irrelevant, intellectually offensive myth by many theologians, philosophers and scientists. This did not mean that Genesis was ignored. Like a scab, these eleven chapters continued to itch; and the scratching would

¹⁰⁵ Although Warring (1875:239) endorses Darwin's geology.

continue. Evidently, the animosity towards Genesis had not yet produced a satisfying answer to the problem of origins. Thus, the 1800s perpetuated a continued onslaught on Moses.

Across Europe and in America, societies like Lunar Society of Birmingham, the Geological Society of London, the British Association for the Advancement of Science, *L'Académie des sciences* the Lyceum of Natural History all played a significant role in undermining the authority of Scripture and the credibility of Genesis 1-11. Mobilised and integrated via networks such as these, Cuvier, Chalmers, Buckland, Miller and others all sort their own ways of reinterpreting or ignoring the text. But without a coherent alternative, all naturalistic and pseudo-naturalistic attempts failed to completely satisfy. In the end, the frustrated and varied efforts of many thinkers over multiple centuries culminated in the work of Charles Darwin. All things considered, it is not hard to see how the theological climate of England had been carefully prepared for him. This allowed the *Origin of species*, despite its conspicuous weaknesses, to become the central rallying point for the Enlightenment.

Indeed, Genesis provides a useful metric when it comes to measuring Enlightenment. It is very hard, if not impossible, to find seminal Enlightenment thinkers who did not engage directly or indirectly with this critical text. Inescapably, this biblical book lies at the heart of the Enlightenment struggle. So, did Darwin make Genesis 1-11 redundant? Ironically, not at all. Hundreds of commentaries on Genesis continued to be written during the course of the nineteenth century and afterwards. But as we will see in the next two chapters, most of these commentaries succumbed, to some extent, to the unrelenting onslaught of a naturalistic worldview – a worldview promulgated by the historical sciences.

Chapter 5. Genesis commentaries before 1830

5.1 Introduction

Before embarking on an analysis of commentaries from 1830 to 1910, it is important to establish how Genesis 1-11 was interpreted and understood prior to the nineteenth century. This is because there are several exegetical trends typical to the nineteenth century that can be traced back to even the first century of the church. The ongoing influence of Augustine, for example, is still noticeable in commentaries from the twenty-first century (see Arnold, 2009:62; Goldingay, 2010:5; Sailhamer, 2011:216-217).

Therefore, to properly understand the true origin of any hermeneutical innovations invented or sustained after 1830, this chapter will provide an analysis of commentaries from the first eighteen centuries. This review will be divided into six epochs: the Ante-Nicene (pre-325), Nicene and Post-Nicene (325-500) periods, followed by the Medieval Era (500-1517),¹ the Reformation and Early Enlightenment (1517-1650), the Radical Enlightenment (1650-1750), culminating in the Late Enlightenment (1750-1830).² Essentially this chapter will examine the interpretation of Genesis from Philo to Lyell. One of the fundamental questions of this chapter is to ascertain to what extent, if any, the interpretation of Genesis 1-11 was influenced by historical sciences prior to the heyday of Lyell and Darwin. Having established this as the norm, it will then be possible to measure the deviation from this norm in the following chapter.

5.2 Ante-Nicene era (pre-325)

It goes without saying the earliest works on Genesis, from their mere antiquity, have been granted centuries of influence, being copied, translated and studied for the longest period of time and over the greatest number of generations (see table 5.1). As such, their value and importance in terms of how we understand Genesis 1-11 can hardly be overstated.

Table 5.1 – Ante-Nicene Works featuring Genesis 1-11

Publication Date	Author	Nationality	Original title
1-50	Philo of Alexandria (c.20 BC-c.50 AD)	Hellenistic Jew (Alexandria)	Quaestiones et solutiones in Genesin et Exodum/Ζητήματα και λύσεις
			De opificio mundi/Περὶ τῆς Μωυσεως κοσμοποιας
			Legum allegoria/Νόμων ἱερῶν ἀλληγορίας των μετὰ την ἐξαήμερον το πρώτον
93-94	Flavius Josephus (c.37-c.101)	Romano-Jewish (Jerusalem)	Ἰουδαϊκὴ ἀρχαιολογία

¹ Despite Marshall's (2017) scepticism of 1517 as a suitable approximation for the commencement of the Protestant Reformation, the commentaries themselves exhibit a perceptible shift in hermeneutics from this date that supports the traditionally held view (Dixon, 2010; Shelley, 1982:253-326; Schaff, 1910:1-4). Refer to section 5.5 for the analysis of commentaries from this period.

² According to Israel (2001:3-7; 2013:vi) the Radical Enlightenment spans the period from 1650 to 1750, with the High or Late Enlightenment beginning in 1750 and ending with the French Revolution in 1789.

Table 5.1 (continued)

Publication Date	Author	Nationality	Original title
132-135	Justin Martyr (c.100-c.165)	Hellenized Samaritan	Τοῦ ἁγίου Ἰουστίνου πρὸς Τρύφωνα Ἰουδαῖον Διάλογος
155-157			Τοῦ ἁγίου Ἰουστίνου Ἀπολογία ὑπὲρ Χριστιανῶν πρὸς Ἀντωνῖνον τὸν Εὐσεβῆ
?			Λόγος παραινέτικος πρὸς Ἑλλήνας
c. 180	Irenaeus of Lyons (c.130-c.202)	Greek (Smyrna)	Adversus haereses
180-185	Theophilus of Antioch (d. 185)	Greek (Antioch)	Apologia ad Autolycum/Θεοφίλου πρὸς Αυτόλυκον
198-203	Clement of Alexandria (c.150-215)	Greek (Alexandria)	Στρώματα
c. 197	Tertullian (c.155-c.220)	Punic-Roman (Carthage)	Apologeticus
198-207			Adversus Hermogenem
200-206			Adversus Juadaeos
			De cultu feminarum
208-211			Adversus Marcionem
			De anima
c. 209			De pallio
c. 213			De monogamia
c. 213			Adversus Praxean
202-211	Hippolytus of Rome (c.170-c.235)	Greco-Roman	Περὶ ὁράσεως τοῦ προφήτου Δανιήλ
c. 215	Origen of Alexandria (c.185-c.253)	Greek (Alexandria)	Homiliae in Genesim; In Exodum homiliae
219-230			Περὶ Ἀρχῶν/De principiis
246-248			Κατὰ Κέλσου/Contra Celsum
c. 221	Sextus Julius Africanus (c.160-c.240)	Greco-Roman (Emmaus)	Chronographiai
c. 303	Victorinus of Pettau (fl. 270, d. 303/304)	Greco-Roman (Slovenia)	De fabrica mundi
c. 318	Athanasius of Alexandria (c.298-373)	Greek-Coptic (Alexandria)	Contra gentes
357-359			Λόγοι κατὰ Ἀρειανῶν/Contra Arianos
310-320	Caecilius Firmianus Lactantius (c.250-c.325)	Roman (Numidia)	Diuinae institutiones
325	Eusebius of Caesarea (c.263-339)	Greek (Caesarea)	Chronicon

The modest objective at this early stage in the review of ancient commentaries will be to ascertain whether any particular school of interpretation prevailed during these years, and if so, to what end. Serving as bookends to the Ante-Nicene period, the review will begin with works from Philo of Alexandria through to Eusebius of Caesarea.

5.2.1 Philo of Alexandria (c.20 BC – AD c.50)

Philo was a Hellenistic Jewish philosopher who lived in Roman Egypt during the time of Jesus Christ. He wrote three treatises on Genesis: *Questions and answers on Genesis*,³ *On the creation of the cosmos according to Moses*⁴ and the *Allegorical interpretation of Genesis II, III*.⁵

In both *Questions and answers* and *On the creation of the cosmos according to Moses*, Philo melds Plato (c.428-c.348 BC) with Moses in both a literal and allegorical reading of the text.⁶ This kind of syncretism is justified by Philo (2001:48) in that he views Moses as a philosopher of equal calibre to Plato, and one who has “reached the very summit of philosophy”. Put another way, for Philo, Plato and Moses have a lot in common, being almost equally inspired to commentate on the world (Sterling, 2001:x). But contrary to Ashwin-Siejkowski (2010:27),⁷ this does not mean that Philo (2001:48-49, 52) believes in an eternal ungenerated universe, but that the world necessarily came into existence *ex nihilo*⁸ by the divine fiat of God.

Philo informs his readers that the literal meaning of Genesis is clear and “known to all”; but he stresses that there is a deeper meaning to be found (Philo, 1953:27, 100-107, 112-114, 121-125, 129-130, 142, 146-151, 156-163, 166, 172). It quickly becomes evident that this “deeper meaning” is preferred by Philo (1953:115, 168) because it allows him to place Plato’s ideas in the mouth of Moses. By way of example, whilst he does not deny the physical creation of the world and Paradise along with its rivers and plants and animals, Philo (1953:2-3, 5) also understands the phrase “before it came into being” (Gen. 2:15) to mean the creation of God’s “incorporeal ideas” from which the “sense-perceptible things on earth” were made. Following Plato’s theory of forms, Philo (1953:3) states that, when God makes man in his image, he makes him after his “intelligible and incorporeal form” so that the physical creation of man is a mere copy of the prototype. Philo (1953:4-5) interprets Paradise as a “symbol of wisdom” in which God plants the tree of life as the apex of this knowledge. The tree of life is also allegorised as the mind of man with the tree of the knowledge of good and evil depicting “prudence” (Philo, 1953:6-7; 2001:88). The four rivers in Genesis 2:10 symbolise four virtues: prudence, moderation, courage and justice, and the serpent represents desire (Philo, 1953:8, 27; 2001:89).

³ Greek title: Ζητήματα και λύσεις; Latin title: *Quaestiones et solutiones in Genesin et Exodum, De opificio mundi* and *Legum allegoria*

⁴ Greek title: Περὶ τῆς Μωυσεως κοσμοποιας; Latin title: *De opificio mundi*; English:

⁵ Greek title: Νόμων ιερῶν ἀλληγορίας τῶν μετὰ τὴν ἐξαήμερον το πρώτον; Latin title: *Legum allegoria*; English: Allegorical interpretation of Genesis II, III.

⁶ Jerome (1999:24) mentions that the Greeks considered Philo’s thought to be so similar to that of Plato, it was said, “Either Plato follows Philo, or Philo Plato.”

⁷ At this point Ashwin-Siejkowski (2010:27) misreads Runia’s (2001:112-113) commentary on Philo, wrongly ascribing these views to Philo when they are actually the views of his opponents.

⁸ Although Philo (2001:48) does not use this expression, his meaning is clear: “it is absolutely necessary that among existing things there is an activating cause” which he calls the “absolutely pure and unadulterated intellect of the universe”, and later, “the Father and Maker”. It is true that Philo (2001:52) does not interpret “In the beginning” in a “temporal sense”; but he nevertheless insists that time cannot be older than the universe itself because both time and matter must come into existence together. This necessarily precludes the eternity of matter. Moreover, he goes on to state that the referent “beginning” should be treated numerically such that heaven was created *first* in the order of Creation (Philo, 2001:52). Given that, according to Philo (2001:52), heaven cannot exist without time or time without heaven, *creatio ex nihilo* is implied. Runia (2001:52) mentions that this is a very controversial topic in Philonic studies, but I am convinced that Philo makes his position conspicuous.

The proliferation of allegory in Philo's (1953:9-10) exposition, however, does not prohibit him from treating the garden of Eden as a real place. And although he treats the serpent as a "symbol for pleasure", at the same time he asserts that at the beginning of time, snakes and other animals literally spoke with human voices⁹ (Philo, 1953:19; 2001:88). In the same way, although Eve is personified as life itself, she is also taken literally as the "source of all generations" (Philo, 1953:30). To explain the repetition of God's acts of creation in Genesis 1 and 2, Philo (1953:12; 2001:53-54) suggests that the first chapter should be seen as a record of God's incorporeal creation that only receives its physical form in chapter two. Moreover, whilst Philo (2001:49) does not deny that God made the world in six days,¹⁰ he is quick to point out that this was not because he needed the time, but because all things that come into existence need to do so in a specific order,¹¹ and six is the "first perfect number". The numbers in Genesis 5 are also subjected to allegorical reinterpretation, with Enoch's age of 165 years¹² being construed as an indication that women are "more powerful" than men "by some inversion" along with the principle of "purification from wrongdoing" (Philo, 1953:51-52).

The God of Genesis is also subjected to Philo's philosophical framework. God is defined as the "greatest and best of causes" (Philo, 1953:5). Whilst he does not have any trouble with the transcendence of this god, any indication of his immanence in creation is abhorrent. The idea of God literally walking in the garden he completely rejects, explaining instead that this is merely the impression of walking, because God never moves (Philo, 1953:24). The *imago Dei*, as represented in Genesis 9:6, is also problematic for Philo (1953:150) because "mortal man" cannot take on the image of the "most high" God. Thus, man is only made in the image of the "second God, who is His Logos" (Philo, 1953:150; 2001:51-52, 85).¹³

When he tackles Noah and the flood, Philo (1953:97-100) suggests that the "deeper meaning" is about floods of passions overcoming the mind, and the high mountains should be seen as the "senses in our bodies". Here he treats the ark as the human body, and the door of the ark as a person's anus (Philo, 1953:73-78, 99, 125). This type of allegorising is not restricted to Genesis 1-11 but continues throughout his commentary on Genesis and Exodus.

Philo's third treatise, *Allegorical interpretation of Genesis II, III*, covers Genesis 2:1-41:24, omitting the first chapter. And in this commentary he largely ignores the literal interpretation of the text, spending most of his energies developing his allegorical flourishes (Sterling, 2001:xi). This is a more technical and philosophical commentary aimed at advanced students (2001:xi-xii). In this treatment, Philo (1981:237-239) is also more emphatic and explicit about what he perceives to be myth in Genesis: as in the case of

⁹ This is most likely based on the apocryphal account found in the *Book of Jubilees* (c. 170-150 BC) where it is said concerning Genesis 3:28, "On that day the mouths of all the animals, the cattle, the birds, everything that walks and everything that moves about were made incapable of speaking because all of them used to converse with one another in one language and one tongue" (Anon., 1989:20-21).

¹⁰ Although Philo allegorises the number six, he does not allegorise the days themselves. Instead, he accepts that "day" in Genesis 1 refers to a necessary measure of time from evening to morning (Philo, 2001:54).

¹¹ Philo (2001:49) states here that "God surely did everything at the same time".

¹² Philo is using the LXX.

¹³ In his *Allegorical interpretation of Genesis*, Philo (1981:167, 205, 207) develops this further, stating that God made two types of men: a heavenly man (immaterial) after his own image and an earthly man (material) out of clay.

Eve being made from Adam's side (Gen. 2:21-22) – which he thinks is absurd if taken literally. Instead, the reader is supposed to understand that the creation of Eve symbolises how God gave “sense-perception” (which is what he understands by “woman”) to “the Mind” (referring to Adam) (Philo, 1981:247-253, 341). The serpent continues to be treated as a symbol of pleasure;¹⁴ the tree of life as goodness; and he construes the protoevangelium of Genesis 3:15 as a philosophical statement on how pleasure is at war with sense in the same way that passion is at war with the mind (Philo, 1981:185, 269-271, 427). Philo (1981:147-149, 159) also categorically rejects as “foolish” the idea that “the world was created in six days or in a space of time at all.”

5.2.2 Flavius Josephus (c.37-c.101)

Flavius Josephus was one of the most important historians from the first century (Chapman & Rogers, 2016:1). His *Jewish antiquities*,¹⁵ which spans the four millennia from creation to the outbreak of the first Jewish-Roman war, begins with a commentary on Genesis 1-11. The hermeneutical approach that he adopts is the literal, plain sense reading of the text.¹⁶ Although, as Thackeray (1961:xiii) points out, Josephus (1961:11, 15, 25, 78, 88, 97, 174-175, 187, 194, 198, 221, 613) often borrows from Philo's commentaries, he does not follow Philo's allegorical method. For Josephus (1961:7-9), Genesis 1-11 is the true literal beginning of human history, which he estimates, using the Septuagint, at “five thousand years”. Thus, along with the six days of creation, he treats the creation of Adam and Eve, the talking serpent,¹⁷ the fall of man, the impressive longevity of the patriarchs,¹⁸ Noah's ark,¹⁹ the flood, and the tower of Babel all as literal history (Josephus, 1961:17-19, 21, 31-33, 39-47, 55-59).

5.2.3 Justin Martyr (c.100–c.165)

Justin Martyr was one of the first Greek apologists for Christianity (Barnard, 1967:4). Although Justin read Philo's and Josephus' commentaries on Genesis, he did not attempt to write his own (Martyr, 1948: 385-386, 390). That said, he does engage with the creation account in at least three of his treatises: *Dialogue with Trypho*,²⁰ *First apology*,²¹ and *Exhortation to the Greeks*.²²

¹⁴ By comparison, Philo (1981:273-277) understands the bronze serpent in Numbers 21 to be symbolic of “self-mastery”, which he sets in opposition to the “serpent of Eve”.

¹⁵ Greek title: Ἰουδαϊκὴ ἀρχαιολογία

¹⁶ That said, Josephus (1961:13) acknowledges that not all of Moses' writings are to be taken in this sense: “some things the lawgiver shrewdly veils in enigmas, others he sets forth in solemn allegory; but wherever straightforward speech was expedient, there he makes his meaning absolutely plain.”

¹⁷ Here he repeats Philo's assertion, from the *Book of Jubilees*, that animals at the beginning of Creation could speak but were deprived of speech after the fall (Josephus, 1961:21, 23).

¹⁸ He explains that they were able to live for hundreds of years because of their superior diet (Josephus, 1961:51).

¹⁹ Josephus (1961:45, 47) cites Berosus the Chaldean (c. fl. 290-278 BC), Hieronymus the Egyptian and Nicolaus of Damascus in their reports of how remnants of Ark still survive “in Armenia on the mountain of the Cordyaeans”.

²⁰ Greek title: Τοῦ ἁγίου Ἰουστίνου πρὸς Τρύφωνα Ἰουδαῖον Διάλογος

²¹ Greek title: Τοῦ ἁγίου Ἰουστίνου Ἀπολογία ὑπὲρ Χριστιανῶν πρὸς Ἀντωνῖνον τὸν Εὐσεβῆ

²² Greek title: Λόγος παραινέτικος πρὸς Ἕλληνας. Although this work is attributed to Justin by Eusebius of Caesarea (c. 260-339), many scholars strongly dispute the authenticity of this treatise (Rufinus, 2016:170; Barnard, 1967:172).

From these works it is evident that Justin understood Genesis 1-11 as Moses' historical record of creation, affirming *creatio ex nihilo*, the first six days,²³ the account of Adam and Eve, the tree of life, the garden of Eden, the curse of the serpent, Noah's flood, and the dispersion of nations from Babel (Martyr, 1948:107, 156, 176-177, 281, 285, 341, 349, 360-361, 384-386, 409-410, 422). This, in turn, leads him to believe that the world has existed for "five thousand years"²⁴ (Martyr, 1948:68).

Justin believes that the "history of Moses is by far older than all the profane histories" (Martyr, 1948:388). He infers that Pythagoras, Plato and Homer have all derived many of their great ideas from the Mosaic account (Martyr, 1948:81, 98, 391, 409, 411, 416). In one instance, Justin even charges Plato with plagiarism (Martyr, 1948:97). As to why Plato never explicitly paid credit to Moses, Justin explains this was due to his fear of hemlock and the plight that befell Socrates (Martyr, 1948:397, 404).

5.2.4 Irenaeus of Lyons (c.130–c.202)

Irenaeus (1872:321, 512, 552) was familiar with the writings of both Justin and Josephus. Osborn (2003:4, 16, 18) even asserts that he derived his "love of truth" and "Platonic insights" from Justin.²⁵ His apologetic approach is significant for this period in that it draws upon the entire Bible for its argument (Edgar & Oliphint, 2009:86). In his treatise against Gnosticism, *Against heresies*,²⁶ Irenaeus often refers to Genesis 1-11. From these interactions, it quickly becomes apparent that he interpreted these chapters as literal history. In particular, he treats Adam and Eve as real people, formed from the ground; the serpent as a real snake embodied by Satan himself; and the flood as an authentic account of God's judgment (Irenaeus, 1872: 67, 80, 189, 295-299, 302, 309, 344, 424, 451, 487-488, 498, 502-504, 518-519). Irenaeus (1872:116, 300, 451, 458-459, 494, 498, 503, 518) also believes that the world was made *ex nihilo*, that the garden of Eden was a real place, containing the two trees mentioned in Genesis 2, and that the early patriarchs lived for hundreds of years as stated in Genesis 5.

In his treatment on the fall of man, he argues that the first Adam sinned on the same day that the second Adam died, in other words, on the sixth day of the week (Irenaeus, 1872:503-504). To make this point, he rejects the idea that 2 Peter 3:8 can be used to reinterpret the "day" in which Adam died to be a thousand years (Irenaeus, 1872:504). Instead, Irenaeus (1872:504) argues that the word "day" in Genesis 1-3 should be taken in its literal sense. Put simply, Irenaeus believes that God made the world in six days. This is corroborated by the way in which he refers back to "the beginning", stating that Adam was formed "in the beginning"; the serpent "lied in the beginning" and was a "murderer from the beginning" (Irenaeus, 1872:487, 504, 498). It is evident from the context of these references that Irenaeus is not merely referring to the beginning of *Genesis*, but rather to the beginning of time or earth history. Furthermore,

²³ Justin even goes so far as to state that the world began on a Sunday (Martyr, 1948:107).

²⁴ Following the LXX.

²⁵ Although Irenaeus (1872:196) is more critical of Plato than Justin.

²⁶ Latin title: *Adversus haereses*

Irenaeus (1872:517) surmises that the world will end after completing a full six thousand years,²⁷ following the pattern of the six-days themselves, which also confirms the fact that he takes the days of Genesis 1 as regular days.

5.2.5 Theophilus of Antioch (d.185)

Whilst Irenaeus provided one of the first systematic treatments that engaged the full canon of Scripture, Theophilus was the first Christian writer from antiquity to quote large sections of the Old and New Testaments in his writings (Grant, 1947:173). And like Justin and Irenaeus, Theophilus was an apologist. In his apology to Autolytus, *Theophilus to Autolytus*,²⁸ he presents the case for Christianity by appealing to the account of creation in Genesis 1-11 (Theophilus, 1970:23). From the beginning of this work, Theophilus (1970:59, 63, 75) argues that the Mosaic account, when compared to the writings of several other philosophers and poets,²⁹ stands forth as the only true historical account of the world.

To establish the superiority of Genesis over other histories, Theophilus treats the hexaemeron as literal history, starting from the first verse of the first chapter. He affirms that the heavens and the earth were made in six days *ex nihilo*, with the sun, moon and stars coming “into existence” only on the fourth day (Theophilus, 1970:27, 45, 51). He believes in a literal Adam and Eve who were placed in a literal garden of Eden with the two prominent trees and the serpent (Theophilus, 1970:63, 65, 67, 71, 73). He states that God, as the divine Logos, the Son, literally walked in the garden with Adam and Eve and spoke with them (Theophilus, 1970:63). Theophilus (1970:57) also takes Genesis 1:29-30 in its plain sense, asserting that mankind and the animals originally had a vegetarian diet. While Plato only allows for a localised flood,³⁰ Theophilus (1970:123, 125) argues that Noah’s flood covered the whole earth.

This does not stop Theophilus, however, from adducing allegorical value from various details in the creation narrative. For example, he sees the resurrection anticipated in Genesis 1:11-12 by seeds turning into “very great trees”, and the islands that appear in the waters resemble churches holding out the truth to a world “tossed by sins” (Theophilus, 1970:50-51). The first three days of creation resemble the Trinity; and on the fourth day, he points out how God relates to man as the sun relates to the moon (Theophilus, 1970:53). Continuing in this vein, he argues that the animals created from the waters on the fifth day depict how God would bless mankind by the “remission of sins through water and a *bath of regeneration*”; the “great fish and carnivorous birds” are reminders of “greedy men and transgressors” who do not “keep the law of God”; and the “quadrupeds and wild animals” made on the sixth day are like those who “are ignorant of God and sin against him” (emphasis in original; Theophilus, 1970:53-55).

²⁷ Here he does rely upon 2 Peter 3:8 to make the case that six thousand years must pass to match the six days of Creation (Irenaeus, 1872:517).

²⁸ Greek title: Θεοφίλου προς Αυτόλυκον; Latin title: *Apologia ad Autolyicum*

²⁹ These include Plato, Homer, Hesiod, Epicurus (341-270 BC), Chrysippus (c.279-c.206 BC), and Aristophanes (445-386 BC) who stated that the world had been laid by bird (Theophilus, 1970:27, 33, 37, 47, 107-111)

³⁰ In *Timaeus* and *Critias*, Plato (2008:9-11; 109-110) offers a brief description of the flood of Deucalion.

Theophilus (1970:83, 129) was familiar with the Egyptian and Chaldean chronologies that contradict Genesis, but he dismisses them as “nonsense”. Following the Septuagint (Vaticanus), he calculates the time period from the beginning of the world to the flood at 2242 years (Theophilus, 1970:135, 143). From this figure, and a few other chronological observations, he estimates that the world is 5695 years old (Theophilus, 1970:145).

5.2.6 Clement of Alexandria (150-215)

Clement was the second prominent Christian philosopher and theologian to arise in Alexandria after Philo. According to Osborn (2008:2), Clement’s knowledge and expertise in Greek philosophy excelled that of any other early Christian writer. It is not known whether Clement ever wrote a commentary on Genesis, but from his *Miscellanies*,³¹ his approach to the biblical account may be inferred from several passages. Here it is evident that he had a high regard for Moses, recognising him to be more ancient than the Greeks and often the source from which they plagiarised their philosophical ideas³² (Clement, 1867:425; 1869:274).

Clement (1867:439; 1869:58, 259) refers to Adam, Eve and Noah as real historical figures. He also affirms that Adam named all the animals in the beginning (Clement, 1867:439). The six days, he treats literally, arguing that their ordering reflects the relative prominence of each act of creation (Clement, 1869:386-389). Thus, man, being the pinnacle of creation, was made last, on the sixth day (Clement, 1896:388). The fact that Clement (1867:441) takes Genesis as history is further supported by the manner in which he calculates, like Theophilus, the time period from Adam to the flood at 2148 years.³³ Following Philo, however, he employs an allegorical interpretation of the tree of life as “divine prudence” (Clement, 1869:264). This would not preclude him from also viewing the tree of life in a literal sense, but there is no further evidence to suggest this to be the case.

Clement (1869:215) clearly states that the universe had a beginning, and that its beginning was dependent upon God “who is without beginning”. That said, his comment on Genesis 1:2 that the earth first created was “invisible and formless” has led critics, like Photios of Constantinople (c. 810/820-893) and more recently, Ashwin-Siejkowski (2010:35, 37), to assert that Clement (1869:274, 276-277) did not believe in *creatio ex nihilo*. But this conclusion is implausible on at least two grounds: firstly, Photios has proved himself to be an unreliable exegete of Clement on other matters; and secondly, Clement’s appropriation of Plato in Genesis 1 never goes so far as to treat creation itself as ungenerated (Ashwin-Siejkowski, 2010:52-53, 142). If Clement follows Philo here, as he does elsewhere, then a plausible case could be

³¹ Greek title: Στρώματα.

³² In reference to Plato and his followers, Clement (1869:274) claims of Genesis 1:2 that the “prophetic expression, ‘Now the earth was invisible and formless,’ supplied them with the ground of material essence.”

³³ As in the case of Josephus and Theophilus, the result he arrives at shows he is also using the LXX. Curiously, he arrives at 2148 instead of 2242 years.

made to the contrary, namely, that he did indeed subscribe to *creatio ex nihilo*.³⁴ At the present, therefore, this must remain a moot point.

5.2.7 Tertullian (c.155-c.220)

While Clement might have been vague on *creatio ex nihilo*, Tertullian was not. In his apology against Hermogenes,³⁵ he makes an unambiguous case for God creating the world out of nothing, grounding his reasoning in Genesis 1 (Tertullian, 1956:29-30, 48-85). That said, not much is known about the life of Quintus Septimius Florens Tertullianus apart from the fact that he wrote most of his works at Carthage and was embroiled in many controversies (Dunn, 2004:2-6). As Dunn (2004:7) observes, his extant writings portray him as an avid debater and apologist.

Like Clement, Tertullian does not leave behind a commentary on Genesis, but his views on this book can be ascertained from his other writings. And from these sources, there is no doubt that Tertullian (1956:52) took the Mosaic record as authentic history to be read in the “literal sense of the word”. Thus, he believes Adam and Eve were the first parents of the human race, with Eve being made from one of Adam’s ribs (Tertullian, 2004:48; 2008b:227; 1868:17, 47; 1920:54, 71; 1885c:61). Tertullian (1885a:6; 1885b:15; 1885c:62; 1868:88; 2004:49, 52; 2008a:103; 2008b:269) also affirms the historicity of Noah and the ark, and contends against Plato’s views that the flood was merely localised. He even cites fossils on the mountains as evidence of a global flood (Tertullian, 1885a:6). Tertullian (1885b:14, 1868:17, 47, 75, 82, 107; 2004:48; 2008b:212, 228, 269) refers to Eden as a real place containing the tree of life and the tree of the knowledge of good and evil, along with the serpent who deceived Eve. Tertullian (1920:72), like Theophilus, maintains that God literally walked with Adam in the garden of Eden.

5.2.8 Hippolytus of Rome (c.170-c.235)

Whilst a number of texts formerly attributed to Hippolytus are now in question, his commentary on Daniel³⁶ remains firmly within the Hippolytan corpus (Brent, 1995:1-2, 88; Salmon, 1892:161-190). In this short work, Hippolytus (1888:39) assumes that Genesis 1 is history, from which he argues that Christ was born in the “five thousand five hundredth year from Adam”.³⁷ Like Irenaeus, he takes 2 Peter 3:8 (along with Revelation 17:10) to mean that the six days of creation predict Christ’s return after six thousand years (Hippolytus, 1888:39-40). To make this eschatological argument, Hippolytus assumes that the timeframe of Genesis 1 and the genealogies in Genesis 5 and 11 should be taken literally.

³⁴ This line of reasoning relies upon the assumption that Philo (2001:48-49, 52) does indeed affirm *creatio ex nihilo*. Refer to 5.2.2.1.

³⁵ Hermogenes was an ancient Athenian philosopher from the 4th or 5th century B.C. who rejected *creation ex nihilo* because he believed this would make God the author of evil (Tertullian, 1956:28). His heretical proposal was that God created the world out of pre-existing uncreated matter (Tertullian, 1956:28-29).

³⁶ Greek title: Περὶ ὁράσεως τοῦ προφήτου Δανιήλ.

³⁷ Following the LXX.

5.2.9 Origen of Alexandria (c.185-c.253)

Origen was one of the most prolific writers in all antiquity, completing between two to six thousand works in his lifetime (Heine, 1981:25). Eusebius (2005:32, 34, 43) states that his “fame was noised about everywhere” attracting followers and disciples from all walks of life. Origen was both a student and “spiritual heir” of Clement,³⁸ who, in turn, introduced him to the writings of Philo and an allegorical methodology that would shape his entire approach to Scripture (Eusebius, 2005:15; Runia, 1993:157; Trigg, 2002:9-11). Although his commentary on Genesis is lost, we still have his *Homilies on Genesis and Exodus*,³⁹ along with two other major works that show us how he handled the Mosaic account of creation: *On first principles*⁴⁰ and *Against Celsus*.⁴¹

Origen’s interpretation of Genesis is mostly allegorical. In his first homily, Origen (1981:47) builds on Philo’s (2001:52) atemporal reading of “In the beginning” and sees “beginning” as a reference to Christ. Likewise, he understands the “heaven” of Genesis 1:1 not as a reference to the universe but rather the place where God has his throne,⁴² as in Isaiah 66:1 (Origen, 1981:48). Then, taking a cue from Luke 8:31, Origen (1981:47-48) construes the “abyss” of Genesis 1:2 as the place where “the devil and his angels” dwell. This kind of allegorising continues: treating the dry land which appears in Genesis 1:8 as the “deeds done in the flesh” and the waters as “the sins and vices of our body”; the fruit that grows is spiritual fruit; and the seeds are seeds of “good works” (Origen, 1981:50-52). Likewise, the lights in the heavens symbolise how we are meant to be lights to the world; the birds and creeping things represent “good or evil thoughts” in the same way that the “great whales” of Genesis 1:21 are taken as “impious thoughts and abominable understands” (Origen, 1981:53-54, 57-58).

This does not mean that Origen completely negates the literal meaning of the text. Although he favours the allegorical interpretation, he states that, “There is certainly no question about the literal meaning” (Origen, 1981:60). For example, on Genesis 1:27-28 he offers both literal and spiritual interpretations of the text (Origen, 1981:67-68). Literally, he acknowledges how both male and female are necessary to multiply and fill the earth; whilst allegorically, male and female represent the spirit and the soul (Origen, 1981:67-68). Again, the idea of dominion has both literal and allegorical meanings (Origen, 1981:68-69). And in Genesis 1:29-30 both the “historical meaning” and its spiritual counterpart are presented together (Origen, 1981:69-70).

In his second homily, Origen continues to apply this two-fold interpretation to the story of the flood. He first treats the account as historical narrative, taking the dimensions of the ark literally,⁴³ explaining how it

³⁸ Emulating Clement, he even wrote his own version of *Stromateis* (Trigg, 2002:10).

³⁹ Latin title: *Homiliae in Genesim; In Exodum homiliae*.

⁴⁰ Latin title: *De principiis*; Greek title: Περὶ Ἀρχῶν.

⁴¹ Latin title: *Contra Celsum*; Greek title: Κατὰ Κέλσου.

⁴² Thus he distinguishes the “heaven” (הַשָּׁמַיִם) of Genesis 1:1 from the “heaven” (הַשָּׁמַיִם) of Genesis 1:8 (Origen, 1981:48). The former is “spiritual” whilst the latter is corporeal (Origen, 1981:49).

⁴³ Part of this homily addresses Apelles, a Marcionite sceptic, who doubted whether the Ark had sufficient room for all the creatures it was built to contain. In his response, Origen (1981:75-77) does not shy away from defends the literal “historical account” by pointing out the scale of the Ark in its dimensions.

could comfortably house all the animals for the duration of the flood (Origen, 1981:69, 72-74). After which, he then suggests to his readers that they “ascend” with him “from the historical account to the mystical and allegorical understanding” of the text (Origen, 1981:72). The spiritual interpretation, he derives this time from Luke 17:26-27. This leads him to believe that the flood depicts the final judgment; the ark represents how the church saves people out of the world; and the “true Noah” or “spiritual Noah” is Jesus Christ (Origen, 1981:77-83).

Origen’s treatise *On first principles* continues to treat Genesis both literally and allegorically. When he mentions Adam, Eve, the serpent, Cain, Enoch, Noah and the flood, he assumes their historicity⁴⁴ (Origen, 1936:2, 19, 35-36, 87, 101-102, 211). He even argues that animals have souls from the literal sense of Genesis 1:20-25 (Origen, 1936:120-121). And, like Philo and Tertullian, Origen (1936:2, 79-80) asserts that God created the world *ex nihilo*.⁴⁵ Yet, even so, he has serious reservations about the literal sense of Genesis 1-3:

What man of intelligence, I ask, will consider it a reasonable statement that the first and the second and the third day, in which there are said to be both morning and evening, existed without sun and moon and stars, while the first day was even without a heaven? And who could be found so silly as to believe that God, after the manner of a farmer, ‘planted trees in a paradise eastward in Eden’, and set therein a ‘tree of life’, that is, a visible and palpable tree of wood, of such a sort that anyone who ate of this tree with bodily teeth would gain life; and again that anyone who ate of another tree would get a knowledge of ‘good and evil’? And further, when God is said to ‘walk in the paradise in the evening’ and Adam to hide himself behind a tree, *I do not think anyone will doubt that these statements are made by scripture in a figurative manner*, in order that through them certain mystical truths may be indicated. (emphasis mine; Origen, 1936:288-289)

Here it becomes apparent that there are some portions of the narrative that, for Origen, defy any literal interpretation. He adds that there are indeed many Scriptures that are “unreasonable to believe could possibly have happened in history”⁴⁶ (Origen, 1936:289). Thus, the exegete is encouraged, in one sense, to demythologise the Bible, discerning those parts which have been “recorded literally” from other parts “which cannot be accepted as history but which contain a spiritual meaning” (Origen, 1936:290). In other words, Origen gives us at least one explanation for why he often prefers the allegorical meaning of a text – it is because he cannot conceive of how it might be understood literally. In his opinion, this is why heretics often read the Bible incorrectly. When they only interpret it “in a literal sense”, they distort its true meaning (Origen, 1926:102).

Finally, in Origen’s (1953:212, 216, 367, 375) apologetic against Celsus (fl. 175-177), he makes frequent reference to his commentary on Genesis which had been completed about eighteen years before this treatise. What we have, therefore, in this treatise, is a mature reflection of what he thought of the Mosaic account. And in many ways it is not discordant with what he had written before. Wherever he engages with Genesis 1-11, he resorts to both literal and allegorical interpretations where it suits him best. Thus,

⁴⁴ Origen (1936:237) also refers to the Mosaic account as the “record of history” that “enlightens” us as to the true origin of the world.

⁴⁵ Although later he questions whether the first verse of Genesis refers to the creation of physical matter (Origen, 1936:321).

⁴⁶ For example, he also dismisses the literal historicity of the temptation of Jesus in the wilderness (Origen, 1936:289).

Adam and Eve, Cain, Noah, the ark, flood and tower of Babel are all taken as part of the historical record (Origen, 1953:40, 217-218, 286, 417-418). But this does not preclude him from allegorising the creation of Adam and Eve, the garden of Eden, the two trees, the serpent and the tower of Babel, (Origen, 1953:198, 213-215, 288). Origen (1953:367, 375) also maintains that the six days of Genesis 1 should not be taken in their literal sense. That said, he clearly accepts the overall narrative as history because, on the basis of the “Mosaic cosmogony”, he states that the world is much younger than “ten thousand years old”⁴⁷ (Origen, 1953:20).

5.2.10 Sextus Julius Africanus (c.160-c.240)

Julius Africanus is esteemed as one of the “most learned of the ante-Nicene fathers”, joining the company of Clement and Origen⁴⁸ (Salmon, 1877:54). He is also regarded as the father of Christian chronography for his impressive work on *Chronographiai*, from which Eusebius derived his own history in the *Chronicon* (Eusebius, explained by Deferrari, 2005:56; Salmon, 1877:55). Although only a few fragments of this work remain, there is enough extant material to ascertain that Africanus understood Genesis 1-11 in its literal sense. In these fragments, he treats Adam as an historical figure, along with the flood and the ark (Africanus, 1886:131-132). But most importantly, he takes the genealogies in Genesis 5 and 11 literally, from which he constructs his chronology of the world (Africanus, 1886:131). And like Theophilus and Clement, he uses the Septuagint – from which he calculates a period of 5500 years from the beginning of creation to the time of Christ (Africanus, 1886:131). Africanus (1886:130) is aware of the longer ages proposed by Egyptian chronologists, but he dismisses them as patently erroneous.

5.2.11 Victorinus of Pettau (fl. 270, d. 303/304)

Victorinus of Pettau served the church both as bishop and martyr (Jerome, 1999:105). According to Jerome, he was greatly indebted to Origen for his ideas and often borrows from him (Wilson, 1887:1128). Victorinus was one of the earliest Latin commentators on the Bible (Lössl, 2019:180). Jerome (1999:105) appraises his writings as “excellent in content” but “inferior in composition” due to his mediocre grasp of Latin (Jerome, 1995:105). Of the works which have survived, his short treatise, *On the creation of the world*,⁴⁹ gives us a glimpse of how he read Genesis 1-11. In this brief commentary, Victorinus (1886:341) asserts that God created “that entire mass” of the universe in six days. On the first day, God made the light and “divided it in the exact measure of twelve hours by day and night” (Victorinus, 1886:341). He explains that, although this light was made on the first day, God made the lights of the sun, moon and stars on the fourth day (Victorinus, 1886:341). Victorinus (1886:341) asserts that man was made from the soil on the sixth day. He also takes the deception of Eve and the story of Noah and the ark as history (Victorinus, 1886:342-343). And employing the same logic as Hippolytus and Irenaeus, he anticipates that Christ will

⁴⁷ Origen (1953:364) takes the “dates of Moses” literally to show that the prophecies concerning Christ predate the Greeks. He also refers favourably to Josephus’ *Jewish antiquities*, which, as seen earlier, grounds its chronological foundation in Genesis 1-11, arriving at a world not older than 5000 years (Origen, 1953:191).

⁴⁸ Africanus and Origen exchanged letters in a disputation over a text from Daniel (Salmon, 1877:54; Eusebius, 2005:56)

⁴⁹ Latin title: *De fabrica mundi*

reign with his elect in the seven thousandth year of the world, which will be its “true Sabbath... in the seventh millenary of years” (Victorinus, 1886:342).

5.2.12 Athanasius of Alexandria (c. 296-373)

Athanasius, the “father of orthodoxy”, is placed by Schaff (1891:885-886) at the “theological and ecclesiastical centre...about which the Nicene age revolves.” For most of his life, he contended against the Arians for the deity of Christ (Schaff, 1891:890). This struggle culminated in the Council of Nicea (325) and a creedal statement “that has defined Christianity to this day” (Piper, 2006:46).

Although Athanasius did not write a commentary on Genesis, his interpretation of Genesis 1-11 is not inscrutable. In his apology, *Against the heathen*,⁵⁰ he treats Adam and Eve as the first human beings who dwell in the garden of Eden, a place “figuratively called Paradise”, in which they fall under the temptation of a serpent (Athanasius, 1971:7, 9). Following Tertullian, he argues that this world is created out of nothing (Athanasius, 1971:115; cf. 1888:240, 277-278). Then, in his treatise, *Against the Arians*,⁵¹ Athanasius (1888:224, 254, 316, 334, 337-338, 413, 418) continues to assert a literal reading of Genesis 1-11, taking Adam and Eve, Cain and Abel, Noah and the ark as history. He believes in a literal paradise, a literal flood and maintains that “all the visible creation was made in six days” according to the order given in Genesis 1 (Athanasius, 1888:275, 334, 413, 418).

5.2.13 Caecilius Firmianus Lactantius (c.250-c.325)

Caecilius Firmianus Lactantius was a highly competent Christian intellectual who earned himself a place “on the payroll” of both Diocletian and Constantine (Bowen & Garnsey, 2003:4). After the Edict of Milan (313), he wrote a famous apology, addressed to Constantine,⁵² against pagan religion and philosophy entitled, *Divine institutes*.⁵³ In comparison with the apologies written before this time, Lactantius’ case for Christianity stands out for its copious references to pagan poets and philosophers⁵⁴ (Bowen & Garnsey, 2003:51).

Unlike the apologies of Origen, Athanasius, Tertullian, Irenaeus and Justin, Lactantius quotes the Bible sparingly (Bowen & Garnsey, 2003:51). But these quotations provide sufficient exegetical engagement with Genesis 1-11 to delineate his hermeneutical approach. He argues for *creatio ex nihilo* and follows the basic order of creation as found in Genesis 1, with the sun, moon and stars being made after the heavens and the earth (Lactantius, 2003:147-148). According to Lactantius (2003:150), God makes man “in the shape of his own form... out of the mud”. Here he does a word play with *homo* and *humus* to make the point that “man” should remind us of where we originate (Lactantius, 2003:150). Lactantius (2003:150),

⁵⁰ Latin title: *Contra gentes*

⁵¹ Greek title: Λόγοι κατὰ Ἀρειανῶν; Latin title: *Contra Arianos*

⁵² Lactantius (2003:59, 118, 168, 225, 281, 333)

⁵³ Latin title: *Divinae institutiones*

⁵⁴ His apology is mostly targetted at Cicero, whom he nevertheless regards very highly (Lactantius, 2003:76, 88, 123, 125, 141-141, 144-146, 155, 196-197, 204-206). Other philosophers and poets cited frequently include Homer, Vergil, Ovid, Pythagoras, Plato, Socrates, Aristotle, and Epicurus (Lactantius, 2003:57-442).

who is often critical of Plato,⁵⁵ cites him here for recognising that the “human form is godlike”. In a similar way, when he discusses the historicity of the flood, he demonstrates how extra-biblical sources from antiquity all corroborate the story (Lactantius, 2003:151). For Lactantius (2003:158), Noah’s flood was a global deluge that “covered every mountain top”, and he states, without qualification, the fact that Noah was six hundred years old at the time he began construction on the ark.

When it comes to the creation of Eve, however, there is no mention of Adam’s rib. Instead, God makes Eve “in the likeness of the man” (Lactantius, 2003:155). But other details about Paradise and the tree of the knowledge of good and evil are included (Lactantius, 2003:157). For example, Lactantius (2003:157) relates how God had forbidden man to eat from the one tree, but the woman was deceived by “that accuser” to “pick the forbidden fruit”. He also recounts how, after eating the fruit, the man realised his nakedness and was subsequently expelled from Paradise (Lactantius, 2003:157).

Towards the end of his treatise, Lactantius (2003:419-420) affirms his belief in a literal six-day creation and a young earth, dismissing the Chaldean estimate of 470 000 years as “mad”. Instead, he argues that the world is about 5800 years old⁵⁶ (Lactantius, 2003:437). And espousing the same eschatological optimism of Victorinus, Hippolytus and Irenaeus,⁵⁷ he asserts that the world will end after six thousand years⁵⁸ following the pattern of creation (Lactantius, 2003:430).

5.2.14 Eusebius of Caesarea (c. 263-339)

Eusebius (1875:71, 149-159) took the chronological works of Josephus and Africanus wrote his own *Chronicle*⁵⁹ of world history. The influence of this masterpiece can be measured by the fact that this book became the “standard text” on chronology for the next millennium, from the fourth century till the heyday of the Protestant Reformation (Mosshammer, 1979:15). Moreover, it was the first work of its kind to introduce “syncretic chronological tables”, an innovation that would become the mainstay of future chronographers (Bedrosian, 2008:ii).

As with Josephus and Africanus, Eusebius (1875:3, 5) relies upon Genesis to establish the foundation of his *Chronicle*, dismissing the “crazy myths” promulgated in the Egyptian histories and the Chaldean estimates of a world older than 400 000 years. Having said that, he avoids starting his history in the garden of Eden, because he believes that the time that Adam spent in Paradise is unknown (Eusebius, 1875:75). But Eusebius (1875:77) still treats the Mosaic account as history, referring to Adam as the “first patriarch” and “forefather of the whole human race”. And Eusebius (1875:87), like Tertullian, argues for the historicity of a global flood, appealing to fossilised fish on the “highest peaks of the Libanus⁶⁰ mountains” as proof that “the ancient story was true.”

⁵⁵ Lactantius (2003:74, 206-207, 209-211, 408-409, 414)

⁵⁶ Following the LXX.

⁵⁷ Here he cites Psalm 90:4 directly, instead of making the case from 2 Peter 3:8 (Lactantius, 2003:420).

⁵⁸ This will be followed by the Sabbath millennial reign of Christ (Lactantius, 2003:420).

⁵⁹ Latin title: *Chronicon*

⁶⁰ i.e. in Lebanon

Following the Septuagint,⁶¹ he calculates how many years passed before and after the flood from the genealogies in Genesis 5 and 11 (Eusebius, 1875:71-85). His *Chronicle* does not leave the reader with an estimated age of the earth, but the chronology provided suggests a world younger than six thousand years.

5.2.15 Summary

From the works reviewed above, it should be evident that the literal interpretation of Genesis 1-11 predominated the Ante-Nicene period (see Table 5.2). Philo and Origen are the only notable exceptions to this trend although, even here, their enthusiasm for allegorisation did not completely jettison the literal sense of Genesis 1-11. In most cases the allegorical interpretation provides a secondary layer of interpretation which rests upon the literal meaning of the text.

Table 5.2 – The interpretation of Genesis 1-11 during the Ante-Nicene Era

Publication Date	Author	Title	Interpretation
1-50	Philo of Alexandria (c.20 BC-c.50 AD)	Quaestiones et solutiones in Genesim et Exodum/Ζητήματα και λύσεις	literal & allegorical
		De opificio mundi/Περὶ τῆς Μωυσεως κοσμοποιας	literal & allegorical
		Legum allegoria/Νόμων ιερῶν ἀλληγορίας των μετὰ την εξαήμερον το πρώτον	allegorical
93-94	Flavius Josephus (c.37-c.101)	Ἰουδαϊκὴ ἀρχαιολογία	literal
132-135	Justin Martyr (c.100-c.165)	Τοῦ ἁγίου Ἰουστίνου πρὸς Τρύφωνα Ἰουδαῖον Διάλογος	literal
155-157		Τοῦ ἁγίου Ἰουστίνου Ἀπολογία ὑπὲρ Χριστιανῶν πρὸς Ἀντωνῖνον τὸν Εὐσεβῆ	literal
?		Λόγος παραινέτικος πρὸς Ἑλλήνας ⁶²	literal
c. 180	Irenaeus of Lyons (c.130-c.202)	Adversus haereses	literal
180-185	Theophilus of Antioch (d. 185)	Apologia ad Autolycum/Θεοφίλου πρὸς Αὐτόλυκον	mostly literal
198-203	Clement of Alexandria (c.150-215)	Στρώματα	mostly literal
c. 197	Tertullian (c.155-c.220)	Apologeticus	literal
198-207		Adversus Hermogenem	literal
200-206		Adversus Juadaeos	literal
		De cultu feminarum	literal
208-211		Adversus Marcionem	literal
		De anima	literal
c. 209		De pallio	literal
c. 213		De monogamia	literal
c. 213		Adversus Praxean	literal
202-211	Hippolytus of Rome (c.170-c.235)	Περὶ ὁράσεως τοῦ προφήτου Δανιήλ	literal
c. 215	Origen of Alexandria (c.185-c.253)	Homiliae in Genesim; In Exodum homiliae	literal & allegorical
219-230		Περὶ Ἀρχῶν/De principiis	literal & allegorical
246-248		Κατὰ Κέλσου/Contra Celsum	literal & allegorical
c. 221	Sextus Julius Africanus (c.160-c.240)	Chronographiai	literal

⁶¹ Eusebius (1875:79-85) makes his decision to rely upon the LXX by comparing the ages calculated from Adam to the flood from the Septuagint (2 242 years) versus the Jewish text (1 656 years) versus the Samaritan text (1 307 years). The agreement between the Samaritan and Greek versions leads him to believe that the Jewish version is incorrect (Eusebius, 1875:93). He also finds it hard to believe, following the Jewish text, that Noah was alive at the same time as Abraham (Eusebius, 1875:93).

⁶² This work is disputed (Buitenwerf, 2003:78-79).

Table 5.2 (continued)

Publication Date	Author	Title	Interpretation
c. 303	Victorinus of Pettau (fl. 270, d. 303/304)	De fabrica mundi	literal
c. 318	Athanasius of Alexandria (c.298-373)	Contra gentes	literal
357-359		Λόγοι κατὰ Ἀρειανῶν/Contra Arianos	literal
310-320	Caecilius Lactantius (c.250-c.325)	Diuinae institutiones	literal
325	Eusebius of Caesarea (c.263-339)	Chronicon	literal

This does not mean, however, that the allegorical approach to Genesis 1-11, pioneered in this era, had negligible impact on future expositors. The converse is true. To highlight three notorious examples: Geddes (1792:v,viii), Dupuis (1872:226-227) and Paine (1908d:37-38) all cite Origen and Philo in support of their non-literal interpretations of Genesis 1-11.⁶³

5.3 Nicene and Post-Nicene era (325-500)

There are eleven commentators from the Nicene and Post-Nicene era whose works on Genesis 1-11 have stood the test of time (see table 5.3). Of these, Augustine reigns supreme in his influence contributing no less than five commentaries on the Mosaic record. As before, the question being asked of these efforts to exegete and explain the text is simply this: in what manner was Genesis 1-11 interpreted and understood in commentaries prior to the early nineteenth century?

Table 5.3 – Nicene & Post-Nicene works featuring Genesis 1-11

Publication Date	Author	Nationality	Original title
363-373	Ephrem the Syrian (c.306-373)	Syrian (Nisibis)	Hymni de Paradiso
			Sancti Ephraem Syri in Genesim et in Exodum commentarii
c. 370	Basil of Caesarea (330-379)	Cappadocian Greek (Caesarea)	Hexaemeron
c. 380	Didymus the Blind (c.313-398)	Greek (Alexandria)	Εἰς τὴν Γένεσιν
380-381	Gregory of Nyssa (c.335-c.395)	Cappadocian Greek (Nyssa)	Hexaemeron
			Τῆς τοῦ ἀνθρώπου γενέσεως
c. 385	John Chrysostom (c.347-407)	Greek (Antioch & Constantinople)	Ομιλῖαι εἰς τὴν Γένεσιν
c. 375	Ambrose of Milan (c.339-c.397)	Roman (Milan)	De Paradiso
c. 375			De Cain et Abel
387-389			Hexameron
388-389	Augustine of Hippo (354-430)	Roman (Hippo)	De Genesis contra Manichaeos
393-395			De Genesis ad litteram liber unus imperfectus
397-401			Augustini Confessiones
401-416			De Genesi ad litteram
426			De civitate Dei contra paganos

⁶³ See sections 3.19 and 3.20 for the discussion on Paine and Geddes.

Table 5.3 (continued)

Publication Date	Author	Nationality	Original title
c. 392	Jerome (c.342-420)	Roman (Stridon)	Quaestiones Hebraicae in Genesim
401	Severian of Gabala (c.380-c.408)	Greco-Syrian (Gabala)	In Cosmogoniam
412-423	Cyril of Alexandria (c.378-444)	Greek (Alexandria)	Glaphyra
450-460	Theodoret of Cyrus (c.393-460)	Greco-Syrian (Antioch)	Quaestiones in octateuchum

5.3.1 Ephrem the Syrian (c. 306-373)

Ephrem of Edessa was a theologian of “sublime genius” from Syria (Jerome, 1999:149). Sozomen (1846:132) calls him the “greatest ornament of the church”, having written works that “surpassed all the writers of Greece.” Only one of his commentaries has survived the ages, and thankfully it is his commentary on Genesis, preserved in the original Syriac (Mathews, 1994:42).

Ephrem understood Genesis 1-11 as literal history. After summarising the book of Genesis on the opening pages of his commentary, just before he commences with his verse-by-verse exposition, he unapologetically states:

So let no one think that there is anything allegorical in the works of the six days. No one can rightly say that the things that pertain to these days were symbolic, nor can one say that they were meaningless names or that other things were symbolized for us by their names. (Ephrem, 1994:74)

Ephrem (1994:77-78) believes, accordingly, that “everything that was created was created in those six days”. These are days comprised of “twelve hours” of daylight, even before God makes the sun, moon and stars on the fourth day (Ephrem, 1994:78, 80-82, 90-91). Yet, Ephrem (1994:91) believes that because the world was created in just six days there must have been the “appearance” of age in the beginning. Thus, he asserts, on the basis of the lunar cycle, that the moon was created fifteen days old, and the sun was four days old in order to function properly in the solar system (Ephrem, 1994:91-92). He points out that the same kind of logic would apply to trees, plants, animals and birds – all these would have been created mature, although they were young (Ephrem, 1994:91).

Not unlike most of the commentators from the Ante-Nicene era, Ephrem (1994:75, 81, 85, 212) maintains that the universe was created *ex nihilo*. He also treats Genesis 1:1 as God’s first act of creation although he expressly states that this was a barren creation excluding any elements like water, wind, fire, light or darkness⁶⁴ (Ephrem, 1994:74-76). Of course, this raises the question as to where the water comes from in Genesis 1:2. Ephrem’s (1994:77) response is that Moses did not tell us. In a similar vein, his understanding of the serpent’s speech is also cautiously tentative. Without denying the presence of a

⁶⁴ Later he qualifies this list, by explaining that darkness cannot be said to “exist of itself”, because “it has no substance of its own” (Ephrem, 1994:86).

literal snake⁶⁵ in the story, he puts forward a number of possible ways in which the serpent might have communicated: (1) Adam could understand the serpent's language, (2) Satan spoke through the serpent, (3) the serpent's communication was telepathic, or (4) God allowed Satan⁶⁶ to empower the serpent with speech for a limited period (Ephrem, 1994:108). When it comes to the sons of God and the daughters of man in Genesis 6:1-4, Ephrem (1994:136) does not adopt the popular angelic interpretation but instead equates the sons of God with the sons of Seth, and the daughters of man with the daughters of Cain.⁶⁷

Ephrem's exegesis maintains the same trajectory throughout his commentary. Adam and Eve, Cain and Abel, the garden of Eden, the two trees, the serpent, the tower of Babel, Noah, the ark and the flood are all taken literally (Ephrem, 1994:67-69, 94, 99-105, 124-128, 138-142, 147-148). Strangely, he does not mention or comment on the ages of the Patriarchs. Ephrem appears indifferent to the chronology of Genesis 1-11.

In addition to writing a commentary on Genesis, Ephrem also published fifteen *Hymns on Paradise*. These poems explore the deeper meaning of the "tale of the Garden" and treat Genesis 1-3 as a "treasure house of revelations" (Ephrem, 1990:77). Ephrem (1994:78) explains that although these three chapters are "short to read", they are "rich to explore". Here he looks at how Paradise provides a paradigm, not just for what mankind lost, but for what can be regained through Christ (Ephrem, 1994:82-86). He also compares the garden to the tabernacle, pointing out the ways in which the details in Genesis 1-3 help depict God's glory and man's predicament (Ephrem, 1994:95). But as with most of the church fathers previously reviewed, his theologising operates as an extra layer of interpretation, resting upon a narrative already taken as literal history.

5.3.2 Basil of Caesarea (330-379)

Basil the Great, one of the three Cappadocian Fathers, wrote nine homilies on the six days of creation, the *Hexaemeron*. This was a work that received high praise from the other two Cappadocian Fathers: Gregory of Nazianzus (c. 329-390) and Gregory of Nyssa (c. 335-c.395) who was Basil's younger brother (Way, 1963:vii-viii). It also garnered adulation from Jerome⁶⁸ and Ambrose, who later imitated him by writing his own version of the *Hexaemeron* (Way, 1963:viii).

Although Basil had found some value in allegorising Scripture after the likes of Origen, when it comes to Genesis, he prefers the literal rendering of the text (Way, 1963:ix-x). In fact, he has strong words for those who suggest otherwise (Basil, 1963:135). Two examples will suffice. In the first instance, concerning the "darkness" of Genesis 1:2, he rebukes the Marcionites, Valentinians and Manicheans for suggesting, by their allegorical reading of the verse, that God had created evil (Basil, 1963:26-28). Instead, he calls

⁶⁵ This creature is described as being more cunning and intelligent than the other animals, but without the "wisdom of mankind" (Ephrem, 1994:107).

⁶⁶ According to Ephrem (1994:121), Satan was also created within the six days of Creation, although he admits that the text does not specify when or how.

⁶⁷ Ephrem (1994:130) also avoids any discussion on where Cain found his wife, which is doubly noticeable for the fact that he has already stated that that Cain, when judged by God, left his family "because he saw that they would not intermarry with him."

⁶⁸ Although Jerome (1996:56) disliked Basil for his pride which "ruined his many good qualities of chastity and talent."

upon his readers to “accept the concept of darkness simply and without curiosity” in its literal sense as merely the absence of light (Basil, 1963:29-30). The second instance of his strong antipathy against the allegorical approach occurs in his discussion of Genesis 1:7. Here he objects to commentators who “on a pretext of the spiritual sense and of more sublime concepts” have resorted to allegories to explain what is meant by the firmament and the separation of waters (Basil, 1963:51-52). Basil (1963:52) dismisses this kind of hermeneutic as “dream interpretations and old women’s tales,” and declares that these things should be understood “according to the reason given us.”

Basil’s (1963:34) treatment of the six days of creation continues to uphold the literal sense of the account, taking each day as a twenty-four hour period. He is not troubled by the fact that the sun, moon and stars are only created on day four (Basil, 1963:33). The light comes before these celestial bodies, he explains, in order to dissuade men from thinking that light owes its proper origin to them (Basil, 1963:85).

Basil’s preference for the literal sense is further demonstrated in his exposition of Genesis 1:2. Following the Septuagint, he endeavours to explain what is meant by the earth being “invisible” (ἀόρατος) (Basil, 1963:21). His proffered explanation is that the earth’s invisibility, at this stage of creation, can be accounted for in at least three ways: (1) it was hidden beneath the waters; (2) man had not yet been created to see it; and (3) without the light of Genesis 1:3, everything made thus far could not be seen (Basil, 1963:22).

Along with Basil’s high regard for Scripture and his commitment to the literal sense of Genesis, there is also a respect for philosophy and science – which is clearly demonstrated from the many citations provided from extra-biblical authorities. Of these,⁶⁹ he draws most heavily upon Aristotle’s metaphysical, astronomical, botanical and zoological expertise (Basil, 1963: 7, 10, 12, 14-17, 47-48, 51, 73, 78, 108, 112-113, 121-128, 131-132, 137, 139-140, 144-145). He even affirms, from *History of animals*, the ongoing spontaneous generation of grasshoppers, winged insects, mice, frogs and eels (Basil, 1963:137). Basil (1963:18, 23, 39, 41) also cites Plato repeatedly, employing the language and concept of forms from *Timaeus* to describe how the world came into existence.

This does not mean, however, that he accepts these authorities uncritically. To the contrary, Basil (1963:5, 8-9) shows that he is aware of how Genesis 1 has been ridiculed by philosophers like these, and he points out that the greatest Greek thinkers are “beginners and as yet infants in understanding” for all their futile attempts to explain the origin of the universe. Indeed, all the diligence applied to geometry, arithmetic and astronomy amount to “superfluous worldly wisdom” without the truth of Genesis 1:1 (Basil, 1963:7-8).⁷⁰ Thus, he maintains, contra Aristotle, *creatio ex nihilo* (Basil, 1963:6, 23). Likewise, he rejects the evolutionary worldview of the Manichaeans whose “loathesome opinion” is that “the earth brought forth life” of itself; and he rejects those “proud philosophers” who teach that animals and humans have a common ancestry (Basil, 1963:117-119).

⁶⁹ Basil’s exposition also borrows from Plotinus, Aratus, Theophrastus, Herodotus and Cicero (Way, 1963:xi).

⁷⁰ Comparing the writings of Moses to that of pagans, Basil (1963:51) states, “as the beauty in chaste women is far preferable to that of the prostitute, so is the excellence of our discourses above that of the heathens.”

5.3.3 Didymus the Blind (c. 313-398)

Didymus, being the “last great representative” of the Alexandrian school of interpretation, was greatly indebted to Origen and his methodology (Rogers, 2017:4; Hill, 2016:21-22).⁷¹ Didymus’s Origenism eventually led to his indictment at the Council of Constantinople (553), more than a century after this death, whereupon many of his works were destroyed (Hill, 2016:3-4, 6; Rogers, 2017:5-6). Serendipitously, in 1941, several manuscripts attributed to Didymus were discovered amongst the Tura papyri in Cairo, including his commentary on Genesis (Rogers, 2017:1). Due to the fragmentary condition of this extant copy, many comments on key passages in Genesis 1-11 are missing;⁷² but from what remains, it is evident that Didymus, following Philo and Origen, was an avid allegoriser of Scripture (Hill, 2016:5, 22). In addition to relying heavily upon these two Alexandrians, he also repeatedly draws interpretive insights from the pseudepigraphal *Book of Jubilees*⁷³ (which he calls the “Book of the Testament”) and the apocryphal *Book of Wisdom* (Hill, 2016:12; Didymus, 2016:27, 117-118, 122, 133, 139).

Didymus’s handling of the first two verses of Genesis typify his approach to the rest of the book. He explores both the allegorical and literal sense. In Genesis 1:1, using the same distinctions as Philo, Didymus (2016:25) sees two types of creation, corporeal and incorporeal. This type of reasoning rests upon what Didymus presumes to be the literal intent of the text. Yet, at the same time he also follows Origen on how to interpret “beginning” in Genesis 1:1 – which he sees as Christ, the Wisdom of God (Didymus, 2016:26). In the second verse, following the literal sense, he states that the invisibility⁷⁴ of the earth is explained by the waters that were covering it (Didymus, 2016:26). Likewise, the “darkness” is simply the absence of light⁷⁵ (Didymus, 2016:27). But then, following the allegorical sense, he also identifies this darkness as “ignorance” (Didymus, 2016:30). This allows him to construe light in the next verse as spiritually “enlightening” which Didymus (2016:28-30), following Origen (1981:54-55), attributes to the Son who is the “Day and Light” himself.⁷⁶

So Didymus presents both the literal or allegorical reading. But it is also evident that he prefers the allegorical approach and often resorts to the allegorical sense whenever the text is too hard to understand literally. For example, concerning the first three days of creation, Didymus (2016:35) cites Origen from *Contra Celsum* asking, “Why on earth in your view were the days mentioned when the sun was not yet in existence?” Didymus’ answer is two-fold. On the one hand, the literal sense can be explained if one realises that these “days” are merely a measurement of “seventy-two hours”, independent of celestial

⁷¹ According to Socrates’ (1890:11) brief account of his life, Didymus wrote more than one commentary on Origen’s theological work, *On the first principles* (*De Principiis*), and openly praised the man for his “profound wisdom”.

⁷² The missing sections include parts of Genesis 2 and 3, along with all of chapters 9 through to 11, and 13 to 14 (Hill, 2016:6-7).

⁷³ In two places, he does acknowledge, however, that this is a disputable source (Didymus, 2016:115, 139).

⁷⁴ Didymus relies upon the LXX which renders ἀόρατος καὶ ἀκατασκεύαστος for תְּהִי נֶחֱמִי

⁷⁵ The manuscript is poor at this point.

⁷⁶ Didymus (2016:47) asserts that the expression “Let there be Light” refers to the “Saviour”.

bodies in the same way that time is independent of clocks⁷⁷ (Didymus, 2016:35). But on the other hand, the allegorical sense avoids the problem altogether. Didymus (2016:44), borrowing from Philo⁷⁸ (2001:49), makes the case that the “six days” are not to be taken chronologically but rather as a way of describing the perfection of creation because the number six “is the first of the perfect numbers”. It is at this point that Didymus rejects the literal sense previously offered in favour of the allegorical reading. The real underlying motivation becomes apparent later. Didymus (2016:44-45) is philosophically and theologically convinced that all things were made instantaneously⁷⁹ – but “for reason of order and harmony” and because of “our limitations and inability to understand”, God reveals his creation within the framework of six days.⁸⁰

Genesis 3:8 presents another place where the literal sense must succumb to the allegorical: in this case, where God is said to have been walking in the garden. Once again, Didymus (2016:84) considers repugnant any “factual approach” to this verse. God is spirit, therefore God cannot walk (Didymus, 2016:88). Instead, he provides a Stoic interpretation of the verse interpreting God’s walking as a way of imparting a mental impression upon Adam and Eve (Didymus explained by Hill, 2016:85, 87). Likewise, Didymus (2016:144-146) does not accept the literal sense of Genesis 6:3, but explains that 120 years, by virtue of its mathematical factors, represents an “advance to the true life”.

Following this trajectory, Didymus finds ample room to allegorise in Genesis. He takes the separation of waters (Gen. 1:6-7) as the separation of vice from virtue, and the “firmament in the middle of the waters” as the “faculty of governance” to distinguish good from evil (Didymus, 2016:33). The gathering of the waters is the “mutual attraction” amongst virtues which means that one virtue always leads to the next (Didymus, 2016:38). From Origen, he treats the fruit of Genesis 1:11-12 as spiritual fruit (Didymus, 2016:43). The sun refers to Christ; the moon is the church; and the stars are seen as “those elevated by the Word above others” (Didymus, 2016:48, 58). The “huge sea monsters” (Gen. 1:21) are the devil and his angels (Didymus, 2016:53). The wings of the winged creatures are the “heavenly” thoughts that people have, whilst the ground-dwelling reptiles are the desires of the flesh (Didymus, 2016:53-54, 76). Not surprisingly, the serpent is also treated allegorically, being “a term suggesting the devil in person” (Didymus, 2016:95).

But where the literal sense makes sense to Didymus, he often devotes a disproportionate amount of his discourse to it. For example, he accepts the literal historicity of Noah and the ark, which precipitates in a lengthy discussion concerning the details of the story (Didymus, 2016: 131, 151-157, 169-177). He tells the reader at this point, “The literal meaning makes a lot of sense” (Didymus, 2016:160, 175). In the same

⁷⁷ Of course, clocks would only be invented in the 14th century, so here he refers to “instruments mechanically constructed” to measure time (Didymus, 2016:35).

⁷⁸ The manner in which Didymus (2016:115) refers to Philo’s commentary on Genesis shows that he views this work as required reading for any student of the Mosaic record. His own dependence upon Philo, even when unstated, is obvious (Didymus, 2016: 109, 115-116, 131, 138).

⁷⁹ Didymus (2016:43-44) reasons that when God wishes for something to exist it must necessarily exist instantaneously.

⁸⁰ When it comes to the creation of the sun, moon and stars on the fourth day, he argues that the number four indicates their “honor” in the cosmos, not the order in which they came into existence (Didymus, 2016:45). In the same way, the animals are created on the fifth day because the number five suggests the “senses” with which animals enjoy (Didymus, 2016:52).

vein, Didymus (2016:175) contends against those who question the extent of the flood waters and whether anyone might have survived, reminding them that “the water rose fifteen cubits over the high mountains.” Likewise, concerning the ark and the abatement of the flood, he maintains, “The text is clear”; and again, “there is no obscurity in the text” (Didymus, 2016:178-179). He also accepts the longevity of the patriarchs, leaving his readers to refer to Philo themselves if they want to explore any allegorical numerology (Didymus, 2016:137-138). Thus, Didymus clearly accepts parts of Genesis 1-11 as literal history (allowing both the literal and allegorical sense), whilst rejecting other parts by only allowing the allegorical sense. In particular, as Hill (explaining Didymus, 2016:105) observes, the people from these chapters are treated as real historical figures, whilst everything around them in the story is taken figuratively. Adam and Eve, Cain and Abel, Noah and his descendants are all taken factually. Didymus (2016:129-130) even deliberates carefully upon how Cain must have married his sister (without committing incest) in order to propagate his progeny.

5.3.4 Gregory of Nyssa (c. 335-395)

Basil the Great, who had been given the opportunity to study in Caesarea, Constantinople and Athens, imparted his philosophical expertise and education to his younger brother, Gregory (Meredith, 2003:3; Way, 1963:x). Gregory was an avid learner, and more eager than Basil to embrace the philosophy of his day (Meredith, 2003:5). Whilst Basil was generally guarded against “contemporary science”, Gregory was not, and actively tried to incorporate various philosophies into his interpretation of Scripture (Meredith, 2003:5). This disposition towards philosophy stimulated Gregory to write two amendments to his brother’s *Hexaemeron*⁸¹ in an endeavour to placate the critics who had found scientific⁸² problems in that work (Meredith, 2003:5).

The first treatise, adopting Basil’s title, *Hexaemeron*, is addressed to Gregory’s (2021:41) other brother, Peter of Sebaste (c.340-391). One of seven objections which Gregory (2021:43-44) sets out to address is how the first three days of creation could have passed without the sun. He claims that he will do this without distorting the “words of the text” or resorting to “allegory or metaphor” (Gregory, 2021:50, 68, 120). Gregory’s approach to Genesis 1, however, includes more than just the literal reading of the text. Having contrived his cosmology from Plato and Aristotle, he then turns to Genesis for corroboration (Orton, 2021:6, 12; Meredith, 2003:7). Gregory (2021:55) believes that Moses’ intention is “to give a philosophical account of theories of natural science”. What he means by this, is that Aristotle and Plato can be found in Moses. Thus, creation becomes a process by which, in Aristotelean terms, potentiality becomes actuality through the word (or reason) of God (Gregory, 2021:51, 58). Gregory (2021:51-55) uses this framework to maintain that the creation of the world was, in one sense, instantaneous because

⁸¹ Where Basil’s *Hexaemeron* is portrayed as a tree of “lofty philosophy”, Gregory (2021:42) offers his own work as merely a cutting to be grafted in. In doing so, Gregory sets out to bolster his brother’s argument by providing scientific grounds for claims made in those homilies, and in some cases, even “partial correction”, or as he puts it diplomatically, “an alternative interpretation” (Gregory, 2021:49; Meredith, 2003:5).

⁸² By “scientific”, I refer to the interpretation of natural laws as understood within the prevailing paradigm at this time in history. Although the term “science” was coined many centuries later by Bacon, as was “scientist” by Whewell, the essential concept of science is as old as mankind itself (McMorris, 1989:200; Genesis 4:17, 20-22).

when God conceives of the “totality of things”, they must necessarily come into existence at the same time. To show how this accords with the six days of creation, he appeals to Aquila of Sinope (fl. 130) who translates בְּרֵאשִׁית as “in summary” instead of “in the beginning” (Gregory, 2021:52-53). This allows Gregory to argue that the first verse of the Bible describes God making everything instantaneously *in its potentiality* (Gregory, 2021:53, 62).

The following six days then relate the way this potentiality becomes actualised sequentially (Gregory, 2021:116). Gregory (2021:63) believes that this interpretation receives support from Genesis 1:2, where the earth – at this stage of creation – is “invisible and unformed.”⁸³ From “invisible”, he infers “without color” – from which he infers “without shape” and therefore “without body” (Gregory, 2021:63). This chain of reasoning leads him to conclude that the earth created in Genesis 1:1 both “existed and did not exist” (Gregory, 2021:63). Following this logic, the “rational principle of light” (actuality) in Genesis 1:3 emerges from “substance of fire”⁸⁴ (potentiality) which was already conceived in Genesis 1:1 (Gregory, 2021:58, 60). Once this light appears it immediately begins to “disperse everywhere”⁸⁵ till it reaches the “outer limits of creation” (i.e. heaven and earth) where it ends up traveling in a circular motion (Gregory, 2021:60-62). Gregory (2021:62) explains that this is how the cycle of morning and evening, day and night originate. God calls one of these revolutions “day” (Gregory, 2021:72). Gregory is now ready to explain how the sun, moon and stars could come into existence on the fourth day. Because each celestial object has its own particular type of light, and these lights naturally gather together with their own kinds, the first three days of the world provide just the right amount of time for these lights to form (Gregory, 2021:111-112). Therefore, although light itself was actualised on the first day of creation, it takes three days for the light to reorganise itself into many lights.

This kind of reasoning typifies Gregory’s (2021:121) commentary as he tries to “harmonize the theory of natural philosophy with the letter of the text.” In most cases, this harmonisation results in a more naturalistic reading of Genesis 1 in which God is merely the first cause of a chain reaction that takes place over the course of six days.

In his second treatise, *On making man* – also addressed to Peter of Sebaste – Gregory continues to meld his philosophy to Genesis. As before, the text is referred to sparingly, but where he does engage with Genesis, the story is treated as “history”: Paradise, the man and woman, the tree of knowledge and the serpent are all featured according to the literal sense (Gregory, 1917:406, 409-410). Most of his exposition concerning the nature of man is carried out at a scientific or philosophical level, exploring the subject from anatomical, physiological and psychological perspectives (Gregory, 1917:392-404).

When he deals with Adam, his approach is Platonic. God first creates the archetype (ἀρχέτυπον) of man, from which mankind is derived as they “partake” in his image, “with the archetype both in rank and

⁸³ Using the LXX.

⁸⁴ Gregory (2021:58) follows the cosmology of the day, believing that matter reduces to four elements: fire, water, earth and air. Light is understood in this framework to be a physical property of fire (Gregory, 2021:59).

⁸⁵ This happens, so we are told, because light comes from fire which has the “power of perpetual motion” (Gregory, 2021:65-66).

name” (Gregory, 1917:390-391). This leads Gregory (1917:411) to state that when God made man in his image, there is a sense in which “Adam as yet was not” because the man created in Genesis 1:26-27 is the archetype of which the man in Genesis 2:7 is formed (Sibley, 2014:87).

5.3.5 John Chrysostom (347-407)

John Chrysostom was considered by many to be the greatest orator of his generation (Sozomen, 1846:376). His writings also exceed that of any other church father in the East (Hill, 1999:3). Having studied under the tutelage of Diodorus of Tarsus (d. c. 390), Chrysostom became a stalwart of the Antiochene school, committed to the “literal or historical sense” of Scripture (Goggin, 1957:ix; Hill, 1999:2; Sozomen, 1846:376). Of the 67 homilies he gave on Genesis, 30 were devoted to the first 11 chapters (Hill, 1999:1).

As expected, Chrysostom (1999:31, 197-199; 1990:3, 12-13, 94, 139, 222-230) treats almost all of the elements of the Mosaic record in their literal sense, including Adam and Eve, the garden of Eden,⁸⁶ Cain and Abel, Noah, the flood⁸⁷ and the tower of Babel as literal history. Both trees in the garden are literal trees and the serpent is a literal serpent that converses with Eve under the abusive power of Satan (Chrysostom, 1999:23, 122, 177, 186, 208-209). Chrysostom (1999:83-85, 72-73), following Basil (1963:67-68), explains that the sun was literally created on the fourth day to discourage “slothful people” from worshipping it or thinking that the crops owe their growth merely to the sun, and to prove to them that the sun is not the “cause of the day”. Here, he takes “day” to be that period of time from one morning and evening to the next (Chrysostom, 1999:60). In Genesis 1:6-7, Chrysostom (1999:55) continues to show his commitment to the literal sense of the text treating the waters above the firmament as real waters, despite having no rational explanation for it.⁸⁸ When it comes to Cain finding a wife in Genesis 4:17, Chrysostom (1990:37) explains that he must have married his sister.

Evolutionary thinking was obviously prevalent in his day, because he specifically challenges it in his 7th homily on the creation of plants and animals:

Yet there are some stupid people who, despite this kind of teaching, are rash enough to withhold belief, and do not admit that these visible things have a creator. Some of them hold they came into existence by themselves, others that they were formed from some underlying matter. (Chrysostom, 1999:96)

He also names Mani, Marcion and Valentinus⁸⁹ for their erroneous teaching on the pre-existence of matter, maintaining instead that God created all things from “non-existence” (Chrysostom, 1999:32, 34). Chrysostom’s (1999:175) defends his literal rendering of Genesis 1-11 on the grounds that the sacred text “gives its own interpretation” akin to the Lutheran *Scriptura sacra sui ipsius interpres*. Even where the text is

⁸⁶ Chrysostom (1999:174-175) explains why the garden is named “Eden” – because its location was not in heaven (which he attributes to “farfetched philosophy”), but at a specific geographical location on earth (which he states is the “literal understanding of the text”).

⁸⁷ He refers to the flood as a “complete annihilation” event, whereby God “cleansed the whole world” (Chrysostom, 1990:133, 139)

⁸⁸ By way of justification, he asserts, “No sensible person would be rash enough to make a decision on it” (Chrysostom, 1999:55).

⁸⁹ This group is also singled out for rebuke by Basil (1963:26-28) in his own commentary.

befuddling, as in the creation of Eve from Adam's rib, Chrysostom (1999:199-200) adheres to its plain sense, declaring that it is “madness and folly” to “meddle in what concerns the Creator”. Likewise, in explaining how humans and animals could survive a whole year on the ark together – instead of exploring a scientific rationale – he appeals to the “grace from above” (Chrysostom, 1990:135).

It is therefore striking to notice one place⁹⁰ where Chrysostom does not adhere to the literal sense of Genesis 1-11. He refuses to believe that God literally walked in the garden because “God doesn't stroll – perish the thought” (Chrysostom, 1999:223). In this case, his rationale is theological: God is omnipresent, so this must be an anthropomorphism.

5.3.6 Ambrose of Milan (339-397)

Ambrose demonstrates his stature in the fourth century by becoming the only bishop to ever “conquer three emperors”⁹¹ (McLynn, 1944:xiii). He also played a prominent role in the conversion of Augustine (Guardini, 1960:185-189). Like Gregory and Chrysostom, Ambrose had a high regard for Basil's *Hexaemeron* and decided to make his own contribution to the growing hexaemeral literature by expanding upon Basil's commentary⁹² and translating it into Latin. This achievement brought Basil's exposition of Genesis to the Western church (Robbins, 1912:58).

Although Ambrose (1961:15, 33, 82) consults the Hebrew text in addition to the Latin, Syriac and Greek versions, his dependence upon Basil leads to a very similar exposition and hermeneutic (Savage, 1961:vii). Put simply, Ambrose takes the creation story according to the plain reading of the text. The word “day” is defined as a period of “twenty-four hours”; paradise is a real place; Adam is the first human being; with Noah, the ark and the flood all serving a nonfictional role in the Mosaic narrative (Ambrose, 1961:42, 103, 122, 255, 280). Drawing upon Exodus 12:2, he even suggests that the first week of the world was in Spring (Ambrose, 1961:13).

Ambrose (1961:3-4, 7, 10, 16-17, 46) is critical of the cosmogonies of Plato, Aristotle, Pythagoras and Democritus, maintaining, after Basil, *creatio ex nihilo*. But, like Gregory – and, to a lesser extent, Basil – he accepts the scientific consensus of his day, taking the fundamental elements of matter to be earth, air, fire and water (Ambrose, 1961:19-23). Mani, Marcion and Valentinus also get singled out, as previously in Basil and Chrysostom, for their heretical attempts to attribute evil to God (Ambrose, 1961:34). Their argument rests upon an allegorical interpretation of the darkness in Genesis 1:2 – which Ambrose (1961:31, 37) strongly opposes, stating that the “darkness and abyss” should be “taken in their literal sense”.

⁹⁰ A second instance might be found in his interpretation of the “giants” (οἱ γίγαντες) of Genesis 6:5, which he takes to mean “men of great physical stature” (Chrysostom, 1990:77). As with Ephrem, Chrysostom (1990:74-75) is trying to be consistent with his interpretation of Genesis 6:1-4 which sees the sons of God as descendants of Seth and Enosh, rather than angels.

⁹¹ Gratian (359-383), Valentinian II (371-392) and Theodosius I (347-395)

⁹² Ambrose adds more than a hundred “reminiscences” from Virgil with about twenty references to Cicero in *Hexaemeron* (Savage, 1961:vii-viii).

Reproducing Basil and Gregory's rationale for how the waters could reside above the firmament without flowing away, he discusses the hydrological cycle and appeals to the fact that even round buildings still have flat places where water can collect (Ambrose, 1961:52-53, 55-59). Ambrose (1961:67-85) also copies most of Basil's (1963:55-65) homily, to provide scientific credibility for how the waters were gathered up to make dry land appear. Like Chrysostom (1999:83-85, 72-73), he includes Basil's (1963:67-68) explanation as to why God made the sun only after the light (Ambrose, 1961:87, 125-127).

Ambrose (1961:92-123, 159-249) also follows Basil's example when it comes to the creation of plants, animals, birds and fish by discussing their didactic value in the narrative, deriving most of his insights from natural theology than the text. By way of example, he states that men should emulate storks in their care for their elderly parents, and love their children like crows; whilst the donkey reminds us not to grow dull and careless, and the partridge depicts the devil in his wiliness and deceit (Ambrose, 1961:204-205, 207, 234). Finally, when it comes to his discussion on human anatomy, Ambrose (1961:280) takes Philo's allegory of the door on the ark to discuss God's wisdom in placing "the channel for refuse" on the remote side of the body.

About ten years before *Hexaemeron*, Ambrose wrote two smaller treatises: *On Paradise*⁹³ and *On Cain and Abel*,⁹⁴ that both explore, along with the literal sense,⁹⁵ the allegorical symbolism in Genesis. In the former work, Ambrose (1961:293-294, 351-352) follows Philo's lead to view the serpent as the representation of "enjoyment"; the man as "mind"; the woman as the embodiment of "emotions"; and the "fount which irrigated the land of Paradise" as Christ. He goes on to allegorise the four rivers as four virtues: prudence, temperance, fortitude and justice (Ambrose, 1961:295-298). Although Ambrose depends on Philo, his appropriation is not uncritical. For example, he finds Philo's allegory unsatisfactory in places because, as a Jew, Philo only saw the "moral aspect" of the text, instead of seeing the "spiritual import" (Ambrose, 1961:303). This kind of allegorising continues in his treatise *On Cain and Abel*. Ambrose (1961:359-360, 362) suggests that these brothers can be viewed as two opposing "schools of thought", or as a picture of the animosity between the synagogue ("parricidal" Jews) and the church (the Christian "who cleaves to God"). Esau and Jacob are treated in a similar manner: the former typifies wickedness, whilst the latter presents the "pattern of what is good" (Ambrose, 1961:361). Ambrose's (1961:362) allegorical insights are motivated by the conviction that there is "more than casual meaning" (i.e. the literal sense) to be found in Scripture.

⁹³ Latin title: *De Paradiso*

⁹⁴ Latin title: *De Cain et Abel*

⁹⁵ In *De Paradiso* Ambrose (1961:302, 305-306, 311, 333, 336) frequently engages with the text at a literal level. To highlight two obvious examples: (1) in his discussion on how death came to Adam, he assumes that both the fruit and the tree are real in the literal sense; and (2) Adam is said to have been able to name all the animals because of "divine power" – an explanation that becomes redundant if the literal sense is ignored (Ambrose, 1961:313, 328). Likewise, in *De Cain et Abel* he refers to Cain, Abel and Lamech as historical figures (Ambrose, 1961:435-437).

5.3.7 Augustine of Hippo (354-430)

Augustine is arguably the most important exegete of Genesis 1-11 in antiquity. His influence as a theologian and philosopher “looms so large” over the medieval period, it is “hard to overestimate” his intellectual legacy and the various ways in which he directed and shaped Western thought (Stump, 2001:1, 7; Chadwick, 2009:1). Augustine wrote no less than five commentaries on Genesis. Two of these can be found within his larger works: *Confessions*⁹⁶ and the *City of God*;⁹⁷ with the other three as independent treatises: *On Genesis: a refutation of the Manichees*,⁹⁸ *Unfinished literal commentary on Genesis*,⁹⁹ and *The literal meaning of Genesis*.¹⁰⁰ These works amount to almost forty years of deliberation on the Mosaic account, and provide a unique insight into how Augustine’s (1956:197) thinking matured in the latter half of his life.

5.3.7.1 *On Genesis: a refutation of the Manichees*

In his first treatment on Genesis, Augustine writes with apologetic intent. He sets out to refute the Manichees who take the creation story as sufficient grounds to reject the rest of the Old Testament (Augustine, 2002:40). To defend the text, Augustine’s interpretation explores both literal and allegorical renderings. In favour of the literal sense, he argues for *creatio ex nihilo*, the historicity of Noah and the ark, the flood, the genealogies in Genesis 5 and 11, and the tower of Babel (Augustine, 2002:41, 45, 62, 63). Augustine (2002:72) states that the narrative must first be treated according to its historical value before resorting to prophetic or allegorical interpretations. He also praises those commentators who take the whole account literally as “outstanding and wholly admirable” (Augustine, 2002:72). But Augustine (2002:72) believes that the exegete still has the “authority of the apostles” to adopt an allegorical approach in places where the literal meaning is problematic (Augustine, 2002:72). The description of Adam and Eve’s creation in Genesis 2:4-3:24 is a case in point. Here, Augustine (2002:69) asserts that the whole passage should be taken in a “figurative, not literal” manner. In particular, he rejects the literal sense of Genesis 2:6 as “hardly likely” because he cannot conceive of how a single spring of water could water the face of the earth (Augustine, 2002:75). For similar reasons, Genesis 2:24 is taken as a prophecy concerning Christ and the church;¹⁰¹ the temptation of Eve spiritualised; and the conflict between the seed of the woman and the seed of the serpent is construed as the “fruit of good works” that does not succumb to the “perverted suggestions” of the devil (Augustine, 2002:84, 96, 84-85, 90). Augustine (2002:79) interprets Paradise as a name given to “the blissful state of the man”, with the trees representing “spiritual joys” and the tree of life signifying wisdom. Following Philo and Ambrose, the four rivers are four virtues:¹⁰² prudence, fortitude, temperance and justice (Augustine, 2002:80). And, like Origen, the categories of male and female are treated as expressions of reason and desire (Augustine,

⁹⁶ Latin title: *Augustini Confessiones*

⁹⁷ Latin title: *De civitate Dei contra paganos*

⁹⁸ Latin title: *De Genesis contra Manichaeos*

⁹⁹ Latin title: *De Genesis ad litteram liber unus imperfectus*

¹⁰⁰ Latin title: *De Genesi ad litteram*

¹⁰¹ Following Ephesians 5:31-32.

¹⁰² Augustine (2002:80) claims that the Hebrew and Syriac names given to these rivers supports this interpretation.

2002:82). In particular, Augustine (2002:82) believes that the creation of Eve during Adam's slumber demonstrates how reason should exert "rational power" over desire.

Although Augustine (2002:42, 45, 53-54, 60, 74-75, 84) is aware of the Hebrew, his interpretation is based upon the Septuagint and Latin versions,¹⁰³ drawing heavily upon two noncanonical sources, the *Book of Wisdom* and the *Book of Sirach*,¹⁰⁴ which he treats as Scripture. This leads him to believe, like Basil, that the earth in Genesis 1:2 was not only formless, but also invisible¹⁰⁵ (Augustine, 2002:42). The *Book of Wisdom* 11:17 states that God made the world out of formless matter, which gives Augustine (2002:45-46) reason to believe that the "heaven and earth" of Genesis 1:1 constitute the "unformed material" or "seed" from which God made everything else.

Augustine (2002:54) has both a passion and aptitude for the natural sciences, and seeks to justify Genesis according to the science of his day where opportunity affords. Naturally, this scientific disposition influences how he understands and explains the text. For example, the dietary requirements of carnivorous animals leads him to reject the literal sense of Genesis 1:29-30 (Augustine, 2002:59).¹⁰⁶ Also following the science, Augustine (2002:90) rejects the notion that pain in childbirth came about as a result of the fall – something that he sees as a normal feature of "being mortal".

Concerning the days of creation, there appears to be some prevarication. Initially, he treats the first three days of the world in a literal manner, measuring their duration according to the amount of time it takes for the sun "to go round" the earth (Augustine, 2002:52). But later, in his discussion on Genesis 2:5, he understands "day" to mean "the whole of time" (Augustine, 2002:72-73, 75). This idea receives further development in subsequent commentaries. But, like Victorinus, Lactantius, Hippolytus and Irenaeus, Augustine (2002:62, 69) believes that the seven days point to seven ages of the world, presenting a "miniature symbolic picture of the entire span of world history from start to finish."

5.3.7.2 Unfinished literal commentary on Genesis

Augustine's (2002:112) first attempt at a commentary on the literal or historical sense of Genesis is restricted entirely to the first chapter. Augustine (2002:112) explains that his former reticence to explore the literal sense of the creation narrative stems from his uncertainty of how to expound "such great mysteries of the natural order". This hesitation quickly becomes apparent from the number of unanswered questions he poses in his exegesis (Augustine, 2002:116-119). And, as with his first commentary, the *Book of Wisdom* and *Book of Sirach* both play a seminal role in governing how he makes sense of Genesis 1:1-2 (Augustine, 2002:119, 130-133, 144-145). The former leads him to believe that the

¹⁰³ In his *Confessions*, Augustine (2006:247) admits that he cannot read Genesis in Hebrew. The Latin version used here is not the Vulgate, but a translation from the LXX.

¹⁰⁴ In *De doctrina Christiana*, Augustine (1981:41-42) states that these two books should be received with equal authority to the other prophets.

¹⁰⁵ Augustine develops this line of reasoning further in Genesis 1:6-8. The division of waters he takes as the separation of the visible from the invisible, whereby the invisible is moved above the sky (Augustine, 2002:49).

¹⁰⁶ He eventually retracted this opinion, conceding the possibility that carnivores might have survived on the "fruits of the earth" (Augustine, 2002:37).

world was created out of formless matter; and the latter, that all things were made simultaneously. Despite the anomalous reasoning, as Zuiddam (2010:6) observes, this is Augustine – as far as he sees it – merely comparing Scripture with Scripture.

In Genesis 1:1-2, driven by a desire to find the four elements in creation, he postulates that the spirit of God might supply the fourth missing element: air – so that, along with sky,¹⁰⁷ earth and water – all may be present (Augustine, 2002:123). Augustine (2002:120) continues to rely upon the Septuagint which means he must explain the darkness and invisibility of the earth in Genesis 1:2. His tentative suggestion at this juncture is to propose that light had not yet been made (Augustine, 2002:120). His recourse to the literal sense, however, does not preclude him from adopting a Platonic reading of Genesis 1:3. How was light created before the celestial bodies on day four? His answer: the light created at the beginning was incorporeal (Augustine, 2002:125). In turn, this makes the meaning of darkness ambiguous (Augustine, 2002:126-127). The interpretation of “day” suffers the same fate, and Augustine (2002:129) admits that he is not sure how to explain what “day” might refer to in a world without the sun. Moreover, he does not know how there could be evening and morning or three full days before the sun, moon and stars (Augustine, 2002:130, 136). In the end, he suggests that the fourth day of creation might as well be the first true day of the world, because this is the first day involving a real sun (Augustine, 2002:140). This does not mean, however, that the six days of creation have any real temporal sequence, because he is already convinced by *Sirach 18:1* that all things were made at the same time. He explains that the six-day framework exists to help “weaker intellects” understand God’s acts of creation because the concept of an instantaneous creation would be too hard to conceive (Augustine, 2002:130-131).

On the whole, his first literal commentary ends up being almost as philosophical as his first, and not without allegory (Augustine, 2002:134, 144-145, 149).

5.3.7.3 Augustine’s *Confessions*

Augustine’s third attempt at explaining Genesis can be found towards the end of his *Confessions*. As before, he continues to believe that God first created a formless¹⁰⁸ and invisible world out of nothing¹⁰⁹ from which he formed the visible universe (Augustine, 2006:271-278). Following *Sirach 18:1*, Augustine (2006:278, 330-331) insists that God did not create “within intervals of time”, although these things were made manifest “in time”. Thus, he argues that the creation of heaven and earth in Genesis 1:1 did not happen on any particular day (Augustine, 2006:278-279). Likewise, as in his first commentary, “the beginning” is not taken as a reference to time but to the Wisdom of God or the Son of God (Augustine, 2006:251, 285, 302). Overall, Augustine (2006:285-287, 289, 296) is still not confident in this exegesis and warns his readers to not be too dogmatic in their explication of Genesis 1:1-2, for which he allows multiple valid interpretations.

¹⁰⁷ Curiously, Augustine equates the sky to fire.

¹⁰⁸ Here he understands formless in the Platonic sense, being “almost nothing” (as explained by Outler, Augustine, 2002:273, 275).

¹⁰⁹ Literally: “de nihilo” (Augustine, 2002:274, 330).

This uncertainty in Augustine's mind predisposes him towards further allegorising. Accordingly, when God says, "Let there be light", he takes this to refer – not to physical light – but "spiritual creation" (Augustine, 2006:300). The Spirit hovering over the waters he interprets as "the changeless supereminence of the divine Being" (Augustine, 2006:304). The gathering of the waters describes how God restrains and creates boundaries for "the wicked lusts of men's souls" (Augustine, 2006:311). Following Origen, the fruit mentioned in Genesis 1:10 is seen as spiritual fruit (Augustine, 2006:311). The greater light in Genesis 1:19 is the "word of wisdom" and the lesser light is the "word of knowledge" (Augustine, 2006:312). The creatures brought forth out of the sea are the great works of man, and the wild beasts, cattle and serpents are likewise allegorised as pride, lust and "the poison of curiosity" (Augustine, 2006:315, 317-318). Augustine (2006:322) anticipates how these allegories might exacerbate other exegetes but still maintains that it is a valid approach to Scripture.

5.3.7.4 *The literal meaning of Genesis*

Augustine's (2002:167, 348) dissatisfaction with previous commentaries on Genesis eventually compels him to make a "proper assessment of what actually happened" instead of resorting to allegory.¹¹⁰ Consequently, this work ends up becoming his most rigorous and extensive treatment on Genesis 1-11. But as with his first attempt at a literal commentary, this revised effort suffers from many of the same frustrations experienced before. The literal sense continues to befuddle Augustine.

He is unable to explain Genesis 1:1-2, ending up with more questions than answers¹¹¹ on the text (Augustine, 2002:168-169). Genesis 1:3 is equally confusing, leaving him with further unresolved problems as to how God spoke, what kind of light was made by it, and whether it was done in or outside of time (Augustine, 2002:170-172, 174-175). By the fifth verse, he admits that the plain intent of the text appears to constrain God's creation of light to "the space of a day", whilst at the same time, he cannot see why God would need "such a long time to make light" (Augustine, 2002:175-176). The *Book of Wisdom* and *Book of Sirach* continue to plague Augustine's (2002:176-177, 180-181, 191, 231, 242, 245-249, 254, 272-273, 275, 293, 297, 303, 307, 310, 416-417) exegesis, exerting a disproportionate influence on his understanding of the text and forcing him to conclude that all the things he reads in Genesis 1 should happen instantaneously. This results in a contradiction that Augustine cannot resolve. The literal sense of Genesis 1 conveys God creating the world over the course of six days, but *Sirach 18:1* asserts that God "created all things simultaneously together" (Augustine, 2002:273). To avoid denying either, Augustine (2002:273-274) embraces this contradiction, stating that it must be true that God both made the world in six days and instantaneously. To find some justification for this paradox, he appeals to Genesis 2:4-6 as a proof text for the fact that everything was made in just "one day" (i.e. "together simultaneously") – from

¹¹⁰ This is not to say that Augustine (2002:168) has changed his mind, however, on the validity of allegorising – for which he finds apostolic support in 1 Corinthians 10:11 and Ephesians 5:32.

¹¹¹ To Augustine's (2002:188) credit, he anticipates the reader's obvious response: "Why is practically everything hidden still in a heap of questions?" To which he replies that Genesis is a book containing a "vast array of true meanings" in truths "darkly expressed" to "put us through our paces" so that everyone must decide for themselves how to read the account (Augustine, 2002:187-188).

which he infers that this “one day” was repeated seven times “without any intervals or periods of time” (Augustine, 2002:276, 279). To those who find this kind of rationalisation implausible or incoherent, Augustine (2002:279) offers the following condescension:

And if you are not yet able to grasp this, leave the contemplation of it to those who have the capacity, while you yourself go on making progress by walking more slowly with scripture at your side, where she does not desert your weakness but matches her steps to yours in motherly fashion. For she speaks, you see, in such a way that she mocks the proud by her sublimity, fills the attentive with awe at her profundity, feeds the mature with her truthfulness, fosters the little ones with her kindliness.

The six days of creation present an “extremely difficult” conundrum to Augustine (2002:241). Even though he has set out to explore the literal sense of Genesis 1, he cannot avoid allegorising at this point. Drawing once again upon the *Book of Wisdom*, he emulates Philo (2001:49) and Didymus (2016:44), entering into a digression on the mathematical and geometric value of the number six, the “perfect number”, which God chose in order to communicate the perfection of his works (Augustine, 2002:242-245, 249). Augustine (2002:268) does not hide his own dissatisfaction with this scheme, conceding that other commentators may discover a more “preferable” interpretation. But, undeterred, he explores how the six days could be taken as “six stages of knowledge” (Augustine, 2002:283, 285, 302). Augustine’s (2002:271) explanation for the sequential structure of Genesis 1 is a convoluted epistemological and metaphysical quagmire involving the differentiation of angelic knowledge from divine knowledge, “created light” from “creating light”, knowledge from foreknowledge, and knowledge considered “in itself” versus knowledge in God. Incredibly, he explains that God reveals his acts of creation in this manner to help those who would otherwise not be able to understand (Augustine, 2002:273).

The paradox of creation taking six days, whilst being made instantaneously, leads Augustine (2002:303) to conclude that Adam and Eve could not have been made during the first week. This he infers from the fact that God makes Adam from the mud, which implies the prior existence of time and matter. But because the account places the creation of man on the sixth day, Augustine employs Platonic categories to resolve the conflict, arguing that man was only created invisibly in his potentiality on the sixth day, only to realise his visible actuality after that first week (Augustine, 2002:306). Thus, he does not believe that Genesis 2 offers a recapitulation of the events of day six from Genesis 1.¹¹²

Augustine’s (2002:176-177) frustrations with the literal sense of Genesis continue to multiply. He struggles to understand in what sense the sun was required on the fourth day when light was “sufficient for the making of the day” at the beginning (Augustine, 2002:177-178). He wonders how there could be evening and morning without the sun (Augustine, 2002:178-179). He also cannot explain where the waters were gathered together or how the waters were made (Augustine, 2002:179-180).

¹¹² Augustine (2002:343) also rejects the recapitulation theory because he will not accept that God created trees and birds after Adam (as in Genesis 2:9, 19) when it has already been said that these things were made before Adam on the third and fifth days (Genesis 1:11-12, 20-21). It is uncertain as to whether Augustine ever consider the possibility that God created these things a second time for Adam’s benefit after those six days.

Where possible, Augustine (2002:170, 217, 312-313, 320, 353-355, 393, 430, 437, 449-450) does argue for the historicity of the text, maintaining the literal account of Adam and Eve, Paradise with its two trees and four rivers, the temptation of Eve by a demonically-possessed serpent, followed by the flood and the tower of Babel. But he deems it “disgraceful and disastrous” when Christians propound scientific viewpoints on the basis of Scripture which end up being false, thereby discrediting the authority of the word of God and the gospel (Augustine, 2002:186-187). This does not hinder Augustine (2002:190-191), however, from appealing extensively to natural phenomena to explain the waters above the firmament. Neither does it discourage him from reproducing the scientific opinion of his day to explain in Genesis 1:7 that the sky “above the air” is made of “pure fire” because fire always rises above air (Augustine, 2002:193). Augustine (2002:220-211) also asserts that Moses was aware of the four elements and had not “overlooked the element of air”. And to provide some scientific credibility for there being “waters above the heavens”, he cites the apparent coldness of Saturn as evidence of its proximity to these waters (Augustine, 2002:195-196).

Augustine (2002:262-263), also tries to harmonise Genesis with science by asking “how light could circulate” for three days before the existence of the sun, moon and stars and heaven itself. Even the commonly-held belief in spontaneous generation (as popularised by Aristotle), is reproduced in Augustine’s (2002:227) commentary to explain the variety of ways in which the earth might bring forth living creatures. As expected, this overbearing adherence to science produces more inexplicabilities in the text. Augustine (2002:229) is compelled to explain how these “minutest animals” could be created spontaneously from putrefaction and the “rotting of corpses” in the first week of creation when everything was declared by God at this stage to be very good. His suspicion is that these tiny creatures were only created in seed form during the first week, whereafter they could appear fully-formed once creation had been subjected to decay (Augustine, 2002:229-230).

Towards the end of his commentary, Augustine offers a general principle of interpretation. If anything in Genesis can be taken literally, it should; but in cases where the meaning is absurd, the exegete should find a figurative meaning in the text instead (Augustine, 2002:429-430).

5.3.7.5 *City of God*

Augustine was not finished with Genesis. In his magnum opus, the *City of God*, he returned once again, for the fifth and final time, to try and explain this book. Yet, the six days of creation remain an enigma for Augustine (2008a:196) who, even now, confesses that it is “impossible to think – let alone explain in words – what they mean.” This is primarily due to the fact that he is constrained by opposing realities: a world “made not in time but together with time” at the same time (Augustine, 2008a:195-196, 235). His newest solution is to equate “day” with the angels which he believes God created as light in Genesis 1:3 (Augustine, 2008a:201, 238). Consequently, this makes the separation of light from darkness in Genesis 1:4 a separation of good angels from bad angels (Augustine, 2008a:240-241). This kind of allegorising continues with the number six, which is taken as a perfect number; the “beginning” that refers to God’s

Wisdom or Word; and evening and morning which he takes as a description of how “knowledge turns to the praise and love of its Creator” (Augustine, 2008a:197, 235, 238).

But there is a far greater resolve from Augustine to derive the literal sense of Genesis where possible. He is more critical of Plato’s *Timaeus* (Augustine, 2008a:291, 294-295, 319-323, 327). He also takes unbelievers to task for their false chronologies, arguing from Genesis 1-11 that the earth is between five to six thousand years old, and that all human beings descend from Adam and Eve, “our first parents”, according to the genealogies laid out in chapters 5 and 11 (Augustine, 2008a:263, 265, 267, 374, 430). It appears that from the time that Adam arises in the text of Genesis, Augustine (2008a:290, 336, 339-345, 431, 509-515) treats the entire account as literal history. Although he permits the allegorising of Eden, the temptation of Eve, the fall of man, Noah and the flood, he criticises those who only allegorise without acknowledging the literal historicity of the account (Augustine, 2008a:330-332, 480, 484). That said, not all allegories are deemed worthy. For example, Augustine (2008a:396-398), in contradiction to his first commentary, does not approve of allegories given to the creation mandate whereby male and female are treated as reason and desire à la Origen.

One major distinguishing factor in this last commentary is his engagement with the Hebrew text via Jerome’s Vulgate.¹¹³ Unlike in his previous works, he appears critical of the Septuagint,¹¹⁴ believing it to be more likely corrupted by copyists than the Hebrew text (Augustine, 2008a:440-441). When he returns to this topic later on, however, he states that the Septuagint was equally inspired in translation as the Hebrew text was in its original inception, granting both the same authority and infallibility (Augustine, 2008b:156-157). It is for this reason, perhaps, that he leaves the reader to decide whether to accept the 2262 years (following the LXX) or the 1656 years (following the Hebrew) from Adam to the flood (Augustine, 2008a:462). The books of *Wisdom* and *Sirach* are also conspicuously absent from his discussion.

5.3.8 Jerome (c. 342-420)

Jerome was the first to translate the Bible into Latin using the Hebrew instead of the Septuagint, thereby producing one of the most important and influential books of antiquity (Kamesar, 1993:1). More than a millennium later, the Council of Trent (1545-1563) continued to endorse the Vulgate as the official biblical version with magisterial authority (Schroeder, 1941:18-19). Hence, where Augustine was hamstrung by his ineptitude in Hebrew, Jerome excelled, making the study of the language a singular priority, even to the point of studying in Israel for a period of time (Haward, 1995:1).

In addition to translating Genesis into Latin, Jerome also offers a brief philological commentary¹¹⁵ showing where and why he gives priority to Hebrew over the Septuagint. For example, he points out that the Samaritan and Hebrew texts, having a different genealogy in Genesis 5, avoid the problem created by

¹¹³ Augustine (2006:247) admits in his *Confessions* that he cannot read Hebrew.

¹¹⁴ In particular, he notices that Methuselah must survive the flood by fourteen years according to the LXX (Augustine, 2008:436-437).

¹¹⁵ i.e. *Quaestiones Hebraicae in Genesim* (“Hebrew questions on Genesis”)

the Septuagint where Methuselah survives fourteen years after the flood (Jerome, 1995:35-36). Jerome (1995:30) is also dismissive of the manner in which Tertullian and other commentators have interpreted “the beginning” in Genesis 1:1 to refer to the Son, thereby distorting the Hebraic sense of the text. But Jerome takes his own turn to stumble on the Hebrew. In Genesis 2:8, he mistranslates מִקֵּדָם to mean “from the outset” leading him to assert that God made Paradise before creating the world (Jerome, 1995:31).

Jerome (1995:31-33, 35-36, 107) does not engage in extensive commentary, but where he does supply exegetical analysis, he consistently upholds the literal sense of Genesis 1-11, taking Eden as a real place, Adam and Eve as real people, and he does not question the historicity of the chronologies in chapters 5 and 11. Overall, there is no evidence of any allegorising in his notes on the text, and he is particularly disparaging of Origen, whom he refers to as Adamantius (Jerome, 1995:29).

5.3.9 Severian of Gabala (c.380-c.408)

Severian was appointed to serve for a time as Chrysostom’s “stand-in preacher”, a position that eventually resulted in the exile and subsequent death of the archbishop of Constantinople (Hill, 2010:5; Kelly, 1995: 184-185, 248, 248-285). But this infamy did not dissuade Severian from relying heavily upon Chrysostom in his own homilies on Genesis (Hill, 2010:6). Not surprisingly, therefore, his approach to Genesis typifies the literalism of the Antiochene school. Severian (2010:49, 66-69, 71-72, 74-75, 84, 91-92) depicts Moses as an historian, conveying the history of creation from the creation of stars and planets on the fourth day¹¹⁶ to a literal Adam and Eve in Paradise and a serpent that spoke audibly to the woman by the power of Satan. He also asserts that God created the world in six days *ex nihilo* (Severian, 2010:26, 28, 33). Severian (2010:28) has strong words for the “heretic’s allegories”, condemning the interpretation of light in Genesis 1:3 as the Son of God. But Severian (2010:50, 63, 71-72, 91-92) is not completely opposed to allegories, provided that the literal sense is retained. Like his predecessor, Severian (2010:33-34) is dependant upon the Greek for his understanding of the creation story,¹¹⁷ but he is able to avoid the apparent problem of invisibility in Genesis 1:2 by referring to other translations¹¹⁸ that better convey the underlying Hebrew as “unadorned” and “unfinished” rather than invisible.

In addition to determining the literal sense of the text, Severian is also concerned to justify and defend it scientifically. Thus, accepting the notion that all matter reduces to the four elements, he takes pains to find each of these within the first three verses, taking the “spirit of God” in verse 2 to be the “movement of air” and the light of verse 3 for how God made fire (Severian, 2010:27-28). He also discusses why God would place waters above the firmament, arguing in this case that without a “ceiling” the fire from the sun, moon and stars would escape upwards instead of being “directed downwards” (Severian, 2010:35).

¹¹⁶ Severian (2010:41) explains that God created the sun from the light in the same way that a craftsman would make gold coins from nuggets.

¹¹⁷ In a few places, this limitation leads to fanciful exposition, importing and imposing unwarranted wordplays upon the meaning of the text (Severian, 2010:29, 63).

¹¹⁸ Like those of Aquila, Symmachus and Theodotion (as explained by Hill; Severian, 2010:34).

In fact, as this explanation suggests, Severian (2010:44) has a flat-earth cosmology which he justifies, not from Genesis, but from Isaiah 40:22 and Ecclesiastes 1:5-6.

5.3.10 Cyril of Alexandria (c.378-444)

Cyril was the foremost apologist to contend against Nestorius (c.386-c.450), the bishop of Constantinople, eventually resulting in the Council of Ephesus in 431 (Hillis, 2018:4; Wessel, 2004:4). The fame and prestige attached to this conflict, along with its outcome, made Cyril a father of the Eastern Orthodox church (Wessel, 2004:5-6). He was a prolific writer and exegete of Scripture, producing two significant commentaries on the Pentateuch: *De adoratione et cultu in spiritu et veritate*¹¹⁹ and the *Glaphyra* (Hillis, 2018:4, 10).

In the *Glaphyra*, Cyril (2018:52, 81, 87) sets out to derive “the mystery of Christ” from Genesis, by first exploring the literal sense of the text before moving on to its “spiritual” meaning. As his exposition unfolds, Adam and Eve, Cain and Abel, Noah and his descendants are all treated as real historical people; the garden of Eden is a literal place, along with the tree of the knowledge of good and evil; and the ark, the flood and the tower of Babel are taken as fact (Cyril, 2018:56-57, 62-63, 67, 81, 86-87, 103-104). In his discussion on Genesis 6:1-4, Cyril (2018:84-85) rejects the popular angelic interpretation, believing instead that the “sons of God” is a reference to the descendants of Cain who took wives from the daughters of Cain.

Allegorically, he believes that Cain can be seen to represent Israel whilst Abel is a type of Christ (Cyril, 2018:70, 72). Likewise, the ark offers us a picture of salvation with Noah as another Christ-type (Cyril, 2018:88-95). At Babel, Pentecost is symbolised with Christ as our “strong tower” to unify the church (Cyril, 2018:104-105).

5.3.11 Theodoret of Cyrus (c.393-460)

Theodoret, like Cyril, played a pivotal role on both the Council of Ephesus and the Council of Chalcedon (451) twenty years later (Hill, 2007:xx). That said, Theodoret was opposed to Cyril’s heavy-handed approach to the Nestorians and denounced the twelve anathemas proposed by Cyril against Nestorius (Hill, 2007:xix; Wessel, 2004:221, 257, 266).

Theodoret was also a keen biblical commentator, producing a work entitled *Questions on the Octateuch*,¹²⁰ which comprised an extensive treatment on eight books of the Bible from Genesis to Ruth. Theodoret’s writings belong to the Antiochene school, typifying a keen interest in the literal sense of Scripture (Hill, 2007:xli-xlii). Moses is therefore seen as “the historian” (ὁ συγγραφεύς) of Genesis, recording the facts of creation in plain terms (Theodoret, 2007:59). All details expounded from the text are restricted to their literal sense from Adam to the Tower of Babel (Theodoret, 2007:17-123). Where he mentions allegory, it

¹¹⁹ i.e. “Concerning Worship and Service in Spirit and in Truth” (Cyril, 2018:52).

¹²⁰ Latin: *Quaestiones in octateuchum*

is only in reference to those who have resorted to “mythological fable” (Theodoret, 2007:87-89). In answer to the question, “Whom did Cain marry?”, he replies, “His sister, of course” (Theodoret, 2007:93). Theodoret (2007:37, 49) has little regard for the cosmogonies of Pythagoras, Socrates, and Plato. Yet, he still seeks to establish the scientific credibility of the text where possible. He points out how the “four elements” are accounted for by Moses, taking the “spirit” in Genesis 1:2 as a reference to air (Theodoret, 2007:25, 43). Theodoret (2007:29) explains that the waters were placed above the firmament to protect it from being burnt by the “fire of the luminous bodies”. He also avoids any supernatural explanation for the “sons of God” in Genesis 6:2,¹²¹ calling those who interpret these as angels to be “mad fools” (Theodoret, 2007:97). In his discussion of the dispersion at Babel, he states that the original language spoken by Adam and Eve was Syriac (Theodoret, 2007:123).

5.3.12 Summary

With few exceptions, the first eleven chapters¹²² of Genesis continue to be treated as literal history throughout the Nicene and Post-Nicene period (see table 5.4). What is worth noting, however, is the increasing desire amongst commentators to justify the text on philosophical and scientific grounds. In some cases, as with Gregory and Augustine, this led to interpretive choices that would not be found within the narrative itself. Put more provocatively, these outside concerns often led to interpretations which had very little foundation in the Genesis record at all. This is easier to see in hindsight, given that much of the science or philosophy that had traction back then has little to no credibility today.¹²³ But, as we will see, the hermeneutical model presented in these commentaries, especially that of Augustine, became incredibly formative for future expositors seeking to accommodate Genesis 1-11 within the scientific paradigm of their own generation.

Table 5.4 – The interpretation of Genesis 1-11 during the Nicene and Post-Nicene Era

Publication Date	Author	Title	Interpretation
363-373	Ephrem the Syrian (c.306-373)	Hymni de Paradiso	literal
		Sancti Ephraem Syri in Genesim et in Exodum commentarii	literal
c. 370	Basil of Caesarea (330-379)	Hexaemeron	literal
c. 380	Didymus the Blind (c.313-398)	Εἰς τὴν Γένεσιν	literal & allegorical (philosophical/scientific)
380-381	Gregory of Nyssa (c.335-c.395)	Hexaemeron	literal (philosophical/scientific)
		Τῆς τοῦ ἀνθρώπου γενέσεως	literal (philosophical/scientific)
c. 385	John Chrysostom (c.347-407)	Ομιλίαι εἰς τὴν Γένεσιν	literal
c. 375	Ambrose of Milan (c.339-c.397)	De Paradiso	literal & allegorical
c. 375		De Cain et Abel	literal & allegorical

¹²¹ Like Augustine, he believes Genesis 6:1-4 describes the sons of Seth from the godly line intermarrying with the daughters of Cain (Theodoret, 2007:101).

¹²² For a more detailed breakdown of how these chapters were interpreted, refer to the summary presented in table 5.9.1.

¹²³ For example, science no longer entertains the possibility of grasshoppers, mice and frogs arising directly by spontaneous generation (Basil, 1963:137).

Table 5.4 (continued)

Publication Date	Author	Title	Interpretation
387-389	Ambrose of Milan (c.339-c.397)	Hexameron	literal
388-389	Augustine of Hippo (354-430)	De Genesis contra Manichaeos	literal & allegorical (philosophical/scientific)
393-395		De Genesis ad litteram liber unus imperfectus	literal & allegorical (philosophical/scientific)
397-401		Augustini Confessiones	allegorical
401-416		De Genesi ad litteram	literal & allegorical (philosophical/scientific)
426		De civitate Dei contra paganos	literal & allegorical
c. 392	Jerome (c.342-420)	Quaestiones Hebraicae in Genesim	literal
401	Severian of Gabala (c.380-c.408)	In Cosmogoniam	literal (philosophical/scientific)
412-423	Cyril of Alexandria (c.378-444)	Glaphyra	mostly literal
450-460	Theodoret of Cyrus (c.393-460)	Quaestiones in octateuchum	literal (philosophical/scientific)

This explains why Descartes (1991:349), Burnet (1726:xix-xx), Dupuis (1872:226-227) and Paine (1908d:37-38) find great value in Augustine when it comes to the reinterpretation or total rejection of Genesis 1-11. The science might have changed, but the principles had not. The most famous example, of course, is that of Galileo (1957:186), who in his defence of Copernicanism summoned Augustine¹²⁴ to the fore, saying:

If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken.

The other notable feature to arise in commentaries during this period is the disproportionate influence of the two non-canonical books: the *Book of Wisdom* and the *Book of Sirach*. Together these books create a formidable obfuscation of Genesis 1, predisposing commentators to explore nonliteral readings of the text. As we will see, their impact continues to be felt throughout the Medieval era.

5.4 The Medieval period (500-1517)

For the thousand years spanning the Medieval period, there are very few extant commentaries available (see table 5.5). One recent study estimates that only 9% of all the books and manuscripts from this period have survived to the present day (Kestemont et al., 2022:765-769). In this review, there are ten commentaries which will be analysed to ascertain how Genesis 1-11 was understood from 500 to 1517 AD.

¹²⁴ Galileo's use of Augustine was selective. In the *City of God*, Augustine (1890a:903) called for scripture to interpret scripture before appealing to "the evidence of reason" for "this is a dangerous practice."

Publication Date	Author	Nationality	Religion or denomination	Original title
680-692	Anastasius of Sinai (d.700)	Greek (Sinai)	Roman Catholic/Eastern Orthodox	Hexaemeron
709-731	Bede the Venerable (672/3-735)	English (Northumbria)	Benedictine Monk	Libri quatuor in principium Genesis usque ad nativitatem Isaac et eiectionem Ismahelis adnotationum
729-743	John of Damascus (c.675-749)	Arabic (Damascus)	Eastern Orthodox	De fide orthodoxa
1094-1098	Anselm of Canterbury (1033-1109)	Italian (Aosta/Canterbury)	Benedictine Monk	Cur Deus homo?
c. 1129	Peter Abelard (c.1079-1142)	French (Paris)	Catholic	Expositio in hexaemeron
c. 1150	Peter Lombard (c.1096-1160)	French (Paris)	Catholic	Libri Quatuor Sententiarum
1155	Abraham ibn Ezra (1089/1092-1167)	Jewish (Navarre)	Jewish	Sefer ha-Yashar
c. 1190	Maimonides (1138-1204)	Arabic (Córdoba)	Sephardic Jewish	Dalālat al-ḥā'irīn
c. 1225	Robert Grosseteste (c.1168-1253)	English (Oxford)	Church of England	Hexaemeron
1269-1272	Thomas Aquinas (1225-1274)	Italian (Paris/Rome)	Dominican Catholic	Summa theologica

Table 5.5 – Medieval works featuring Genesis 1-11

5.4.1 Anastasius of Sinai (d. 700)

Although the writings of Anastasius have been deemed of “little value”, his commentary on Genesis stands out as “one of the most important works of Christian mysticism from the Byzantine era” (Venables, 1877:110; Kuehn & Baggarly, 2007:xiii). His *Hexaemeron* defies the literalist tradition it joins, if only in name, providing a unique typological interpretation of the Mosaic account (Kuehn & Baggarly, 2007:xiii).

Anastasius (2007:7, 267) believes that Moses, writing not only as an historian but also prophet, portrays in his narrative “the image of the Church and her bridegroom Christ”. All his exposition conforms to this framework. When God says, “Let there be light”, it is a reference to Christ, the true light, in anticipation of the incarnation (Anastasius, 2007:27-29). Evening and morning prefigure the resurrection (Anastasius, 2007:45-47). Resurrection is also found on the third day of creation which anticipates Christ rising from the dead on the third day (Anastasius, 2007:71, 73, 75). God places the firmament in the midst of the waters to show how faith relates to baptism (Anastasius, 2007:49). Anastasius (2007:105) follows Theophilus and Origen, seeing the sun as Christ and the moon as the church. The tree of life is Christ¹²⁵ and the garden of Paradise is his church (Anastasius, 2007:257, 275, 277, 281, 435). In the same way, Adam is a type of Christ as Eve is a type of the church (Anastasius, 2007:321). For Anastasius (2007:257), this typology becomes the interpretive key to unlocking the secrets of Genesis. Being a type of Christ,

¹²⁵ In other places, Anastasius (2007:103, 219) allows a modification of this type, referring to the tree of life as the cross of Christ.

Adam is exonerated as blameless and innocent with all the blame falling on Eve,¹²⁶ his sinful bride (Anastasius, 2007:411, 413). Even the act of Adam eating the fruit is construed in its most noble light, depicting Christ suffering for his church (Anastasius, 2007:397).

Initially, it seems that Anastasius (2007:19, 21, 271) allows for the literal sense of Genesis, merely offering his typological insights as the deeper “spiritual” meaning of the text. From this angle, the literal interpretation is presented as satisfactory as far as it goes, provided that the exegete is not enslaved to it (Anastasius, 2007:11). He insists that allegorising does not annul the facticity of the literal account (Anastasius, 2007:95, 105). But he is also critical of Origen who allegorised too much, not taking enough of the text as “literal fact” (Anastasius, 2007:269). It would be a mistake, however, to take Anastasius’ concessions for the literal meaning as normative. When he begins to discuss Genesis 2 and the nature of Paradise,¹²⁷ it quickly becomes apparent that the literal sense has little value here, if at all. To demonstrate his point, he lists all the problems that arise when an exegete tries to understand this chapter in plain terms (Anastasius, 2007:255, 257, 259, 267, 307, 375). The literal sense, he argues, is fraught with complications, “thousands of Charybdes and mountainous mazes” (Anastasius, 2007:259). For all these reasons, he encourages his reader to “Say ‘farewell’ to the letter, in so far as it kills” and embrace “the Spirit” (Anastasius, 2007:375). This is, in fact, the maxim that Anastasius (2007:63, 255, 271, 297, 301, 375) returns to, repeatedly, to motivate the superiority of his “spiritual” hermeneutic.

Overall, Anastasius (2007:207, 209, 215, 217) accepts enough of the account as history to be able to maintain that the world is roughly six thousand years old from the time of Adam, which he relates directly to the six days of creation.¹²⁸

5.4.2 Bede (672/3-735)

Bede’s Latin commentary on Genesis,¹²⁹ being the first of its kind in Anglo-Saxon England, had a seminal influence on later commentators seeking to expound the hexaemeron (Hardin, 2010:98). Yet, by his own estimation, the best treatments on Genesis were to be found in the writings of Basil,¹³⁰ Ambrose and Augustine (Bede, 2008:65). Bede’s (2008:66) own commentary, therefore, endeavours to collate and compile, in one place, the best writings on the subject from the fathers. This meant that his content was hardly original. Large portions of his exposition are quotations taken verbatim from Augustine,¹³¹

¹²⁶ Anastasius (2007:325, 327) has quite a bit to say about women, beginning with Eve, the unhelpful helper and “patroness of death, corruption, and general destruction”. On these terms, Eve is “not a mother of the living, but of dead men” (Anastasius, 2007:457).

¹²⁷ Anastasius (2007:255) believes this passage has been notoriously difficult to understand by various commentators.

¹²⁸ He appears to follow the millennial interpretation espoused by Victorinus and Lactantius, pointing out that Christ died in the sixth millennium just as Adam was created on the sixth day (Anastasius, 2007:217).

¹²⁹ i.e. *Libri quatuor in principium Genesis usque ad nativitatem Isaac et electionem Ismaelis adnotationum*

¹³⁰ See Bede (2008:71, 72, 73, 76)

¹³¹ See Bede (2008:71, 75, 84-86, 91-92, 96, 108-114, 116-139, 143-145, 149, 151-154, 162-164, 166, 168, 171, 175, 177, 181-182, 184-185, 188, 190, 192, 195, 206, 208, 210-212)

Jerome,¹³² and Ambrose.¹³³ Not surprisingly, Bede's own treatment on Genesis was eclipsed in stature by Augustine and Ambrose's prior efforts (Kendall, 2008:1).

In his commentary, Bede upholds both literal and allegorical interpretations. In terms of the literal sense, Bede (2008:73, 75, 80) understands the first day of creation to be "without doubt a day of twenty-four hours", taking the light of Genesis 1:3 as "material light" with the sun, moon and stars coming into existence only on the fourth day. His exegesis, as in the case of Augustine, continues to be hamstrung by Sirach 18:1¹³⁴ that requires God to make everything at the same time. (Bede, 2008:106). Yet, unlike Augustine, he avoids having to reconcile one day as six days by rendering the "day" of Genesis 2:4 as a general reference to the overall time period of creation (Bede, 2008:106-107).¹³⁵ Other typical examples of the literal sense can be found in his treatment of Adam and Eve, Paradise, the two Edenic trees, Noah and the ark and the tower of Babel (Bede, 2008: 90-91, 95, 103, 109-111, 121, 133, 157, 161, 172-199, 228-233). Bede's (2008:94) commitment to the facticity of the account can also be seen in how he handles Genesis 1:29, leading him to state that all animals were vegetarians before the fall. Likewise, he accepts the literal existence of waters above the firmament from Genesis 1:6-7, pointing out that the greater miracle would be to consider how God hung the earth upon nothing (Bede, 2008:76).

In terms of the allegorical sense, Bede (2008:69) believes that an additional layer of meaning can be derived from the text, but never at the expense of rejecting the "manifest truth of history by allegorical interpretation." Allegorically, he sees six as a perfect number depicting a perfect creation;¹³⁶ Paradise as a type of the "present Church and of the fatherland to come"; the creation of Eve as a symbol of the sacrament; the naming of woman from man as a signifying how Christians receive Christ's name; and, as with Augustine and Anastasius, he sees the tree of life as a type of Christ (Bede, 2008:96, 111, 122, 123, 139). More innovative allegories include Cain's murder of Abel as a picture of how the Jews killed Jesus; the three sons of Noah as symbolic of the Trinity; and two levels of the ark to show that "circumcision and foreskin, the Jews and Greek, were to be saved in the Church" (Bede, 2008:150-151, 168, 181).

5.4.3 John of Damascus (c. 675-749)

John of Damascus, known for his pioneering apologetic work against Islam, produced a summary of Christian doctrine going back to the first century, entitled the *Fount of knowledge* (Janosik, 2016:18-20). In doing so, he gave the world the "first great *Summa* of theology" (Chase, 1999:v). The main part of this work is his treatment on the *Orthodox faith*, from which his stance on Genesis 1-11 can be ascertained.

¹³² See Bede (2008:70, 77, 140, 142-143, 146-148, 153-154, 156-157, 159-160, 162, 170, 172, 178, 189, 207, 212)

¹³³ See Bede (2008:74, 79, 115, 128, 191)

¹³⁴ Following Augustine, both the book of Sirach and Wisdom feature prominently in Bede's (2008:71, 72, 96, 106, 143) commentary.

¹³⁵ He also avoids the contradictions created by Augustine, by taking Genesis 2 as a recapitulation of the sixth day of Creation. (Bede, 2008:109).

¹³⁶ Bede (2008:100-105) adopts the popular eschatological framework derived from the hexaemeron, taking the seven days as representing seven ages of the world.

John's approach to the Mosaic record concerns mostly the literal sense of the text and its relevance to contemporary philosophical and scientific beliefs. Drawing insight from Basil¹³⁷ and Gregory of Nazianzus (329-390),¹³⁸ he uses Genesis 1:1-3 to discuss *creatio ex nihilo*, the four elements, the "seven" planets,¹³⁹ solar and lunar eclipses, and various cosmological models¹⁴⁰ (Damascene, 1999:205, 210, 212, 227, 210, 215-230). John treats the six days of creation as periods of twenty-four hours; Adam and Eve as "our first parents"; Eden as a real place; the flood as an historical event along with the confusion of languages at Babel (Damascene, 1999:217, 229-231, 267). But this does not preclude him from viewing Paradise and the trees of Eden in an allegorical manner. In this case, emulating Philo, the tree of life is the "contemplation of God"; the tree of knowledge is the "power of discernment"; and all other trees in the garden represent the "knowledge of divine power" (Damascene, 1999:232-233).

5.4.4 Anselm of Canterbury (1033-1109)

Anselm's theology grew in soil fertilised by Augustine, Jerome, Gregory and Bede (Davies & Evans, 1998:xxi). As in the case of the Damascene, he wrote no commentary on Genesis, yet his views can be determined to some extent from his discussion in *Cur Deus homo*.¹⁴¹ In this treatise, Adam, Eve and the garden are all taken literally (Anselm, 1998:270, 296, 301-302, 321-323). The fall of man is also accepted as plain history (Anselm, 1998:269). Anselm's (1998:292) view on the hexameron, however, seems to betray his dependence on Augustine, and the consequent confusion regarding how all things might have been made simultaneously whilst at the same time taking six days. Again, this is largely due to the prevailing influence of *Sirach 18:1* which, more than six hundred years after Augustine, continues to make the exegete's task unnecessarily harder (Anselm, 1998:293).

5.4.5 Peter Abelard (c. 1079-1142)

Peter Abelard (2011:32) wrote a commentary on Genesis 1:1-2:25 at the request of Heloise, his tragically estranged lover. He suggests that the text can be interpreted in three ways, according to the historical, moral and mystical sense – although he spends most of his commentary exploring the historical sense (Abelard, 2011:33). Abelard's (2011:32) work draws insight from Origen, Jerome, Bede, Ambrose, Josephus; but relies predominantly upon the "blessed Augustine" whom he admires as the greatest commentator of Genesis.¹⁴²

In exploring the literal sense of the *hexameron*, Abelard endeavours to show how Genesis is both philosophically and scientifically satisfying. Thus, following Plato's *Timaean*, he demonstrates how the four elements can be found in Genesis 1:1-2 (Abelard, 2011:34-37). For Genesis 1:6-7, Abelard (2011:48-50) cites Boethius, explaining how water, though being heavier than fire and air, could be placed above them.

¹³⁷ For his use of Basil, see Damascene (1999: 211-212, 218-219, 224, 226, 229-230).

¹³⁸ Of all commentators, John finds Gregory of Nazianzus most helpful (Damascene, 1999: 203, 205-208, 231, 233-235, 267).

¹³⁹ By seven planets, he means the sun, moon, Jupiter, Mercury, Mars, Venus and Saturn (Damascene, 1999:212).

¹⁴⁰ He is undecided as to whether the heavens are a sphere or a hemisphere (Damascene, 1999:212-213).

¹⁴¹ i.e. "Why God became man"

¹⁴² See Abelard (2011:51, 64-66, 86, 98, 110-111, 114).

The separation of these waters is said to be achieved by the “wind” (רוח) of God in Genesis 1:2 (Abelard, 2011:40). As to the nature of the “upper waters”, Abelard (2011:50-51) initially proposes that they could be in a frozen or crystalised state à la Josephus, Bede and Jerome; but following Augustine’s agnosticism, he leaves the matter undecided. What he does suggest, however, is that the waters were placed above the firmament to cool the “heat of the upper fire”¹⁴³ (Abelard, 2011:52). The literal sense of Genesis 1:30 is also problematic for Abelard (2011:84) because he does not know how meat-eating animals would have survived prior to the fall.

After the *hexameron* portion of his commentary, Abelard’s (2011:80, 84-85, 95, 101-105, 110, 112, 117-120) exegesis has easier fare and follows a more predictable pattern, treating as history Adam and Eve, the garden, the two trees, the serpent and Noah’s flood. Drawing upon Isidore of Seville’s (c.560-636) *Etymologiae*, he describes the geography of the four rivers in Genesis 2:10-14 (Abelard, 2011:107-108). Among his more eccentric thoughts, Abelard (2011:64-65) entertains the possibility that the stars and planets are living creatures – an idea originally broached by Augustine. He also echoes Augustine’s disparagement of women, stating that the man was not seduced like his wife because he was wiser and more rational (Abelard, 2011:79).¹⁴⁴

It is evident that Abelard’s attention to the so-called literal sense of the text is not entirely literal. He describes the Spirit brooding over the waters like a hen sitting on an egg (Abelard, 2011:38-39). The sacrament of baptism is found in Genesis 1:2 and again in Genesis 1:20 (Abelard, 2011:40, 73-74). The light in Genesis 1:3 is not physical light but the light of reason by which all the disordered darkness in Genesis 1:2 is differentiated and ordered (Abelard, 2011:38, 43, 45). Even the six days of creation are treated as periods of indeterminant duration (Abelard, 2011:54). His explanation appeals, firstly, to the fact that the first three days lacked the sun and, secondly, to Genesis 2:4-5 which, following Augustine, makes six days equal one day (Abelard, 2011:47, 53-54, 97). In fact, Abelard (2011:42, 46) believes that the “day one” of Genesis 1:5 refers to the “totality of all the completed works of God” (which he takes in an intellectual sense), from which God forms everything else (i.e. the “sentient” creation).¹⁴⁵ To make sense of evening and morning, he claims that these point to “concepts in the divine mind” (Abelard, 2011:57).

Abelard’s moral interpretation is brief. He views heaven and earth as the soul and body, with the Spirit brooding over the waters as God makes a “spiritual man” from an “animal man” (Abelard, 2011:93). The light in Genesis 1:3 is for the “illumination of faith” and the lights created on the fourth day portray how the preaching of the word spiritually illuminates the world (Abelard, 2011:93-94).

His allegorical interpretation is equally short. By allegorical, he understands the six days of creation to refer to six ages of the world (Abelard, 2011:95-96). In my opinion, there is more allegory to be found in his literal interpretation of the text than in the section he calls allegorical.

¹⁴³ This was also Theodoret’s (2007:29) idea.

¹⁴⁴ An ironic position to take, in light of his tragic romance with Héloïse d’Argenteuil.

¹⁴⁵ These two tiers of Creation (corporeal vs incorporeal) are attributed to Plato via Augustine (Abelard, 2011:42).

5.4.6 Peter Lombard (c. 1096-1160)

Peter Lombard, emulating the scientific approach to theology pioneered by Abelard, wrote four books entitled, *Sententiae in quatuor IV libris distinctae*,¹⁴⁶ which quickly became the standard text on theology (Rosemann, 2004:3). In his second book, he engages with Genesis 1-3, using this new model of investigation in a manner that would eventually make the popular hexaemeral format obsolete (Hardin, 2010:98).

Overall, Lombard's treatment of the Mosaic account prefers the literal sense of the text. He affirms the historicity of Adam and Eve, the garden of Eden, the two trees, the serpent and the fall of man¹⁴⁷ (Lombard, 2012:74-78, 84-86, 93-94). Although he quotes Augustine¹⁴⁸ voraciously, on the six days of creation he follows Bede,¹⁴⁹ taking the first day to be a "natural day" of "twenty-four hours" (Lombard, 2012:55-56). Both *Sirach 18:1* and *Wisdom 11:21* continue to meddle with the interpretation of the text leading Lombard (2012:8-9, 41) into deep waters as he tries to reconcile "Scripture" with Scripture. In the end, he sides with Gregory, Jerome and Bede over against Augustine by asserting that God creates the world in two stages, beginning with the instantaneous creation of "formless matter" from which God forms everything else "at intervals over six days" (Lombard, 2012:49-50, 53, 65). As for the intermediate state described in Genesis 1:2 as chaos, Lombard (2012:12) follows Abelard, taking this to mean a "confused and indiscriminately mixed matter of corporeal things". Lombard (2012:54) is content to echo Augustine's opinion on the nature of light created in Genesis 1:3, taking it both in a corporeal sense (as a "luminous body") and allegorically (referring to angels). In the same vein, the separation of light from darkness becomes the separation of good angels from bad angels; and when God calls the light day, this is his grace upon the good angels whereas the darkness gets named night to convey how God blinds the bad angels (Lombard, 2012:21-22). Indeed, Lombard (2012:8-49) takes more than a passing interest in angels, devoting a significant portion of his discourse to them.

When it comes to the firmament, he accepts Bede's interpretation for it being made of "crystalline stone"; but he admits no answer as to what shape it takes or whether it moves (Lombard, 2012:59-60). In explaining when harmful and poisonous creatures were made, he cites Augustine, arguing that their lethality only originates after the fall (Lombard, 2012:64). Lombard (2012:64) also follows Augustine's views on the spontaneous generation of "small animals" after the six days of creation.

As already indicated, Lombard finds additional value in pursuing the allegorical sense of the text. Following this approach, evening and morning depict how man sinned (falling from light into darkness) and was saved (from darkness to light) (Lombard, 2012:56). Although Paradise should be taken as "earthly and local", it can also refer to the church (Lombard, 2012:74). Similarly, the creation of Eve from

¹⁴⁶ i.e. "Sentences divided into four books"

¹⁴⁷ The "fall of man" might be a slight misnomer given that Lombard (2012:100-101) believes, like Augustine and Anastasius, that the woman sinned more than the man.

¹⁴⁸ Of all commentators, Augustine unquestionably holds the greatest sway over Lombard (2012:5, 6, 9-10, 12, 14-17, 19-20, 28-39, 41, 43, 48-52, 54, 56-57, 59-60, 62-67, 69-76, 78-81, 83-89, 93-94, 96-115).

¹⁴⁹ He also quotes Bede frequently (Lombard, 2012:3, 5, 11, 37-38, 50, 55-56, 59, 61-63, 66-68, 72-75, 85).

a rib, following Abelard and Bede, prefigures “the sacrament of Christ and his Church” (Lombard, 2012:77).

5.4.7 Abraham ibn Ezra (1089/1092-1167)

Abraham ben Meir ibn Ezra was a famous Spanish polymath, identified by most historians as a heterodox Jew with a rationalistic bent,¹⁵⁰ known pre-eminently for his commentary on the Pentateuch, *Sefer ha-Yashar*¹⁵¹ (1155) (Silver, 1988:vii; Green, 2015:83). At the outset of this book, he describes and critiques four schools of biblical interpretation. The first, being overtly philosophical and scientific, reads too much into the text; the second, being the allegorical approach, is the “way of darkness and gloom” encouraging the exegete to find secret explanations never intended by the author; and the third, which follows the Midrashic school of interpretation, fails because of the many differing views that have to be adjudicated (Ibn Ezra, 1988:2-10). The last school of interpretation is the literal approach, which he commends to his reader upon the following grounds:

Thus anything in the Torah which does not contradict reason we must explain literally, take as it is written, and believe that it is so. We should not grope walls as the blind do, and interpret verses according to our subjective needs. Why should we turn what is evident into mysteries? (Ibn Ezra, 1988:10)

What follows is fairly typical of the literal commentaries we have encountered so far. He points out that the word used in Genesis 1:1 for “created” (בָּרָא) does not literally imply *creatio ex nihilo* on its own semantic merit because the word can be employed in a number of ways where this sense is clearly not intended (Ibn Ezra, 1988:22-23). Ibn Ezra (1988:52-55, 68) locates the garden of Eden somewhere below the equator, and posits that the two trees were of a species “not found anywhere else on the face of the earth”. The walking, talking serpent is seen to be intelligent and articulate in its own right, without the influence of Satan, and therefore bears the full brunt of the blame later (Ibn Ezra, 1988:65-66). He also affirms, from Genesis 1:29, that both animals and humans enjoyed an exclusively vegetarian diet before the fall (Ibn Ezra, 1988:47).

Thus, in general, following the Hebrew, Aramaic and Septuagint, Ibn Ezra endeavours to maintain the literal sense wherever possible. But in a few places, his commentary deviates from the norm. Man is not made in the image of God because God does not have an image; instead Genesis 1:26-27 is meant to convey how man’s soul fills his body in the same way that God fills the universe (Ibn Ezra, 1988:46). He also believes that man was made from all four elements, not merely the dust¹⁵² of the earth (Ibn Ezra, 1988:74). Then, in Genesis 3:8, Ibn Ezra (1988:69) states that this text should not be interpreted as God walking, but merely the sound of his voice that walks, meaning that his voice was heard by Adam and Eve

¹⁵⁰ Spinoza’s use of Ibn Ezra is often cited in this respect (Feld, 1989:109; Wolf, 1927:7; Steenbakkers, 2010:320). In particular, Spinoza (1891a:120-121) credits Ibn Ezra for being the first scholar to question, via “dark hints”, the Mosaic authorship of the Pentateuch. Siegfried (1867:10-11) disputes this, arguing that Spinoza infers too much from Ibn Ezra’s commentary.

¹⁵¹ i.e. “book of the straight”

¹⁵² In what sense, therefore, does man return to the dust (Gen. 3:19)? Ibn Ezra (1988:74) argues that only the bones of the man are in view here, because it is these alone that were made of the earth.

in hiding. To explain how Adam did not literally die, as forewarned in Genesis 2:17, he presumes that Adam repented of his sin and was forgiven (Ibn Ezra, 1988:69-70). In Genesis 11, he explains the confusion of languages naturalistically, proposing that the original division was caused by mutual hatred and dissention which, in turn, forced people to separate and invent new languages for themselves as they drifted apart (Ibn Ezra, 1988:143).

5.4.8 Maimonides (1138-1204)

Maimonides (1951:5, 10, 158, 162) actively promoted a naturalistic allegorical reading of Genesis on the grounds that it led to less contradiction with science and philosophy.¹⁵³ His hermeneutic is deemed naturalistic as opposed to merely scientific or philosophical because his case for the allegorical approach is grounded primarily on scientific, not exegetical, convictions.

5.4.9 Robert Grosseteste (c.1168-1253)

Robert Grosseteste was an English polymath who compiled his own hexaameron from a host of commentaries, mostly written during the Nicene and Post-Nicene era (Martin, 1996:vii). His primary interest is with Augustine¹⁵⁴ and Basil¹⁵⁵ whom he tries to harmonise. Less prominently featured commentators include Ambrose, John of Damascus, Jerome, Bede and Gregory of Nyssa.¹⁵⁶ Grosseteste (1996: 53, 56-59, 61, 74, 106, 121, 139, 141, 147, 161, 192, 194, 212, 216-218) also has a high regard for Aristotle, whom he refers to frequently.

Given his heavy dependence upon other authors, Grosseteste's hexaameron is mostly unoriginal, but tries to establish its value in providing the reader with a comprehensive summary of views on each interpretive aspect of Genesis 1. In an almost apologetic manner, Grosseteste (1996:124) explains his reticence to contribute anything different from what has already been broached on the subject:

I want the reader to know that if I occasionally put in my writing words which are not from any authority, I am not putting them forward in an assertive manner, but am making them known to the audience as a sort of exercise for them, 'following the trail of the truth by conjectures and clues'¹⁵⁷

Where conflicting interpretations cannot be reconciled, Grosseteste (1996:74) abstains from any judgment. He appeals to none other than Moses to justify this approach, reasoning that even the inspired historian was deliberately ambiguous in places to allow room for multiple interpretations of his text (Grosseteste, 1996:126). Thus Grosseteste (1996:319) is careful to promote both literal and allegorical

¹⁵³ For the full discussion, refer to section 2.2.3.

¹⁵⁴ For references to Augustine, see Grosseteste (1996:52-53, 57-58, 60, 63, 70-71, 77-92, 94, 98-99, 101, 103, 105-108, 111, 113, 122, 126, 131, 142-143, 150-151, 162, 164-165, 168, 171-174, 178, 183, 186, 188, 190, 192-193, 204-208, 214-219, 221, 223, 228-233, 236, 246, 248-251, 253, 255-258, 263-264, 266-267, 269-270, 282, 285-287, 293, 297, 300-302, 304-308, 314-319, 322-323, 333, 335, 338, 343-344, 346, 348).

¹⁵⁵ For references to Basil, see Grosseteste (1996:53-54, 62-63, 67, 71-73, 76, 79-82, 85, 88, 93, 99-101, 105-106, 109-111, 113-114, 126-132, 139, 142, 144-145, 147, 149-150, 152, 157, 162-163, 165-166, 171, 184, 188-189, 191, 194, 208, 211, 215-217, 223, 230-231, 235, 248-249, 251, 253-255, 266, 285, 289).

¹⁵⁶ Josephus and Chrysostom also feature several times, but not to the same extent.

¹⁵⁷ Ironically, the latter part of this quote is itself an extract from Gregory of Nyssa.

interpretations of creation. For example, he takes the six days of creation in their literal sense as six twenty-four-hour periods of time (Grosseteste, 1996:55, 87). Yet, he also acknowledges Augustine's view that these days took place instantaneously, following *Sirach 18:1* (Grosseteste, 1996:92). Prophetically, these six days also point to the six ages of the world (Grosseteste, 1996:258-261). But, taken in another sense, they can be seen to represent the "six natural ages of any human being" (Grosseteste, 1996:261-263). Then, in a further sense, the six days signify six stages of salvation (Grosseteste, 1996:263-264). In general, Grosseteste (1996:66-67, 80-81) meticulously catalogues the literal, spiritual and moral senses of the text; and where possible, after Basil, even the typological and anagogical variants.

5.4.10 Thomas Aquinas (1225-1274)

Within the *Summa theologiae*, Aquinas¹⁵⁸ wrote a *Treatise on creation* and a *Treatise on the work of six days*. In both these sections, his argument relies heavily upon Augustine¹⁵⁹ and Aristotle,¹⁶⁰ whom he tries to reconcile where possible. Basil¹⁶¹ also features prominently in his *Treatise on the work of six days* and he often compares Basil's exposition with Augustine's. He points out, for example, how Basil takes the six days of creation as literal twenty-four hour periods,¹⁶² but Augustine wants creation to be instantaneous because of *Sirach 18:1* (Aquinas, 1922a:219, 240, 244, 267, 274; 1922b:272-273). Aquinas' (1922a:269) solution is to accept both as true, but in different senses. He asserts that God made everything simultaneously in a formless state, but then went on to give form to this creation over the course of six days (Aquinas, 1992a:269). Similarly, because Augustine, Plato and Aristotle believe that the heavenly bodies are living creatures, Aquinas (1992a:247) tries to explain how this might be true in a limited sense.

Aquinas wants to establish the philosophical and scientific credibility of the creation account by demonstrating, where possible, how Moses agrees with Aristotle and Plato. Thus, because spontaneous generation was generally accepted,¹⁶³ Aquinas (1992a:259) allows for "perhaps even new species of animals" to be produced by putrefaction after the creation week. In general, Moses is malleable enough to accommodate the results of scientific advancement without jeopardising the authority of Scripture. Aquinas (1922a:218) believes that Genesis "can be explained in a multiplicity of senses" giving him room to abandon any particular interpretation once "proved with certainty to be false". Whereas, with phenomena that have not been properly understood, he is prepared to let the text stand its ground. For

¹⁵⁸ For general commentary concerning Aquinas' influence on the interpretation of Genesis, see section 2.2.4.

¹⁵⁹ For his use of Augustine in the treatise on Creation, see Aquinas (1921a:222-223, 231, 237-240, 250-253, 259-261, 264, 268-270, 273, 277, 279-280); and in his treatise on the six days, see Aquinas (1922a:185, 187, 189, 191-196, 199-204, 206, 209, 212-213, 216, 218-224, 228, 231-233-234, 236, 239-241, 244-247, 250-251, 254, 256, 262, 265-266, 268-269, 271-274).

¹⁶⁰ For his dependence upon Aristotle in these two treatises, see Aquinas (1921a:224, 230, 243, 245-247, 249, 251, 259-260, 262-267, 269, 280, 283) and Aquinas (1922a:185, 188, 196-197, 199, 202, 207, 209-210, 214, 218-219, 223-224, 227, 241, 245, 247-248). In some of the cases listed, Aquinas differs with Aristotle, but in most instances his critical appropriation of "the Philosopher" is favourable. He also refers to Plato occasionally, especially in places where student and pupil agree (Aquinas, 1922a:188, 194-197, 218-219, 247). For example, in his discussion on the nature and substance of the firmament in Genesis 1:6-7, he strives for an interpretation that makes Aristotle's cosmology compatible with Plato's (Aquinas, 1922a:219).

¹⁶¹ For his dependence on Basil, see Aquinas (1922a:192, 200-202, 213-215, 219, 222-224, 227, 233-234, 241-242, 246, 254, 271, 273-275).

¹⁶² Overall, Aquinas (1922a: 220-221, 234, 274) seems to prefer this interpretation. He also cites Jerome's view that the world is not yet six thousand years old (Aquinas, 1922a:120).

¹⁶³ The scientific consensus, it seems, was that spontaneous generation came about because of the "influence of the stars" (Aquinas, 1922a:250-251).

example, he is prepared to affirm with Basil and Augustine, that if God said he placed waters above the firmament, then he must have done so (Aquinas, 1922a:221). In this case, it is argued, following those commentators, that these waters cool down the heat generated by the celestial bodies, as evidenced in the planet Saturn (Aquinas, 1922a:244).

The literality of Adam and Eve, Paradise, the two trees, the serpent, and Noah's flood prove to be easier to accept on their own terms (Aquinas, 1922a:259; 1922b:263-264, 279, 315, 365-366; 1921b:278; 1914:144, 364). But Aquinas's attention to the literal sense of Genesis 1-3 does not preclude the legitimacy of an allegorical sense. He acknowledges, following Ambrose, that light can be understood in two ways, both physically (to enable physical sight) and metaphorically (to enlighten the mind) (Aquinas, 1922a:207). He cites Augustine's view on Genesis 1:1-3 that "heaven", "light" and "day" refer to the creation of spiritual creatures (Aquinas, 1922a:212-213). And like Bede, Abelard and Lombard, the creation of Eve from Adam's rib has sacramental significance, prefiguring Christ's death on the cross (Aquinas, 1922b:279). Anticipating the framework hypothesis,¹⁶⁴ Aquinas (1922a:250) also sees a pattern in how the second three days relate to the first three days:

As, then, Moses makes mention of the lights and the light on the fourth day, to show that the fourth day corresponds to the first day on which he had said that the light was made, so on this fifth day he mentions the waters and the firmament of heaven to show that the fifth day corresponds to the second.

That said, he does not use this pattern as grounds to reject the literal sense of the text.

5.4.11 Summary

The literal interpretation of Genesis remains ubiquitous in commentaries from the Medieval period (see table 5.6). That said, the allegorical interpretation is almost equally prominent. As discussed in section 2.2, the increasing desire to harmonize faith and reason during this era led to interpretations of Genesis 1-11 that engage more rigorously with cosmology, astronomy, meteorology, geometry, zoology and geography. John of Damascus and Abelard actively look for ways to interpret Genesis 1:1-3 to accommodate the four fundamental elements of the universe: fire, water, earth and air.

Table 5.6 – The interpretation of Genesis 1-11 during the Medieval Period

Publication Date	Author	Title	Interpretation
680-692	Anastasius of Sinai (d.700)	Hexaemeron	literal & typological
709-731	Bede the Venerable (672/3-735)	Libri quatuor in principium Genesis usque ad nativitatem Isaac et eiectiorem Ismahelis adnotationum	literal & allegorical
729-743	John of Damascus (c.675-749)	De fide orthodoxa	literal & allegorical (philosophical/scientific)
1094-1098	Anselm of Canterbury (1033-1109)	Cur Deus homo?	literal (philosophical)
c. 1129	Peter Abelard (c.1079-1142)	Expositio in hexaemeron	literal, moral & allegorical (philosophical/scientific)

¹⁶⁴ See footnote in section 3.13.

Table 5.6 (continued)

Publication Date	Author	Title	Interpretation
c. 1150	Peter Lombard (c.1096-1160)	Libri Quatuor Sententiarum	literal & allegorical (philosophical/scientific)
1155	Abraham ibn Ezra (1089/1092-1167)	Sefer ha-Yashar	literal (philosophical/scientific/naturalistic)
c. 1190	Maimonides (1138-1204)	Dalalat al-ḥā'irīn	literal & allegorical (naturalistic) ¹⁶⁵
c. 1225	Robert Grosseteste (c.1168-1253)	Hexameron	literal & allegorical (philosophical/scientific)
1269-1272	Thomas Aquinas (1225-1274)	Summa theologiae	literal & allegorical (philosophical/scientific)

In the case of Maimonides, the quest for a philosophically and scientifically robust explanation of Genesis 1-11 convinced him to reject the literal interpretation of the fourth day of creation and the events related from Paradise and the fall of man. For Ibn Ezra, it was the origin of languages that begged for a naturalistic explanation. What no commentator was prepared to jettison, however, was the literal historicity of Adam and Eve, a global flood, and the story of Noah and the ark.

5.5 The Reformation (1517-1650)

The next epoch of interpretation presents a distinctive departure from the philosophically-charged hermeneutic of the medieval period. With the rediscovery of Genesis 1-11 in the vernacular, these chapters incited commentators to give greater attention to the literal historicity of the account. There are twelve important commentaries from this era, beginning with Martin Luther and culminating in the magnum opus of James Ussher (see table 5.7).

Table 5.7 – Works featuring Genesis 1-11 during the Reformation period

Publication Date	Author	Nationality	Religion or denomination	Original title
1535-1545	Martin Luther (1483-1546)	German	Augustinian Protestant	Genesis-Vorlesung/Enarrationes
1554-1563	John Calvin (1509-1564)	French (Geneva)	Protestant	Commentaires de M. Jean Calvin, sur les cinq livres de Moïse: Genèse est mis à part
1592	Gervase Babington (1549/1550-1610)	English	Anglican	Certaine plaine, briefe, and comfortable notes vpon euerie chapter of Genesis: gathered and laid downe for the good of them that are not able to vse better helpe, and yet carefull to read the worde, and right heartilie desirous to taste the sweete of it
1605	Andrew Willet (1561-1621)	English	Puritan	Hexapla in Genesin: that is, a sixfold commentary vpon the two first bookes of Moses, being Genesis and Exodus
1614	Walter Raleigh (1552-1618)	English	Protestant	The historie of the world
1616	Henry Ainsworth (1571-1622)	English	Nonconformist/Separatist	Annotations on the Pentateuch: the book of Genesis
1617	John Salkeld (1576-1660)	English	Catholic	A treatise of Paradise

¹⁶⁵ “naturalistic” – where the interpretation of Genesis 1-11 is determined by science.

Table 5.7 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1641	George Walker (c.1581-1651)	English	Puritan	The history of the creation as it is written by Moses in the first and second chapters of Genesis
1643	Arthur Jackson (c.1593-1666)	English	Presbyterian	A help for the understanding of the Holy Scripture
1647	John Lightfoot (1602-1675)	English	Puritan	A chronicle of the times, and the order of the texts of the Old Testament
1649	John Trapp (1601-1669)	English	Puritan	A clavis to the Bible: or a new comment upon the Pentateuch: or five books of Moses
1650	James Ussher (1581-1656)	Irish	Church of Ireland	Annales veteris testamenti, a prima mundi origine deducti

5.5.1 Martin Luther (1483-1546)

Luther (1958:93; 1960:150) has little time for “silly allegories”. He states that the allegorical approach championed by the likes of Origen, Jerome, and Augustine is “not interpreting Scripture” (Luther, 1958:19; 1960:151). Instead, the exegete must realise that the historical sense of Scripture is always more important than any allegorical meaning derived from the text (Luther, 1960:150). Luther (1958:5) attributes Augustine’s recourse to allegory as a patent weakness in his interpretation, betraying the fact that he had not been able to understand the text in its plain sense.

Luther’s own lectures on Genesis 1-11 epitomise the spirit of the Reformation.¹⁶⁶ He engages with the creation narrative in its original language¹⁶⁷ and pursues the authorial intent via the literal sense of the text *pro analogia Scripturae* (Packer, 1992:350). From the outset, he sees its historical value, inferring from Moses a world not older than 6000 years (Luther, 1958:3). Not content to merely differ with the church fathers, he belabours the importance of taking the hexaemeron in its plain sense:

Nor does it serve any useful purpose to make Moses at the outset so mystical and allegorical. His purpose is to teach us, not about allegorical creatures and an allegorical world but about real creatures and a visible world apprehended by the senses. Therefore, as the proverb has it, he calls ‘a spade a spade,’ i.e., he employs the terms “day” and “evening” without allegory, just as we customarily do... we assert that Moses spoke in the literal sense, not allegorically or figuratively, i.e., that the world, with all its creatures, was created within six days, as the words read. If we do not comprehend the reason for this, let us remain pupils and leave the job of teacher to the Holy Spirit. (Luther, 1958:5)

Therefore, we find in Luther’s commentary on Genesis the first real critical engagement with Augustine, whom he cites more than any other commentator.¹⁶⁸ Although he finds Augustine edifying in places,¹⁶⁹ Luther (1958:4-5, 8, 28, 121; 1960:68, 151, 164) does not hesitate to point out ways in which Augustine’s commentary fails to do justice to the text, even to the point of entertaining “childish ideas”. He is also

¹⁶⁶ See section 2.3 for further discussion of the Protestant Reformation.

¹⁶⁷ Although Luther (1960:6, 33) refers to both *Sirach* and *Wisdom*, he does not bring them into his discussion on the days of Creation. This is probably because he only granted these books apocryphal status in his canon (Howorth, 1907:359-361).

¹⁶⁸ The other notable commentator featured frequently in Luther’s (1958:4-5, 8, 32, 39, 42, 70, 93) exposition of Genesis is Nicholas de Lyra (c. 1270-1349) because the latter prefers the literal sense of Genesis over the “silly allegories” that other commentators entertain. Lyra, being a Franciscan Hebraist and Bible scholar, builds his own commentary upon the work of Rabbi Solomon (Luther, 1958:32, 131; Klepper, 2007:6).

¹⁶⁹ See Luther (1958:10, 93, 97).

dismissive of Augustine's "extraordinary trifling" to try and justify an instantaneous creation (Luther, 1958:4). Origen fares no better, being blamed for "amazing twaddle" and "senseless allegories" (Luther, 1958:97-98, 122). This does not mean, however, that Luther is completely dismissive of allegory. He allows a place for what he calls, "theological allegory" (Luther, 1960:158). These allegories are justified on two conditions: (1) they have already been established as theologically true, and (2) they do not replace or supersede the literal sense of the narrative.¹⁷⁰ By way of example, Luther (1960:158-162, 162-164) argues that teachers of the law are like the black raven that was sent out of the ark, acting as minister of death and sin; whereas the dove carries the olive branch of grace thereby depicting ministers of the gospel. Taken as it stands, it is hard to see how Luther's allegory differs qualitatively from that of Augustine or Origen. What sets him apart, however, is his insistence that the literal interpretation is more important than the allegorical interpretation of Scripture. Luther (1960:150) states, "I take no great delight in allegories".

Not surprisingly, Luther (1958:6) states that Moses is a better teacher than Aristotle. Yet, this does not stop him from frequently citing the philosopher's views in these lectures (Luther, 1958:5-6, 24, 26, 29-31, 48, 52, 60, 70, 122, 131, 143). Apart from the few occasions where Aristotle is mentioned disagreeably,¹⁷¹ Luther (1958:3, 58, 123-125) is often prepared to defer to him on various scientific matters. As a case in point, he tentatively accepts Aristotle's idea that heaven is not comprised of any of the four elements (Luther, 1958:26-27). Also following Aristotle, Luther (1958:52, 54) entertains the possibility of mice being spontaneously generated from "decayed moisture"¹⁷² just as dung beetles and flies originate from manure and fish from ponds.¹⁷³ Luther's commentary, therefore, is not opposed to the science of his day. When it comes to astronomical matters, he readily acknowledges that these matters should be handled by "the experts" (Luther, 1958:41). But where the science cannot confirm the plain sense of Genesis, as in the case of the waters above the firmament, Luther (1958:26, 28, 31) stays with the text: "Here I, therefore, take my reason captive and subscribe to the Word even though I do not understand it." As far as Luther is concerned, the first and greatest scientist was not Aristotle, but Adam (Luther, 1958:120).

Overall, his treatment of Genesis is rigorously literal: light was created before the sun; Cain married his sister; Satan used a real snake to tempt Eve; and the garden of Eden was a geographical region on earth (Luther, 1958:19-20, 38, 40, 77, 87-91, 105-106, 145, 312). The only noticeable deviation from this pattern occurs in his interpretation of God walking in Genesis 3:8 which he attributes to the "sound of the wind" (Luther, 1958:170).

¹⁷⁰ Luther (1960:68) claims that even some of Augustine and Philo's allegories could be rhetorically useful in debates "for the sake of embellishment".

¹⁷¹ Although he quotes him less, Luther (1958:4) prefers Plato to Aristotle, believing that the former learnt something from the patriarchs.

¹⁷² By this Luther (1958:52) does not embrace a naturalistic explanation, for he attributes the phenomenon to the direct fiat of God: "Let a mouse come out of the decay."

¹⁷³ Luther (1958:52) was also unaware of seasonal migration, thinking that swallows died in winter only to be resurrected in spring.

5.5.2 John Calvin (1509-1564)

Calvin (1847:57-59), like Luther, contends for the literal sense of Genesis 1-11, treating the account as inspired history. He is equally unimpressed with Augustine's overly-philosophical interpretation of what he sees as a straightforward account of creation; blames Aristotle for "defrauding God of his glory"; and describes Origen's allegories as the work of Satan (Calvin, 1847: xlix, 85, 93, 114). In general, Calvin (1847:114) believes this "addiction" to allegories has deprived many commentators of the true sense of Genesis and led them into vain speculations. He believes that most allegories and fanciful interpretations arise from mistrust in the plain sense of Scripture (Calvin, 1847:79). Instead, the reader should realise that the Mosaic account is written for the "unlearned", and therefore can be understood by all without recourse to abstruse astronomy and cosmology (Calvin, 1847:79-80). This basic disposition compels Calvin to look for the most accessible common-sense interpretation of Genesis. For example, where many commentators resort to ethereal explanations of the waters above the heavens in Genesis 1:7, Calvin (1847:80) equates these waters to clouds in the sky which God suspends in the air by his providence.

In summary, Calvin (1847:78, 92; 2006:925) believes that the world was made in six days,¹⁷⁴ a little more than five thousand years ago. Paradise was a real place in Eden;¹⁷⁵ Adam and Eve were real people; the serpent was a real snake; Cain married his sister; Noah's ark was sufficiently large to house all the animals required; and for those who think these things absurd, Calvin (1847:114, 132-137, 140, 143, 145, 215-216, 255-257) reminds them to consider the "secret and incomprehensible power of God, which far surpasses all our senses". Why did God make light before the sun, moon and stars? So that we might realise, states Calvin (1847:76, 82), that the light's real existence belongs to God, not the sun; just as he can make any plants grow by his divine fiat alone. Calvin is not dismissive of science; but scientists should stay in their lane. Genesis was written for the common man, deliberately omitting those astronomical details that men can explore at their own leisure to discover the "admirable wisdom of God" (Calvin, 1847:86-87).

5.5.3 Gervase Babington (1549/1550-1610)

In 1592, Gervase Babington wrote the first English commentary on Genesis, just fourteen years after Thomas Tymme (d. 1620) had translated Calvin's commentary (Whitford, 2009:84; King, 1847:xiii). And keeping in step with Calvin and Luther, Babington adheres to the literal sense of the text. Augustine continues to feature fairly regularly, but does little to dictate the direction of his exegesis (Babington, 1592:1, 3, 5, 7, 29, 41). Dismissing the misuse of *Sirach 18:1* on the same grounds proffered by Calvin, Babington (1592:6) insists that God created all things, "not in one moment, but in sixe dayes space." All other characteristic features of the literal interpretation are present. Only in Genesis 3:8 does he depart

¹⁷⁴ Calvin (1847:78) also states that *Sirach 18:1* has been incorrectly translated to support the false notion that all things were made at once instead of "universally". Genesis 1:5 provides a sufficient refutation of this error (Calvin, 1847:78).

¹⁷⁵ Specifically, this garden should not be thought of "as some dream in the air" (Calvin, 1847:114).

from the literal sense, preferring the typical anthropomorphic explanation of how God walked in the garden (Babington, 1592:18).

Without mentioning Luther explicitly,¹⁷⁶ Babington (1591:30-31, 35) reproduces the latter's allegorical gloss for the events surrounding Noah's ark. Once again, the dove symbolises "preachers of the word", carrying grace in its beak (Babington, 1591:35).

Uniquely, Babington (1591:26) suggests various naturalistic reasons to explain how the antediluvian patriarchs could live for so long, ranging from idyllic climatic conditions to superior diets. In the end, however, he ascribes their longevity to the providential design of God, the true "fountaine" of their youth (Babington, 1591:26).

5.5.4 Andrew Willet (1561-1621)

In 1605, Andrew Willet compiled a commentary on Genesis that engages with the Latin,¹⁷⁷ Chaldee,¹⁷⁸ Greek, English and Hebrew. Willet (1633:20) draws upon numerous commentators,¹⁷⁹ but principally Jean Mercier (c. 1510-1570), a French Hebraist, and the Jesuit, Benedict Pereira (1536-1610), whom he refers to as a "Popish writer".

Willet (1633:para. 2) reads Genesis 1-11 as history, relating a period of 2368 years, "above halfe the age of the world, from the first to the second Adam." In the same manner, he takes the genealogy of Genesis 5 literally, calculating the time from Adam till "Noahs floud" at 1656 years (Willet, 1633:8, 65-66). As for the extravagant chronologies propounded by the Assyrians, Egyptians, Chaldeans, and Persians, Willet (1633:16) calls them "lying fables" because the world is not yet six thousand years old.

In keeping with the literal sense of the text, Willet (1633:7) believes that God was able to bring forth all the plants "without helpe of the Sunne or Starres, which were not yet made". He also takes Augustine to task for asserting that everything was made simultaneously when the text plainly teaches that the world was made in "six dayes" (Willet, 1633:21). Paradise is treated as a real "terestriall place"; the two trees are visible and material; and the creature that Satan used to tempt Eve was a "true serpent" (Willet, 1633:22, 23, 37).

Willet is not content to merely exegete the text. His commentary is repeatedly supported by rational argument and scientific insights. For example, as to how the waters were gathered together in Genesis 1:9, he refers to the circumnavigation of Sir Francis Drake (c. 1540-1596) (Willet, 1633:5). Willet's (1633:5) explanation for how the dry land appeared involves a combination of three factors: (1) God makes the waters "coagulate together" to form the salt water oceans; (2) he evaporates the water into clouds; and

¹⁷⁶ Only later on in his commentary, after chapter 11, does he mention Luther by name (Babington, 1592:63, 171).

¹⁷⁷ He refers to two Latin versions: Jerome's Vulgate and Immanuel Tremellius' (1510-1580) translation from the Hebrew and Syriac.

¹⁷⁸ Presumably, the *Targum of Onkelos* (Schodde, 1889:263-264).

¹⁷⁹ i.e. Augustine, Chrysostom, Basil, Theodoret, Ambrose, Ibn Ezra, Luther, Calvin, Tertullian, Bede, Aquinas, Damascene, Origen, Jerome, Irenaeus, Gregory, Josephus, Lombard, Lyra, Philo, and Strabo. Of these, Augustine and Ambrose feature most frequently.

(3), drains the water into hidden cavities in the earth. As to the waters above the firmament, he repudiates the possibility of these waters being above the starry heavens because this would be “against nature” (Willet, 1633:4). The idea that God placed these waters above the firmament to “refrigerate” the celestial bodies, à la Abelard and Aquinas, Willet (1633:4) regards as farcical. Where possible, he prefers explanations that are supported by natural phenomena and the “ordinary providence of God” rather than “miraculous worke(s)” (Willet, 1633:5-6). And he often includes contemporary scientific opinions to assist his exposition. In the case of the two great lights of Genesis 1:16, Willet (1633:8) cites the work of mathematicians who had not only “found that the Sunne exceedeth the earth in bignes 166 times”, but also claim the sun to be bigger than all the other stars in the known universe.¹⁸⁰ Similarly, when he discusses the ark, Willet (1633:72) does various calculations to demonstrate how it would have been able to sustain its occupants for a whole year. And once again, spontaneous generation is discussed at length within the parameters of the hexaemeron (Willet, 1633:11).

5.5.5 Walter Raleigh (1552-1618)

In 1614, Sir Walter Raleigh¹⁸¹ completed the first comprehensive *History of the world* in English (Patrides, 1971:15; Reed, 1934:26). It quickly became the most popular text on the subject, especially amongst the Puritans and Anglicans (Wright, 1937:96). Raleigh’s history, like that of Josephus and Eusebius, is grounded in the historicity of Genesis 1-11. The Mosaic record is to be read literally, not allegorically,¹⁸² so that it is “fit for the capacities of ignorant men” to convey to them a “precise” account of creation and Paradise (Raleigh, 1829:72-74). He asserts that the first five chapters of Genesis encompass the first 1656 years of the world (Raleigh, 1829:144). Adam and Eve were our first parents, with Eden, their home, populated by the two “material trees” of life and knowledge (Raleigh, 1829:62, 129).

Raleigh’s history is full of citations from earlier commentators, historians and philosophers.¹⁸³ Of these, Augustine looms largest (Raleigh, 1829:2-3, 6, 26-27, 29-30, 32, 34, 44-45, 48-49, 53, 75, 84-85, 87, 130). But Raleigh (1829:65) does not slavishly follow his predecessors. To the contrary, his exposition of Genesis 1-11 is noticeably innovative or unorthodox in places. For example, he argues from Genesis 1:14 that the heavenly bodies exert an influence over the events on earth (Raleigh, 1829:29). This they do via the power they wield over people’s minds, shaping “habits, complexions and dispositions” (Raleigh, 1829:29). But this is no fatalistic astrology. Instead, following Damascene, Raleigh (1829:30) believes that God uses these objects as “instruments and executioners” of his providence (Raleigh, 1829:29-30).

¹⁸⁰ He presents these opinions, even though he agrees with Ambrose’s view that Moses’ intent here is to describe the apparent greatness of the sun in the sky to the observer (Willet, 1633: 9).

¹⁸¹ The more common contemporary spelling is “Raleigh”, but primary sources refer to “Ralegh”.

¹⁸² By this Raleigh’s concern is to not lose the simple truth of the text. Where allegories are sanctioned by Scripture and do not compromise the *prima facie* literal sense, they are allowed (Raleigh, 1829:75).

¹⁸³ These include Augustine, Origen, Cyril, Chrysostom, Gregory, Jerome, Aquinas, Ambrose, Lactantius, Bede, Lyra, Lombard, Strabo, Mercer, Calvin, Luther, Basil, Ephrem, Theodoret, Damascene, Victorinus, Peter Comestor (d. 1178), Philo, Josephus, Irenaeus, Aristotle, Plato, Dionysius, Pythagoras, Virgil, Hugo, Ovid, Plotinus, Ptolemy, Pliny, and Boethius.

Raleigh (1829:78-79) also challenges the idea that the flood deformed the earth in any permanent way. Given that the four rivers described by Moses in Genesis 2:10-14 exist after the flood, Raleigh (1829:79) reasons, the basic geography of the earth could not have changed substantially. Moreover, based on Josephus' eye-witness account of the "pillars erected by Seth" 1426 years prior to the flood, he concludes that the deluge had to be tranquil (Raleigh, 1829:80). He also observes that the dove was able to bring back an olive leaf in its mouth only weeks after the flood had ceased, indicating that the trees, far from being uprooted, were left undamaged by the waters (Raleigh, 1829:82). This does not discourage him in any way from maintaining that the flood was a global event, capable – according to his calculations – of covering the earth to a depth of "thirty miles" (Raleigh, 1829:204). To explain how this might happen, Raleigh (1829:203) appeals to both natural and supernatural elements: suggesting a conjunction of stars and planets aided by angels condensing air into water.

There is, therefore, as with Willet, the same earnestness to bolster Scripture with rational argument and science. But the authority of Scripture is never questioned. For Raleigh, human reason must submit to the word of God (Strathmann, 1940:282).

5.5.6 Henry Ainsworth (1571-1622)

Henry Ainsworth was a prominent English nonconformist¹⁸⁴ (Moody, 1982:200). His commentary on Genesis 1-11 pays little regard to former commentators or the early church fathers. Instead, he relies heavily upon the "Hebrew doctors", frequently citing the works of Menachem ben Saruq (c.920- c.970), a Spanish-Jewish philologist, and Maimonides (Ainsworth, 1843:2, 3, 6-9, 11-15, 17-18, 21, 22, 26, 27-29, 32-34, 37, 40, 43, 64).

Ainsworth interprets the Mosaic account according to its literal sense. The first day of creation lasts twenty-four hours; light is created before the sun; the waters above the heavens are clouds; Eden is a country in the "upper part of Chaldea"; the trees are real trees; and Satan speaks through a snake in the same way that another angel spoke through Balaam's ass (Ainsworth, 1843:4, 6, 13, 18). Following his Jewish commentators, he adopts the millennial day theory, taking the six days as a prophetic framework for six periods of history, amounting to six thousand years (Ainsworth, 1843:9-10). Proceeding from the events in Eden, Ainsworth (1843:46, 63-65) states that the flood came in the 1656th year of the world, after which the world was repopulated and dispersed from Babel.

Ainsworth is generally disinterested in the science of Genesis 1-11. Although, in one of the few places where he defers to astronomers, possibly relying on the same material used by Willet, he states that the sun is 166 times greater than the earth, or 170 times greater if the "Hebrew doctors" can be trusted¹⁸⁵ (Ainsworth, 1843:6). Another curious anecdote is found in his exposition of the curse in Genesis 3:15-19

¹⁸⁴ By "nonconformist", I refer to those Presbyterians, Congregationalists and Baptists in Stuart England who, in their frustrated efforts to seek religious reforms in the Church of England, eventually dissented from that church (Greaves, 1985:1-2).

¹⁸⁵ If by greatness, the radii of the sun and earth are compared, the sun is actually 110 times larger than the earth (Ostlie, 2022:313). But, in terms of volume, the sun is 1.3 million times greater than the earth and, if their masses are compared, the sun is 330 000 greater than the earth (Ostlie, 2022:313-314).

where he cites Plutarch's report of dead putrefied men turning into serpents (Ainsworth, 1843:24). This idea is hardly developed, however, and Ainsworth (1843:24) leaves the topic after suggesting that if this were true, it would be a "notable memorial of man's first poisoning by the serpent."¹⁸⁶

5.5.7 John Salkeld (1575-1660)

John Salkeld was a "catholic renegade" who wrote two memorable treatises: one on angels in 1613, followed four years later by another on Genesis 2-3 (Shaw, 1897:201). Salkeld (1617:34-42, 133-135, 216-219, 304-306) is intrigued by the history of Paradise and constructs his discourse around a series of questions – mostly speculative – including: what happened to Paradise after Adam and Eve were evicted? how old did Adam look when he was created? why was the woman not afraid of a talking snake? and what would have happened if only Adam or Eve ate of the fruit? For each of these problems, Salkeld looks for answers in the works of other commentators and church fathers,¹⁸⁷ most notably, Augustine.¹⁸⁸

Salkeld is committed to the literal sense of the text throughout his treatise. He argues that the garden of Eden was a real place which was later destroyed by the flood (Salkeld, 1617:6-9, 32, 35, 39). In his discussion on the tree of life, Salkeld (1617:54, 56) censures Origen for the "fictitious morallizing of Scripture", which meant the "plaine historie of Moses and literal sense" was compromised. Eve is tempted by a "true and natural serpent" to eat the "forbidden fruite" (Salkeld, 1617:207-208, 210-211). Likewise, he affirms that the cherubim who were appointed to guard the garden were real angelic creatures with swords (Salkeld, 1617:233).

5.5.8 George Walker (c.1581-1651)

George Walker was an influential member of the Westminster Assembly from 1643 to 1653 (Sutton, 1899:54). Just two years prior, in 1641, he wrote a book on the history of creation from the first two chapters of Genesis. Walker's exposition is very similar to that of Calvin and Babington, adhering to the literal sense of the text throughout his treatise. Towards the end of the book he makes his hermeneutical approach explicit:

That nothing is more vaine and uncertaine then the opinion of witty and learned Men, both ancient Fathers and later Writers and Schoolemen, while they follow their owne reason, & their owne witty conceipts without warrant from the Word of God. There is no sure or certaine ground which a man may safely rest upon for the right understanding of the Scriptures, but onely the word of God it selfe, either speaking plainely in the very text it selfe, or by other places and testimonies which are more full and plaine, compared with the obscurer texts. By this meanes onely the Spirit of God doth enlighten our hearts and understanding to know infallibly the true sense and meaning of them. (Walker, 1641:241)

¹⁸⁶ Ainsworth (1843:21) has already interpreted the seed of the serpent as people belonging to Satan, so it is hard to see why he would entertain such an extravagant explanation at the end.

¹⁸⁷ i.e. Augustine, Ambrose, Origen, Philo, Chrysostom, Jerome, Tertullian, Basil, Ephrem, Strabo, Bede, Josephus, Aquinas, Lombard, Justin, John of Damascus, Gregory, Lyra, Alonso Tostado (c.1410-1455), Bonaventure (1221-1274), Rupert of Deutz (c.1075/1080-c.1129), and Agostino Steuco (1497/1498-1548).

¹⁸⁸ For references to Augustine, see Salkeld (1617:8, 21, 37, 48-49, 55-56, 68, 72-74, 83, 95-96, 104, 108, 111, 125, 127, 131-133, 137, 142, 145, 149, 153, 179, 204, 213).

In the true spirit of the Protestant Reformation, Walker is prepared to discard centuries' worth of commentaries and opinions on Genesis to discern its true meaning from the exegesis of primary sources. This attitude allows him to quote from the church fathers liberally¹⁸⁹ but differ with them with little apology where they are seen to err. For example, where Jerome's poor translation of Genesis 2:8 leads him to believe that God made Paradise before creating the world, Walker (1641:238) wryly comments, "Wee here may see, how wise men may sometimes build castles in the aire, and that the most learned of the ancients have their errours; and hee who was counted the most learned of all the Fathers in the Hebrew tongue, doth here miserably mistake the Hebrew phrase". Even Luther is not exempt from criticism. Grouping him with various other church fathers,¹⁹⁰ Walker (1641:240) admonishes commentators who have misconstrued the nature and geography of Eden when the "very text it selfe" makes these things clear.

Taking the first week of history from the six days of creation, along with the genealogies provided in Genesis 5 and 10, Walker (1641:48-50) calculates the age of the world at 5550 years, with a starting date of 3960 BC.¹⁹¹

5.5.9 Arthur Jackson (c.1593-1666)

In 1643, Arthur Jackson, an English Presbyterian, wrote a commentary on the Pentateuch. For Genesis 1-11, he treats the account as an historical record. God created the world out of nothing in six days (Jackson, 1643:2-3). The first three days were "before the sunne was made", and he suggests that it was Autumn (Jackson, 1643:3, 5). Jackson (1643:19, 24) calculates that Noah's flood began on the seventeenth day of May or October in the 1656th year of our world, followed by the Tower of Babel in the 1757th year. The two trees in Eden are taken to be real trees; the serpent, although "speechlesse in himself", speaks by the power of Satan; and when Adam and Eve hide, God literally walks in the garden (Jackson, 1643:9-11). The fifth chapter of Genesis is mostly ignored, presumably due to its repetition or lack of ambiguity (Jackson, 1643:17). Jackson does not cite any other commentators and he keeps his commentary succinct. Only in Genesis 1:16 does he briefly cite the opinion of astronomers, that the sun is 166 times bigger than that earth; but he attributes its greatness in the end, not so much to its actual size, but its appearance in the sky (Jackson, 1643:6).

5.5.10 John Lightfoot (1602-1675)

John Lightfoot was an English puritan and gifted Hebraist. It has been said that his competence in the Hebrew language exceeded that of everyone else in Europe while he was alive (Welton, 1878:15). He was also a member of the Westminster Assembly (Leith, 1978:45). In 1647, he compiled a chronology of the Old Testament from Genesis to Malachi: a period of 3519 years by his reckoning (Lightfoot, 1684:146).

¹⁸⁹ i.e. Augustine, Ambrose, Athanasius, Theodoret, Cyril, Damascene, Bede, Lombard, Tertullian, Jerome, Philo, Ephrem, Origen, and Luther.

¹⁹⁰ i.e. Luther, Origen, Philo, Ephrem, Damascene, Bede, Rupertus, Alexander of Hales, Tostatus, Bonaventure, and Bellarmine.

¹⁹¹ He gets even more specific, arguing that the world was created in Spring (Walker, 1641:8, 44).

Lightfoot (1684:1, 12) accepts the first eleven chapters of the Bible as literal history, beginning with the first six days of the world until the promise is given to Abram 2083 years later. Following the millennial framework, he provides chronological tables for the first two ages (Lightfoot, 1684:4, 10).

5.5.11 John Trapp (1601-1669)

John Trapp, an English Puritan and prolific commentator, also devoted a whole book to the Pentateuch. In this case, Trapp's commentary, unlike Jackson's, gives more attention to the doctrinal and homiletical value of Genesis 1-11. Clause by clause, Trapp (1650:32, 49) embellishes his exposition with historical anecdotes (e.g. the Massacre of Paris in 1572), and excerpts from other commentators,¹⁹² pagan writers, philosophers – even Muhammad. For this reason, Spurgeon (1876:20) highly values his works for all their “witty stories”, “learned allusions” and “practical remarks”.

Trapp's exegesis assumes the literality of the text but does not argue for it. His exposition is also selective, only commenting on verses that lend themselves to a homiletical purpose.¹⁹³ Where he does provide commentary, however, it is evident that he views the Mosaic account as history. For example, he states that the genealogy in Genesis 5 serves a valuable chronological purpose, enabling us to ascertain how much time elapsed from Adam to Noah, namely 1656 years (Trapp, 1650:58).

5.5.12 James Ussher (1581-1656)

James Ussher was a man of prodigious intellect¹⁹⁴ (Ford, 2007:1-3). The crowning glory of his achievements was the monumental work, *Annales veteris testamenti, a prima mundi origine deducti* (1650),¹⁹⁵ a chronology and history of the world from Adam to the destruction of Jerusalem in 70 AD.

With even greater precision than Jackson or Walker, Ussher (2010:9, 17) calculates that the universe came into existence on the 23rd of October 4004 BC.¹⁹⁶ This date is the result of a meticulous study of the astronomical tables of Kepler and Brahe, underpinned by the chronological data found in Genesis 1-11 (Barr, 1999:384; Ussher, 2010:18-19, 21-23). Ussher (2010:9) concludes that Christ was born in the 4000th year of this world, exactly 1000 years after Solomon's temple was finished.

¹⁹² i.e. Augustine, Lactantius, Origen, Damascene, Luther, Basil, Bernard, Ignatius, Lombard, Nazianzen, Gregory, Tertullian, Bede, Chrysostom, Ambrose, Theodoret, Jerome, Rupertus, and Josephus.

¹⁹³ For example, Trapp (1650:53-54, 59-60) ignores the clause “Cain knew his wife” in Genesis 4:17 and excludes entire sections from Genesis 4:18; 5:6-8, 10-19, 25-26, 28, 30-31.

¹⁹⁴ Ford (2007:4) lists the subjects mastered by this polymath: “biblical textual scholarship; systematic theology; dogmatics; ancient history, patristics, church history; chronology, astronomy, ancient languages”.

¹⁹⁵ i.e. Annals of the Old Testament, deduced from the first origins of the world

¹⁹⁶ Fuller (2005:13) claims that it is a “clumsy error” to attribute the date 4004 BC to Ussher. Instead he argues that Ussher gets this figure from a “pre-mediaeval folk-tale” and a common belief in the millennial shape of history (Fuller, 2005:11). The case presented for this bold assertion, however, is hardly compelling. His first piece of evidence comes from a 15th century Carol, *Adam lay ybounden*, that speaks of Adam being bound for “Four thousand winter” (Fuller, 2005:9-10). The second piece of evidence is related second-hand from a John Swan (d. 1671) who wrote in 1635 that the time period from Creation to the Nativity was 4005 years, a figure notably distinct from Ussher's precise calculation of 4000 years (Fuller, 2005:10). Even if the time period of exactly 4000 years from Adam to Christ can be found pre-Ussher, the elaborate and rigorous chronological basis for it did not exist until Ussher. Thus, 4004 BC remains a notable feature of Ussher's legacy, and not, it seems, an commonly-received artifact from prior ages.

Ussher's work was so compelling and impressive, by 1700 the 4004 BC date was being printed in French Bibles in Brussels (Bible, 1700:5). By 1701, William Lloyd had the figure inserted into the English Bibles being printed in Oxford and London where it remained a common fixture well into the 20th century (Campbell, 2010:121, 123; Fuller, 2005:7; Bible, 1701:1; Bible, 1769:1). In Massachusetts and Ontario, printers included Ussher's date in the footnotes of Genesis 1 (Bible, 1791:9; Bible, 1873:9). In 1917, when Cyrus Scofield (1843-1921) revised and reprinted his popular reference Bible, he included 4004 BC in the central margin of Genesis 1 (Bible, 1917:3). As mentioned in the previous chapter, Ussher's date was so commonly accepted and printed in English Bibles, even Charles Darwin (1903b:31) was led to believe that 4004 BC belonged in the biblical canon.

More than 270 years after Ussher's *Annals*, at the infamous Scopes trial in Tennessee, the key point of contention between William Jennings Bryan (1860-1925) and Clarence Darrow (1857-1938) was whether creation really began in 4004 BC (Ford, 2007:384). Bibles being printed in the 21st century continue to carry Ussher's legacy, featuring his date in *The Expositor's Study Bible*, *The ESV Study Bible* and *The Chronological Study Bible* (Bible, 2014:8; Bible, 2006:1, 3, 6, 680; Bible, 2007:36).

Therefore, although Ussher never wrote a commentary on Genesis 1-11, his reliance upon the literal interpretation of the text had a remarkable influence on how many commentators would read Moses.

5.5.13 Summary

Although the literal interpretation of Genesis 1-11 was generally accepted for the first fifteen centuries after Christ, very few commentators were as serious about the literal sense of the text as those who lived during the Protestant Reformation (see table 5.8). For this reason, despite Augustine's influence through the ages, he does not fare as well during the sixteenth and seventeenth centuries. Commentators who entertain the allegorical sense of Genesis 1-11 only do so sparingly. The historical value of these eleven chapters is conspicuously upheld in the chronologies of Raleigh, Lightfoot and, most famously (or infamously), Ussher.

Table 5.8 – The interpretation of Genesis 1-11 during the Reformation period

Publication Date	Author	Title	Interpretation
1535-1545	Martin Luther (1483-1546)	Genesis-Vorlesung/Enarrationes	literal
1554-1563	John Calvin (1509-1564)	Commentaires de M. Jean Calvin, sur les cinq livres de Moïse: Genes est mis à part	literal
1592	Gervase Babington (1549/1550-1610)	Certaine plaine, briefe, and comfortable notes vpon euerie chapter of Genesis: gathered and laid downe for the good of them that are not able to vse better helpes, and yet carefull to read the worde, and right heartilie desirous to taste the sweete of it	literal
1605	Andrew Willet (1561-1621)	Hexapla in Genesin: that is, a sixfold commentary upon the two first bookes of Moses, being Genesis and Exodus	literal (scientific)
1614	Walter Raleigh (1552-1618)	The historie of the world	literal (scientific)
1616	Henry Ainsworth (1571-1622)	Annotations on the Pentateuch: the book of Genesis	literal
1617	John Salkeld (1576-1660)	A treatise of Paradise	literal

Table 5.8 (continued)

Publication Date	Author	Title	Interpretation
1641	George Walker (c.1581-1651)	The history of the creation as it is written by Moses in the first and second chapters of Genesis	literal
1643	Arthur Jackson (c.1593-1666)	A help for the understanding of the Holy Scripture	literal
1647	John Lightfoot (1602-1675)	A chronicle of the times, and the order of the texts of the Old Testament	literal
1649	John Trapp (1601-1669)	A clavis to the Bible: or a new comment upon the Pentateuch: or five books of Moses	literal
1650	James Ussher (1581-1656)	Annales veteris testamenti, a prima mundi origine deducti	literal

This was the age of significant scientific advancement, featuring the famous contributions of Copernicus and Galileo – two men whose impact upon Genesis 1-11 would only increase during the following three centuries. Riding on the wake of this progress, radical thinkers like Edward Herbert and René Descartes sowed the first seeds of Enlightenment.

5.6 Radical Enlightenment (1650-1750)

As the radical rationalistic agenda of the Enlightenment steadily prevailed and the seeds of religious dissent blossomed, commentators began to question the meaning and value of Genesis 1-11. The following fifteen commentaries depict the epistemic revolution taking effect in Western thought (see table 5.9). This was the era of Hobbes, La Peyrère, Vossius, Meyer, Spinoza, de Fontenelle, Locke and Blount. This was the heyday of Isaac Newton. The Mosaic narrative was destined to endure an explosion of previously unseen and new-fangled interpretations.

Table 5.9 – Works featuring Genesis 1-11 from the Radical Enlightenment period

Publication Date	Author	Nationality	Religion or denomination	Original title
1654	Benjamin Needler (1620-1682)	English	Puritan	Expository notes, with practical observations; towards the opening of the five first chapters of the first book of Moses called Genesis
1655	John Richardson (1580-1654)	Irish	Church of Ireland	Choice observations and explanations upon the Old Testament: annotations on Genesis
1672	George Hughes (1603-1667)	English	Puritan	An analytical exposition of the whole first book of Moses, called Genesis
1677	Matthew Hale (1609-1676)	English	latitudinarian Puritan/ liberal Anglican	The primitive origination of mankind, considered and examined according to the light of nature
1682	Philip Henry (1631-1696)	English	Nonconformist	An exposition with practical observations upon the first eleven chapters of Genesis
1683	Matthew Poole (1624-1679)	English	Nonconformist	Annotations upon the Holy Bible
1692	John Bunyan (1628-1688)	English	Puritan	An exposition on the ten first chapters of Genesis, and part of the eleventh
1693	Jean Le Clerc (1657-1736)	French (Geneva)	Remonstrant	Genesis sive Mosis prophetæ liber primus
1692	Thomas Burnet (c.1635-1715)	English	Anglican	Archaeologiae philosophicae sive doctrina antiqua de rerum originibus
1694	Richard Kidder (1633-1703)	English	Anglican	A commentary on the five books of Moses
1695	Simon Patrick (1626-1707)	English	Anglican	A commentary upon the first book of Moses called Genesis
1696	William Whiston (1667-1752)	English	Anglican/Arian	A new theory of the earth

Table 5.9 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1708-10	Matthew Henry (1662-1714)	English	Puritan	Exposition of the Old and New Testaments
1733	Thomas Stackhouse (1677-1752)	English	Anglican	A new history of the Holy Bible, from the beginning of the world, to the establishment of Christianity
1735	Benjamin Colman (1673-1747)	American	Puritan	A brief dissertation on the three first chapters of Genesis
1739	David Jennings (1691-1762)	English	Separatist	An introduction to the use of globes and the orrery
1747	Benjamin Kennicott (1718-1783)	English	Anglican	Two dissertations: the first on the tree of life in paradise, with some observations on the creation and fall of man; the second on the oblations of Cain and Abel

5.6.1 Benjamin Needler (1620-1682)

In 1654, Benjamin Needler, the English puritan, wrote a commentary on the first five chapters of Genesis. Advocating the literal sense and historicity of the creation account, he warns his readers of the “libertines of our times” who seek to “turne all the Scriptures into an allegory”, pointing out that, “it is the designe of some frothy wits to typisie, and allegorize Gods commandments out of the Law, and his truths out of the Gospel” (Needler, 1655:35-36). Needler (1655:221) takes Genesis as history from the first chapter all the way through to the time of Moses, who was born, according to his calculations, in the 2434th year of the world. He maintains this stance despite the growing scepticism of Genesis 1-11 (Needler, 1655:31). A contingent of rationalisers had arisen who were not happy with the longevity of the patriarchs in Genesis 5 (Needler, 1655:219). To try and rescue Scripture from ridicule, they had construed the years in this genealogy to be “lunar yeares” thus reducing Adam’s age in Genesis 5:4 from 800 years to 800 months (Needler, 1655:220). Needler (1655:220) is disenchanted with this creative hermeneutic, pointing out that it would make Enoch a father at only 5 years old.

Needler (1655:7:33-38, 53-60) is not embarrassed to assert that God created light before the sun, planted a literal garden in Eden, made Adam from the dust, and Eve from his rib; that Satan possessed a real snake; and that God literally walked in the garden.¹⁹⁷ Needler (1655:6-7) believes that it is more probable that the world began in Autumn than Spring because of Genesis 1:11.

5.6.2 John Richardson (1580-1654)

John Richardson’s *Choise [sic] observations and explanations upon the Old Testament* was published posthumously by Ussher in 1655 (Smith, 1896:228). It is not surprising to find, therefore, that Richardson’s notes on Genesis belong to the literal school. The very first sentence of his commentary on the Old Testament begins with, “Genesis containns an history of 2369 years” (Richardson, 1655:1). In his next sentence he defines the days of Genesis 1 as periods of twenty-four hours (Richardson, 1655:2).

¹⁹⁷ Translating קול as “voice” instead of “sound” in Genesis 3:8, he explains the phenomenon of “the voice of the Lord God walking” as an “articulate voice... God at that time assuming the visible shape of a man”, which he thinks is “probable” given the description of “God walking” (Needler, 1655:77-78).

Although Richardson's commentary on Genesis 1-11 is sparse, he gives the reader enough to conclude that the Mosaic record is to be taken as history. For example, he states that Noah was born in the 1056th year of the world and lived for 950 years which meant that he died just 2 years before the birth of Abraham (Richardson, 1655:4).

5.6.3 George Hughes (1603-1667)

George Hughes, another English puritan, wrote an analytical exposition of Genesis in 1672. Like Richardson, at the outset of his commentary, he states that Moses wrote a "history of the rise of the world" from Adam to Joseph, encompassing a period of 2369 years (Hughes, 1672:1). To those "infidels" who respond with "scorn" and incredulity at some of the supernatural events recorded in Genesis 1-11, Hughes (1672:23) insists that, "the litteral truth must stand". Those who question the creation of Eve from a rib, and how she might "arise from so litle a bone" fail to appreciate the omnipotence of God (Hughes, 1672:23). Hughes (1672:To the reader) does not see the need to defend Moses against "atheists and antiscripturists", nor to explore scientific hypotheses to explain various elements of the narrative, like the design and capacity of ark. Following Bacon, he maintains that Genesis was never intended to "furnish the world with a body of Physicks", which would be to "seek the dead among the living" (Hughes, 1672:To the reader). Yet, in Genesis 1:16, Hughes (1672:5) does on one occasion defer to the opinion of astronomers on the relative size of the sun to other stars and the earth,¹⁹⁸ but only as a gloss to his exegesis. Hughes cites other commentators sparingly,¹⁹⁹ choosing rather to engage directly with the Hebrew, Greek, Latin and Chaldee texts. Overall, his interpretation stays true to the literal sense of the text.

5.6.4 Matthew Hale (1609-1676)

In 1677, Matthew Hale (1609-1667),²⁰⁰ an Anglican with "liberal ideas",²⁰¹ published *The primitive origination of mankind, considered and examined according to the light of nature* (Cromartie, 2003:150, 153). Strictly speaking, this book presents more of an apology for the Mosaic account than a commentary, but because it advances possibly the earliest example of the gap or restitution theory, I include it here as an important interpretive work on Genesis 1-11.

Hale (1677:20, 91, 121, 176, 284) takes the biblical account of creation as literal truth, inferring from the chronology therein that the world is about six thousand years old. That said, he is reticent to argue his case merely from the authority of Scripture, preferring, in the spirit of his age, that expositors appeal to "evidences of fact" rather than the Bible on this subject (Hale, 1677:129-131). Hale (1677:135-137) still maintains, however, the historical superiority of the biblical record over that of the Romans, Greeks,

¹⁹⁸ This is the same anecdote found in Ainsworth and Jackson, namely, that the sun is supposedly 166 to 170 times greater than the earth (Hughes, 1672:5).

¹⁹⁹ When Hughes (1672:32, 107, 137; 42, 67, 94, 137; 2, 12, 15, 20, 43, 53) does cite other authorities, it is mostly from Calvin, Luther and Franciscus Junius – who is either Junius the younger (1591-1677), or the latter's father, Junius the elder (1545-1602).

²⁰⁰ Not to be confused with the first Anglican bishop of Perth, Matthew Blagden Hale (1811-1895).

²⁰¹ For a full discussion of Hale's latitudinarianism, see Cromartie (2003:139-155) and Mountfield (1862:101-123).

Persians, Babylonians, Phoenicians, and Egyptians. Hale (1677: 144-145, 162, 177, 187, 226, 309-318, 340, 370) does not question the historicity of Adam and Eve, Eden, the serpent, the universal deluge or the tower of Babel. He opposes La Peyrère's pre-Adamite theory and is equally unhappy with the refutation offered by Vossius because of the manner in which he casts doubt upon the scope of Noah's flood (Hale, 1677:184-186). To argue the case for Noah's ark, Hale (1677:189, 192) relies upon the arguments presented in Poole's *Synopsis Criticorum* (1666-1676), and as evidence of the global flood he cites evidence of fossilised shells on continents.

Whilst Hale (1677:260, 276, 304, 306) categorically dismisses the naturalistic origin of man from "dead and senseless atoms", he reluctantly concedes the possibility of spontaneous generation amongst some of the lower animals including worms, flies, frogs, small fishes and watery insects (Goodrum, 2002:219). Hale (1677:303) is sceptical of the "imaginary hypothesis" of Copernicus, Galileo, Kepler and Descartes, preferring instead the "Divine hypothesis" of Moses which supports – so he thinks – geocentricity over heliocentricity. He also follows the text when it comes to the creation of the sun, moon and stars, leading him to assert that the first three days existed without these entities (Hale, 1677: 295, 302-303).

Hale (1677:295, 301, 313-314) insists that the six days of Genesis ought to be taken as natural days. Any hypotheses that seek to prolong the days of Genesis are "vain conjectures" "unwarranted by the Holy History" and in contradiction to it (Hale, 1677:307-308). But, offering another compromise, he presents the following exegetical manoeuvre:

Because if we should be so vain as to suppose a long process, somewhat suitable [*sic*] to what we now see in Nature, for the separation, disposition, and production of the Six Days Work; yet certainly there was a time intervening between the first creation of the *Materia Chaotica* and the very inception of its complement into that order that the six days work exhibit to us; and although that time is not determinates set down, yet we may justly think it a long time. (Hale, 1677:308)

Thus, in order to harmonise Moses with the historical sciences Hale proposes the introduction of an unspecified interval of time into the gap between Genesis 1:1 and Genesis 1:3.

5.6.5 Philip Henry (1631-1696)

Philip Henry, father of the famous Matthew Henry (1662-1714), wrote his own commentary on the first eleven chapters of the Bible in 1682. Henry (1839:x-xi) believes that Genesis 1-11 is the only "true account of the history of the creation", written by Moses, 2400 years after time began. He expressly denies that God made the world in a moment instead of six natural days (Henry, 1839:8-9, 12, 18). He also asserts that God created light before the sun "to teach us that though God doth ordinarily work by second causes, yet he is not tied up to them" (Henry, 1839:16). The rest of his commentary upholds the literal sense of the text.

5.6.6 Thomas Burnet (c.1635-1715)

Thomas Burnet provides a naturalistic reinterpretation of creation involving, rejecting the literal sense of the text wherever he deems it to be contrary to science or reason.²⁰² Burnet's commentary was greatly appreciated by Charles Blount who eagerly plagiarised sections of Burnet's writings to further his radical deistic agenda in England (Israel, 2001:605; Redwood, 1974:490).

5.6.7 Matthew Poole (1624-1679)

Matthew Poole, a nonconformist like Henry, made annotations on the whole Bible and had them published in 1683. Poole's handling of the text is consistently upholds the literal sense. He estimates that Genesis encompasses a history of 2300 years (Poole, 1853:1). Adam and Eve were real people; the serpent, an ordinary snake; even God walking in the garden is understood literally as the preincarnate Christ (Poole, 1853:3, 6-9). When it comes to the flood, however, Poole (1853:21) tentatively allows the possibility that the waters did not cover the surface of the whole earth, but merely the populated regions. But he does not tolerate those "profane wits" who doubt the historicity of Genesis 6-8 or the capability of God to carry out such an cataclysmic event (Poole, 1853:21).

5.6.8 John Bunyan (1628-1688)

In addition to writing "perhaps the world's best-selling book" apart from the Bible, John Bunyan applied himself to the interpretation of Genesis 1-11 (Hill, 1989:375). Given the allegorical mastery depicted in *Pilgrim's progress* (1678), it is not surprising to find Bunyan attempting the same with his commentary on creation. Emulating many church fathers, he accepts the literal historicity of the Mosaic narrative but devotes his attention to the spiritual value of various types and figures in the text. Of these he discovers many antitypes for Christ including the sun, Adam, the tree of life, the voice in the garden and the ark (Bunyan, 1994:113, 118, 122, 135, 202). Following the literal sense, Bunyan (1994:114, 119, 205, 266) believes that the earth is not older than six thousand years, the flood was universal, and that Noah even lived to see the foundations of Babel being laid and the confusion of tongues. He states that Cain must have married his sister to propagate his lineage and that among his descendants there were giants who terrorised the earth until, and during, the days of Noah (Bunyan, 1994:175, 193).

5.6.9 Jean Le Clerc (1657-1736)

Jean Le Clerc reads Genesis 1-11 through a naturalistic lens, rejecting the literal sense of the text wherever he deems it to be contrary to science or reason.²⁰³ His commentary, which came out in 1693, is frequently cited in other works on Genesis over the next 200 years.

²⁰² See section 2.6.14 for the full discussion.

²⁰³ See section 2.6.12 for the full discussion.

5.6.10 Richard Kidder (1633-1703)

In 1694, one year after Le Clerc's *Genesis sive Mosis prophetae liber primus* came to press, Richard Kidder published his own thoughts on Moses' account. By this stage the Radical Enlightenment was well underway. Kidder (1694:VII) states that there have been "great attempts to disparage and lessen the esteem of Holy Writ, and Moses himself hath not been spared". Hobbes, La Peyrère and Spinoza are singled out as the three main culprits (Kidder, 1694:XXIV). For the first time in sixteen centuries, the Mosaic authorship of the Pentateuch had been challenged in Europe. Collating 22 of their best arguments, and drawing principally upon Le Clerc – who had followed their lead – Kidder (1694:I-LXXX) devotes the first 80 pages of his commentary to defending the orthodox view. As far as he is concerned, the literal sense of Genesis 1-11 "is to be preserved, and not to be questioned by any means" (Kidder, 1694:vi). Kidder (1694:1) calls this record the "best account of the origin of the world" and puts Ussher's 4004 BC date in the margin of the first page of his commentary.

5.6.11 Simon Patrick (1626-1707)

In 1695, Simon Patrick, a self-professing latitudinarian,²⁰⁴ advances one of the earliest formulations of the gap-theory after Hale. Finding some support from Maimonides, Patrick (1695:4) argues that the six days of creation pertain only to "this planetary world", not the rest of the universe. To establish this scheme, he allows an undefined period of time to exist after Genesis 1:1 in which creation continues in a state of chaos until light is "extracted out of it" (Patrick, 1695:11). The six days, however, are taken as natural twenty-four hour periods (Patrick, 1695:10). Indeed, Patrick (1695:para. 5) views his interpretation as strictly following the literal sense of the text, allowing no room for allegory or other "presumptuous words". Whilst the age of the universe does not interest him, he still argues that Genesis records a history of approximately 2369 years, and hence – although he does not state this himself – an earth not older than six millennia (Patrick, 1695:2).

Almost all the commentary that follows from this point typifies the literal hermeneutic that was characteristic of the Reformation era. God creates light before the sun; Eden is a real place; Adam and Eve are the first humans; the flood was a global extinction event; and the tower of Babel marked the beginning of languages and culture (Patrick, 1695:17-59, 129-132, 143-146, 189-230). The only novelty arises in his discussion on the temptation of Eve, where he suggests that the serpent in Eden was a fiery serpent with wings "shining very brightly" like fire (Patrick, 1695:60). Patrick (1695:62) believes that it was for this reason that Eve was seduced, thinking the creature to be an angel. After the fall, God's curse transforms this flying seraph into a "foul creeping serpent" (Patrick, 1695:72).

²⁰⁴ In 1662, he came out publicly in defence of the latitudinarian position (Jacob, 1976:31, Birrell, 1966:i-iv).

5.6.12 William Whiston (1667-1752)

Whilst Newton's views on the days of Genesis remained obscure and mostly unknown, William Whiston's day-age theory spread far and wide with the publication of *A new theory of the earth, from its original, to the consummation of all things wherein the creation of the world in six days, the universal deluge, and the general conflagration, as laid down in the Holy Scriptures, are shewn to be perfectly agreeable to reason and philosophy* (1696).²⁰⁵ In his zeal to make Scripture conform to the historical sciences Whiston follows Patrick's example, amending the words of Moses in Genesis 1:14 so that the sun, moon and stars are no longer attributed to the fourth day of creation.

5.6.13 Matthew Henry (1662-1714)

From 1708 to 1710, Matthew Henry, the English Puritan, wrote a multivolume devotional commentary on the whole Bible. Fifty years later, Wesley (1987:15-16) considered it to be the definitive exposition of Scripture. Even by the late 19th century, Spurgeon (1876:13-15) could find no other commentary that surpassed it, insisting that, "Every minister ought to read Matthew Henry entirely and carefully through once at least."

Henry's approach to Genesis 1-11, like his father's,²⁰⁶ is strictly according to the literal sense. In his comments on chapter 5, he states, "This chapter is the only authentic history extant of the first age of the world from the creation to the flood, containing (according to the verity of the Hebrew text) 1656 years" (Henry, 1994:20). Although he recommends the exegetical works of Patrick and Poole, the only commentator he refers to explicitly in his exposition of Genesis 1-11 is Lightfoot, whom he mentions twice (Henry, 1994:x, 19, 27). Henry (1994:10) evidently draws upon more commentators than just Lightfoot because his famous comment on Genesis 2:21-25 can also be found in Lombard (2012:77):

That the woman was *made of a rib out of the side of Adam*; not made out of his head to rule over him, nor out of his feet to be trampled upon by him, but out of his side to be equal with him, under his arm to be protected, and near his heart to be beloved.

5.6.14 Thomas Stackhouse (1677-1752)

It had been more than 80 years since anyone had attempted a project like that of Ussher's *Annals*. Then, in 1733, Thomas Stackhouse published his magnum opus: *A new history of the Holy Bible, from the beginning of the world, to the establishment of Christianity*. Stackhouse (1733:1-65) immediately pays tribute to Ussher, placing the famous 4004 BC date in the margin of every page for the first 65 pages.²⁰⁷ There is no doubt in his mind that Genesis 1-11 is the only true foundation of any history, and "is to be taken in a literal sense" (Stackhouse, 1795:104). Following Patrick, Stackhouse (1795:9) treats these chapters as a "plain

²⁰⁵ Hitchcock (1839a:48) opines that Whiston was the first "geologico-theological writer" to suggest that the six days of Creation could be extended to six years. See section 2.6.16 for the full discussion.

²⁰⁶ Refer to section 5.6.5 for the discussion on Philip Henry.

²⁰⁷ In the 1795 edition, which spans six volumes instead of the original two, Ussher's date can be found on the first 116 pages (Stackhouse, 1795:1-116).

narrative”. In fact, of all the commentators he cites, Patrick is quoted most frequently,²⁰⁸ followed by Le Clerc²⁰⁹ and John Milton (1608-1674)²¹⁰ – whose poetry he quotes at length from *Paradise lost* (1667). Patrick’s influence over Stackhouse (1795:1-2) is also evident from how he utilises the gap theory, allowing an “immense space of time” before the creation of the “planetary world” – although, in this case, he places this eon before Genesis 1:1 instead of after it. Stackhouse (1795:2-3) is convinced that the angels and stars already exist before the account given by Moses. This means that the activities of the fourth day necessarily exclude the creation of stars (Stackhouse, 1795:12, 26). Borrowing from Patrick, he explains, “the fixed stars do not seem to be comprehended in the six day’s work” because Genesis 1 only relates the creation of the solar system (Stackhouse, 1795:12).

As Stackhouse tackles Genesis 1-11, exegeting the text chapter by chapter, he includes various apologetic dissertations along the way to deal with the increasingly sceptical disposition of this century. The Mosaic record is clearly under attack for being both unreasonable and unscientific. To try and evade such charges, Stackhouse (1795:6) attempts to distance Genesis from science, claiming that the text neither asserts nor denies “any philosophic truth”. For example, he suggests that Genesis 1:14-19 could allow for either a Ptolemaic or Copernican interpretation depending on the reader’s preference²¹¹ (Stackhouse, 1795:9, 12). Stackhouse’s dissertations, however, inevitably draw him into the fray, forcing him to defend the text on scientific grounds in several places, resulting in a reasoned argument for the universality of the flood and a feasibility study on the ark’s capacity (Stackhouse, 1797:203-227).

5.6.15 Benjamin Colman (1673-1747)

Meanwhile in America, 115 years after the Mayflower first dropped anchor along the coast of Massachusetts, the Puritan minister, Benjamin Colman, wrote *A brief dissertation on the first three chapters of Genesis* (1735). This short treatment on Genesis 1-3 was written with freethinkers, deists and unbelievers in mind who have “profanely ridicul’d” the creation story (Colman, 1735:1, 42). Colman (1735:2-3) sets out to show, in simple terms, why Genesis cannot be jettisoned. He stresses that, “If these first pages in the book of God do not appear worthy of his inspiration, we may even give up the rest of the Bible” (Colman, 1735:2). Colman’s goal is to uphold the literal sense of the text. This he does, except in the case of Genesis 1:14-16 where he allows two possible interpretations: (1) God created the celestial bodies on the fourth day, or (2) they were made at the beginning and only appeared in the sky on this day (Colman, 1735:10). Colman’s (1735:2, 8, 38) commentary draws inspiration from the works of Burnet, Patrick and Henry.

²⁰⁸ For references to Patrick, see Stackhouse (1795:9, 11, 12, 13, 14, 20, 25, 40, 43, 59, 71, 75, 78, 80, 85, 92, 98, 117, 119, 123, 124, 125, 130, 131, 132, 145, 146, 196).

²⁰⁹ For references to Le Clerc, see Stackhouse (1795:5, 13, 72, 74-75, 76, 80, 90, 119, 120, 124, 125, 131, 145, 195).

²¹⁰ For quotations from Milton, see Stackhouse (1795: 17, 40-43, 45, 68-70, 73, 75, 76, 78-79, 92, 116, 152).

²¹¹ In this case, he finds more merit in the Copernican system.

5.6.16 David Jennings (1691-1762)

Whilst Colman is ambivalent about how to read Genesis 1:14-16, David Jennings is not. In an appendix to *An introduction to the use of the globes, and the orrery* (1739), he sets out to reinterpret Moses according to the science of his day. Jennings (1776:151-152) has two problems with the text as it stands: (1) how could there be days and nights without a sun, and (2) why God would only require a day to make all the stars in the universe when he takes five days to complete the earth, a “mere point or atom” in comparison to the rest of his creation? Drawing upon the cometary hypotheses of Whiston and Halley, he argues that Genesis 1 should be read as a testimony of how the earth (and possibly the moon) came into being, not the whole universe (Jennings, 1776:153, 155-156 166-167). In other words, the sun and stars, along with the chaos described in Genesis 1:2, already existed “some considerable time” before the six days²¹² mentioned (Jennings, 1776:156).

Jennings (1776:157-158) then reinterprets “The Spirit of God moved upon the face of the waters” to mean “the Spirit of God moved the surface of the globe, and thereby gave it its diurnal motion”. If the first day provides the diurnal motion of the earth, the fourth day supplies its “annual motion motion round the Sun”, thereby giving the illusion of their creation by their sudden appearance in the sky (Jennings, 1776:163). Jennings (1776:171-172) believes that neither Moses nor the Israelites were able to apprehend “such deep points of philosophy” along with the true meaning of Genesis 1 because they were a “poor labouring people” with “vulgar conceptions”. But with this interpretation, he contends that the Mosaic account can be appreciated as “most truly philosophical and beautiful” (Jennings, 1776:172).

5.6.17 Benjamin Kennicott (1718-1783)

While Jennings took an interest in the first chapter of Genesis, Benjamin Kennicott’s curiosity was piqued by the second and third chapters. His work divides into two dissertations on the tree of life and the sacrifices of Cain and Abel. Together, they both serve as a response to the “enemies of revealed religion” to vindicate the Mosaic record (Kennicott, 1747:1-2, 7). Kennicott (1747:1-2) maintains that Genesis 1-11 is the only true history of the world. Although his dissertations focus on a limited portion of the account, his interaction with the text is always in line with the literal sense. Kennicott (1747:135) measures the time period from the first day of rest till the Jewish institution of the Sabbath at 2500 years.

5.6.18 Summary

For the first time in sixteen centuries of scholarship on Genesis 1-11, the literal interpretation of these chapters was substantially challenged. Although most commentaries from the early Enlightenment period continued to embrace a literal approach to the Mosaic narrative, several commentators began to explore naturalistic and scientific reinterpretations of the Genesis record (see table 5.10). Consequently, this was an era of anti-literalistic innovation.

²¹² Jennings (1776:150) seems to take these days according to the literal sense, given that he provides a brief chronology of the world going back to Creation in 4004 BC.

Publication Date	Author	Title	Interpretation
1654	Benjamin Needler (1620-1682)	Expository notes, with practical observations; towards the opening of the five first chapters of the first book of Moses called Genesis	literal
1655	John Richardson (1580-1654)	Choice observations and explanations upon the Old Testament: annotations on Genesis	literal
1672	George Hughes (1603-1667)	An analytical exposition of the whole first book of Moses, called Genesis	literal
1677	Matthew Hale (1609-1676)	The primitive origination of mankind, considered and examined according to the light of nature	gap theory (scientific)
1681-1690	Thomas Burnet (c. 1635-1715)	Telluris theoria sacra	literal (naturalistic)
1682	Philip Henry (1631-1696)	An exposition with practical observations upon the first eleven chapters of Genesis	literal
1683	Matthew Poole (1624-1679)	Annotations upon the Holy Bible	literal
1692	Thomas Burnet (c.1635-1715)	Archaeologiae philosophicae sive doctrina antiqua de rerum originibus	parable (naturalistic)
1692	John Bunyan (1628-1688)	An exposition on the ten first chapters of Genesis, and part of the eleventh	literal & allegorical
1693	Jean Le Clerc (1657-1736)	Genesis sive Mosis propheta liber primus	naturalistic
1694	Richard Kidder (1633-1703)	A commentary on the five books of Moses	literal
1695	Simon Patrick (1626-1707)	A commentary upon the first book of Moses called Genesis	gap theory
1696	William Whiston (1667-1752)	A new theory of the earth, from its original, to the consummation of all things wherein the creation of the world in six days, the universal deluge, and the general conflagration, as laid down in the Holy Scriptures, are shewn to be perfectly agreeable to reason and philosophy	day-age theory, terrestrial ²¹³ (naturalistic)
1708-1710	Matthew Henry (1662-1714)	Exposition of the Old and New Testaments	literal
1733	Thomas Stackhouse (1677-1752)	A new history of the Holy Bible, from the beginning of the world, to the establishment of Christianity	gap theory (scientific)
1735	Benjamin Colman (1673-1747)	A brief dissertation on the three first chapters of Genesis	literal
1739	David Jennings (1691-1762)	An introduction to the use of globes and the orrery	terrestrial (naturalistic)
1747	Benjamin Kennicott (1718-1783)	Two dissertations: the first on the tree of life in paradise, with some observations on the creation and fall of man; the second on the oblations of Cain and Abel	literal

Table 5.10 – The interpretation of Genesis 1-11 during the Radical Enlightenment

As a means of accommodating an older chronology and fostering credibility for Genesis 1, the gap theory is conceived by Hale and Patrick, and Whiston proposes his own version of the day-age theory. With Vossius and Stillingfleet, Genesis 6-8 is also subjected to reinterpretation, restricting the flood to a region in or near Palestine. In the commentaries of Patrick, Whiston, Stackhouse and Jennings even the creation account is limited in scope to the earth's solar system. In the same vein, La Peyrère treats Genesis 1-11 as a history of the Jews, arguing for the existence of pre-Adamite races.

Other commentaries by Burnet, Le Clerc and Jennings relegate Genesis 1-11 to the realm of parable, fiction or uninspired history. Hobbes, La Peyrère, Simon and Spinoza even deny Mosaic authorship, whilst Le Clerc postulates that Genesis was heavily edited, only reaching its final form after the Israelite monarchy had been established.

²¹³ By “terrestrial”, I refer to the fact that Whiston restricts Genesis 1 to the creation of the earth alone.

5.7 Late Enlightenment (1750-1830)

The next hundred years of Enlightenment subjected the traditional interpretation of Genesis 1-11 to further scrutiny. Commentators had to contend with radical philosophers like Hume, Voltaire, Rousseau, Diderot, and Kant who had little to no time for Moses. De Maillet, Laplace, Lamarck, Hutton and Erasmus Darwin advanced materialistic and evolutionary accounts of the universe, postulating an age for the earth extending to billions of years. Eichhorn and Herder argued that Genesis 1-11 should be received as a fable or myth. Paine openly ridiculed the Mosaic record. To see how Genesis fared during this period the following twenty-four commentaries will be analysed (see table 5.11).

Table 5.11 – Works on Genesis 1-11 from the Late Enlightenment period

Publication Date	Author	Nationality	Religion or denomination	Original title
1753	Jean Astruc (1684-1766)	French	Catholic	Conjectures sur les memoires originaux dont il paroît que Moyse s'est servi pour composer le livre de la Genese
1753	John Scott, D.D.	English	Anglican	Notes and observations upon the three first chapters of Genesis
1753	Samuel Shuckford (1693?-1754)	English	Anglican	The creation and fall of man: a supplemental discourse to the preface of the first volume of the sacred and profane history of the world connected
1763	John Gill (1697-1771)	English	Reformed Baptist	An exposition of the Old Testament; in which are recorded the origin of mankind, of the several nations of the world
1764	Anthony Purver (1702-1777)	English	Quaker	A new and literal translation of all the books of the Old and New Testament; with notes, critical and explanatory
1765-1766	John Wesley (1703-1791)	English	Anglican Methodist	Explanatory notes upon the Old Testament
1765-1770	William Dodd (1729-1777)	English	Anglican and Socinian	A commentary on the books of the Old and New Testament
1776	Johann Georg Rosenmüller (1736-1815)	German	Lutheran	Antiquissima telluris historia à Mose
1778	Georges-Louis Leclerc, Comte de Buffon (1707-1788)	French	Deist/Atheist	Les époques de la nature
1778	John Brown (1722-1787)	Scottish	Secession Church	The self-interpreting Bible, containing the Old and New Testaments
1784	Anonymous (T. Wilkie)	English	Unknown	A key to the three first chapters of Genesis, opening to the most common understanding the production of the world, the creation, formation and fall of man; and the origin of evil
1792	Alexander Geddes (1737-1802)	Scottish	Catholic	The Holy Bible, or the books accounted sacred by Jews and Christians
1792	Thomas Scott (1747-1821)	English	Anglican	The Holy Bible; containing the Old and New Testaments
1803	Joseph Priestley (1733-1804)	English	Unitarian	Notes on all the books of Scripture, for the use of the pulpit and private families
1804	Henry Dimock (c. 1751-1833)	English	Anglican	Critical and explanatory notes on Genesis, Exodus, Isaiah, Jeremiah, Ezekiel, Daniel, and the minor prophets
1806	Andrew Fuller (1754-1815)	English	Particular Baptist	Expository discourses on the book of Genesis
1811	Joseph Benson (1749-1821)	English	Methodist	The Holy Bible, containing the Old and New Testaments
1811	Adam Clarke (1762-1832)	English	Methodist	The Holy Bible, containing the Old and New Testaments
1812	John Hewlett (1762-1844)	English	Anglican	The Holy Bible, containing the Old and the New Testament, and the Apocrypha, with critical, philological and explanatory notes

Table 5.11 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1817	George D'Oyly (1778-1846) Richard Mant (1776-1848)	English	Anglican	The Holy Bible, according to the Authorized Version; with notes, explanatory and practical
1818	John Bellamy (1755-1842)	English	Swedenborgian	The Holy Bible, newly translated from the original Hebrew: with notes critical and explanatory
1820	Samuel Horsley (1733-1806)	English	Anglican	Biblical criticism on the first fourteen historical books of the Old Testament
1823	George Stanley Faber (1773-1854)	English	Anglican	A treatise on the genius and object of the patriarchal, the Levitical and the Christian dispensations
1826	Francis Close (1797-1882)	English	Anglican	The book of Genesis considered and illustrated, in a series of historical discourses

5.7.1 Jean Astruc (1684-1766)

Jean Astruc rejects the divine inspiration of Genesis 1-11, treating it as fallible human document subject to historical and scientific errors.²¹⁴ Without completely rejecting Mosaic authorship, he proposes a two-source prototype of what would eventually become the documentary hypothesis. His *Conjectures sur les memoires originaux dont il paroît que Moïse s'est servi pour composer le livre de la Genese* (1753) was the “most significant work on the Bible at the time” laying a foundation for the essential core of Wellhausen’s thesis more than a century later (Nahkola, 2007:213-214, Gertz, 2007:191; cf. Acosta, 2002:256-258).

5.7.2 John Scott, D.D.

In 1753, John Scott,²¹⁵ an Anglican clergyman, published his *Notes and observations upon the three first chapters of Genesis*. It was a work prompted, in part, by the animosity and ridicule garnered against Genesis from “culpably ignorant Deists” (Scott, 1753:85, 245). Scott’s solution to “vindicate” the first three chapters of the Bible is to reinterpret them allegorically. Belabouring the point, he insists that the Mosaic record is farcical, improbable and useless “if literally understood” (Scott, 1753:119, 155, 162, 167, 169, 171). His allegories are mostly unoriginal and strongly reminiscent of Origen’s ingenuity, equating the garden of Eden to the body; the animals and birds to bodily desires; the trees to “bodily sensations and appetites”; and thorns and thistles to “destructive lusts” (Scott, 1753:42, 45, 58, 71-72, 80-81).

His allegorising, however, does not extend to every feature in the text. Scott (1753:v, xii, 31, 32, 33, 43, 59, 73) continues to refer to Adam and Eve, according to the literal sense, as “our first parents”. Even on the “formation of man’s body from the dust of the ground”, he does not deny the literal sense (Scott, 1753:70-71). Scott (1753:99) also refers, in passing, to the “incontestible [*sic*] proofs of the truth of the universality of the deluge”. And in his commentary on the hexaemeron, he states that the intervals between day and night “did not exceed the space of twenty-four hours” (Scott, 1753:9).

²¹⁴ See section 3.11 for the full discussion.

²¹⁵ Very little information is known about John Scott apart from the fact that he was a minister of the Church of England (Allibone, 1870:1959).

It is evident, therefore, that Scott allows the literal sense in cases that he deems scientifically credible, but where he finds Scripture indefensible, he resorts to allegory. For example, because he is able to supply a naturalistic explanation for how God formed the earth from fire, light and spirit (which he calls “darkness in motion”), he interprets Genesis 1:11-25 according to the literal sense (Scott, 1753:13-14). But in Genesis 1:30, he abandons the literal sense because he cannot understand how all animals were once vegetarians (Scott, 1753:58-59).

5.7.3 Samuel Shuckford (1693?-1754)

Unlike Scott, Samuel Shuckford (1753:2, 61, 87-88, 97, 239, 248) asserts that the Mosaic account is neither allegory nor fable, but should be taken as the true history of creation. Taking Burnet and Conyers Middleton (1683-1750) to task, he examines Genesis 2-3 to contend for the literal interpretation of the text (Shuckford, 1735:xxiv, 119-121, 157-158). Lord Bolingbroke²¹⁶ also gets singled out for his “palpably untrue” assertions about the Mosaic history (Shuckford, 1735:lvii-lviii, lxxii, cxxxi).

Shuckford (1735:126-128, 130-131) argues for the veracity of the universal flood, appealing to geological strata, palaeontological artifacts and secular history. He states that Christ was born about 4000 years after the fall (Shuckford, 1735:233). The serpent in Genesis 3 “truly spake to Eve as a real Ass spake to Balaam” (Shuckford, 1735:159, 166-172, 248). Shuckford (1735:cxxx) compares those who deny these facts to “our first parents” who committed the “first error” in history by following the “Science of their day” instead of the word of God.

5.7.4 John Gill (1697-1771)

John Gill, considered to be the “most eminent Particular Baptist of his age”, completed an extensive and scholarly commentary on the whole Bible in 1763 (McBeth, 1987:176). Throughout his treatment on Genesis 1-11, he consistently exegetes the text according to its literal sense (Gill, 1763:1-89). Hobbes and Spinoza do not persuade him to reject Moses as the author of these chapters (Gill, 1763:1). In two places, Gill (1763:5, 12) refers to Whiston’s view that the six days should be taken as six years,²¹⁷ but he does not subscribe to it. He also acknowledges the prevailing opinion amongst modern astronomers that the sun was made on the first day and only appeared on the fourth; but again, he rejects this idea (Gill, 1763:7). Gill (1763:2, 5) generally follows Ussher’s chronology,²¹⁸ but also gives James Capellus’s date as a possible option for the beginning of creation, being the 18th of April instead of the 23rd of October (Gill, 1763:2, 5).

²¹⁶ For more on Bolingbroke, see section 3.4.

²¹⁷ He also recounts various theories on these days from Jewish and Persian sources, but does not affirm any of them (Gill, 1763:12).

²¹⁸ Gill (1763:2) gives Ussher’s measurement of 2369 years for the time elapsed from Adam to Joseph.

5.7.5 Anthony Purver (1702-1777)

In 1764 Anthony Purver produced *A new and literal translation of all the books of the Old and New Testament*, otherwise known as the Quaker Bible. The notes included with this translation follow the literal interpretation of Genesis 1-11, (Purver, 1764:1-27). Purver (1764:23) has a high regard for Ussher whom he calls “that unparalleled Scripture chronologer”. This does not stop him, however, from suggesting some notable modifications to the generally accepted chronology from Adam to Noah. Purver (1764:13) finds an additional 8 years in the genealogy given in Genesis 5 by accounting for months not mentioned in the text. This leads him to believe that 1664 years had passed by the time the flood came (Purver, 1764:13). Patrick’s commentary also leads Purver (1764:2, 4) to believe that the chaos in Genesis 1:2 might have existed for a long time before God created light, and that the stars might have been made before the fourth day. But he leaves the reader to decide for himself. The final anomaly to disrupt what would otherwise be a fairly typical literal commentary, is Purver’s (1764:4) surprising suspicion that there are other “solar worlds” created by God and populated with rational beings like us.

5.7.6 John Wesley (1703-1791)

John Wesley, the spiritual father of the Methodist church, understood Genesis 1-11 as literal history. In his *Explanatory notes on the Old Testament* (1765-1766) he treats the account of creation in its plainest terms, with the first week of the world being not more or less than seven days; Adam and Eve, our first parents; the garden, a real place (Wesley, 1987:23-25). He even believes it probable that snakes were once able to speak, thus explaining Eve’s seeming lack of surprise in her encounter with Satan (Wesley, 1987:26). The longevity of people pre-flood leads Wesley (1987:31) to speculate that the earth was once more hospitable and habitable to its occupants than it is today. Wesley (1987:33; 1842:126, 129) accepts the genealogies given in Genesis, and states that the flood came in the 1656th year of the world, thereby making the age of the universe between five to six thousand years old. These opinions were undoubtedly amplified by his increasing fame as his “spiritual or ecclesiastical descendants” grew exponentially (Maddox & Vickers, 2010:1). But the tide of Enlightenment thought was proving to be a lot harder to resist.

5.7.7 William Dodd (1729-1777)

In 1770, William Dodd, an English clergyman of dishonourable repute, wrote a commentary on the whole Bible drawing upon the notes of John Locke and “other learned persons” (Ritchie, 2017:178). In his treatment of Genesis 1-11, Dodd is only concerned with the literal meaning of the text. He believes that the first book of the Pentateuch entails 2300 years of history, although he is hesitant to use Genesis 5 chronologically due to the numerical differences between the Hebrew, Septuagint and Samaritan versions (Dodd, 1770:1, 24). But this does not stop Dodd (1770:36) from asserting from Genesis 11 that “such genealogies are of singular advantage to confirm the truth of the Mosaic history by giving an account of the succession of mankind from the creation to the flood”.

Dodd (1770:4, 13) does not tolerate allegories of the serpent, or any endeavour to place the creation of the sun and moon before the fourth day. Similarly, the flood must be taken as a universal event because the text does not permit any alternative explanation (Dodd, 1770:27).

5.7.8 Johann Georg Rosenmüller (1736-1815)

Johann Rosenmüller (1776:8) affirms Genesis as history, stating that no trace of allegory can be found in the text. He also maintains that the Mosaic record is the oldest document of the human race and that Adam was the first human being created (Rosenmüller, 1776:9, 36-37). Yet, like Patrick and Stackhouse, Rosenmüller (1776:26-29, 31-32) argues for the restitution theory (i.e. the gap theory) as a way of interpreting Genesis 1:2, postulating that this verse describes a universal flood that was prior to the flood of Noah, thus explaining the fossil record. He also asserts that the sun and stars existed before the six days of creation because he cannot imagine how light would exist without the sun or why God would not act in accordance with the laws of nature (Rosenmüller, 1776:29, 33, 50-51). Therefore the fourth day of creation is explained as a day when the heavenly bodies merely appear to exist for the first time (Rosenmüller, 1776:63, 68).

5.7.9 Georges-Louis Leclerc, Comte de Buffon (1707-1788)

Buffon pursues a naturalistic and evolutionary interpretation of Genesis, utilising his own version of the gap theory and the day-age theory to accommodate the thousands of years required by the historical sciences.²¹⁹

5.7.10 John Brown (1722-1787)

In his day, John Brown of Haddington was possibly the most prolific religious writer in Scotland (Brown, 1887:160). Among his many works, his most famous book was *The self-interpreting Bible* (1778). Brown (1831:62-76)²²⁰ begins his commentary of the Old Testament with a chronology beginning with creation in 4004 BC all the way through to 2900 AD which assigns to the final war of Gog and Magog. For the first seven pages of Genesis, Ussher's date can be found in the margin (Brown, 1831:1-7). Brown's (1831:1) opening sentence states, "In this book we have the inspired history of the great events of 2369 years". As expected, the rest of his commentary strictly follows the literal sense of the text.

5.7.11 Anonymous (T. Wilkie)

In 1784 an anonymous treatise on the first three chapters of Genesis was published by and for a Mr T. Wilkie in London. This short book made the news on both sides of the Atlantic, ending up in the hands of other anonymous reviewers who had little regard for it (Anon., 1784:444-445; Anon., 1851:564; Anon., 1824:82). The writer's preferred anonymity becomes apparent quickly. The proposed interpretation of

²¹⁹ See section 3.15 for the full discussion.

²²⁰ NB: these pages refer to the introductory material at the beginning of his book, not the pages that are enumerated a second time when he begins his commentary.

Genesis 1:1-2, whilst endeavouring to follow the literal sense, makes the claim that God did not make the world out of nothing but out of the ruins of [Satan's] "fallen kingdom" (Anon, 1784:10, 13).²²¹ With this interpretive key he explores an alternative explanation for the first three chapters of the Bible (Anon., 1784:10, 12). Hence, the mist of Genesis 2:6 becomes a "noxious" foreboding of evil and the tree of knowledge is seen as evil itself (Anon., 1784:5, 8, 18, 32). Similarly, he finds something ominous in Adam's sleep in Genesis 2:21 which he says resembles death (Anon, 1784:19). The writer thereby places the fall of man before the events of Genesis 3 (Anon., 1784:6).

5.7.12 Alexander Geddes (1737-1802)

Alexander Geddes advances the fragmentary hypothesis, interpreting Genesis 1-11 as an uninspired myth.²²² His views of the origin of the universe follow the scientific consensus.

5.7.13 Thomas Scott (1747-1821)

Thomas Scott's commentary on the Bible, first published in 1792, was revered by many, most notably, Spurgeon, William Carey (1761-1834), William Wilberforce (1759-1833) and John Henry Newman (1801-1890) (Rumford, 1992:3). Scott (1852:B4-B7) upholds the literal sense of Genesis in the same manner as Brown, Dodd, and Gill. Ussher's date of 4004 BC recurs in the margins of the first fifteen pages (Scott, 1852:B4-D2). Scott (1852:C, D7, F8) believes the Mosaic record to be the "authenick", "real and true account" of how the world came into being with the events which followed for the first two thousand years of history.

5.7.14 Joseph Priestley (1733-1804)

The scientist and theologian, Joseph Priestley, believes most of Genesis 1-11 to be a fable.²²³

5.7.15 Henry Dimock (c. 1751-1833)

Henry Dimock's (1804:xiii) study of Hebrew, Samaritan and Greek manuscripts led him to the conclusion that the Hebrew text was "greatly corrupted". In 1804, his efforts to articulate this problem resulted in a volume entitled *Critical and explanatory notes on Genesis, Exodus, Isaiah, Jeremiah, Ezekiel, Daniel, and the minor prophets*. This was accompanied by a short essay, *Miscellaneous observations on the serpent* (Dimock, 1804:306-313). Dimock's engagement with Genesis 1-11 is sparse, but where he does interact with the text, he always follows its literal sense. In particular, he treats the account of Adam and Eve along with their fall from paradise as history (Dimock, 1804:308, 312-313).

²²¹ He credits Samuel Pike (c.1717-1773) for this insight who, in turn, explores a heterodox interpretation of Genesis in *Philosophia Sacra* (1753). Pike (1815:2) believes that no one has correctly translated Genesis because they have all failed to treat the text philosophically. He claims that Genesis 1 is the "most philosophical chapter" in the Bible, not written for the simple-minded (Pike, 1815:8). Pike's (1815:9) new interpretations rely upon various etymologies of Hebrew words that he invents *de novo*. Pike is the disciple of another misguided exegete, John Hutchinson (1674-1737), whose magnum opus, *Moses's principia* (1724), he seeks to emulate (Brown, 2014:128).

²²² See section 3.20 for the full discussion.

²²³ See section 3.21 for the full discussion.

5.7.16 Andrew Fuller (1754-1815)

In 1806, Andrew Fuller wrote 58 expository discourses on the book of Genesis. In his exposition of the first eleven chapters, he abides by the straightforward interpretation of the text. Fuller (1836:1) contends for the historical value of Genesis 1-11, maintaining that “the world would be in total darkness, not knowing whence it came, nor whither it goeth” if it were not for the Mosaic record. He also derives eschatological value from the account, recounting the Jewish tradition that the world would last seven millennia to match the seven days in Genesis 1 (Fuller, 1836:11).

Fuller (1836:1) is not swayed by the mood of the Enlightenment, stridently stating, “In the first page of this sacred book a child may learn more in an hour than all the philosophers in the world learned without it in thousands of years.” His interaction with science amounts to one isolated palaeontological reference:²²⁴ his point simply being that the fossil record is demonstrative evidence of a universal flood (Fuller, 1836:68).

5.7.17 Joseph Benson (1749-1821)

Joseph Benson’s commentary on the whole Bible, published in 1811, also interprets Genesis 1-11 according to the literal sense. From the first page of his exposition, Ussher’s 4004 BC date is given in the margin (Benson, 1811:5-16). Mankind can be traced back in time to “one original pair”, Adam and Eve, who began their existence in a “literal Eden” (Benson, 1811:9, 11). When Benson (1811:25) discusses the universality of the flood, he directs his readers to an article in the *Encyclopaedia Britannica*²²⁵ where ample evidence is presented to establish the veracity of Moses. In a similar apologetic vein, he appeals to Thomas Newton’s (1704-1782) *Dissertations on the Prophecies* (1754) to show how Genesis 9:25 was fulfilled amongst the “poor negroes” in Africa²²⁶ (Benson, 1811:31). Benson (1811:31) also infers from the genealogies given in chapters 5 and 11 that Noah would have been alive to witness the building of the tower of Babel.

5.7.18 Adam Clarke (1762-1832)

The same year that Benson finished his commentary, Adam Clarke, another Methodist, completed his own – even using the same title, *The Holy Bible, containing the Old and New Testaments* (1811). Adding to these similarities, Clarke (1843:23, 25-54, 62-63) places Ussher’s date in the margin,²²⁷ and affirms the literal historicity of the Mosaic narrative. But unlike Benson, he incorporates many other authorities in his notes: theological, philological, historical and scientific.

²²⁴ This ends up being one of the few quotations in his book: from William Cuninghame’s (c.1775-1849) (1802:22) anonymously published *Letters on the evidences of the Christian religion*.

²²⁵ The first edition of the *Encyclopaedia Britannica* included a chronological table dating the year of Creation at 4007 BC and affirmed a global flood (Smellie, 1771a:493; 1771b:414). This table was reproduced in the 2nd edition but removed from the 3rd edition in 1797 (Macfarquhar & Tytler, 1778:844; Macfarquhar & Gleig, 1797).

²²⁶ For a history of the misinterpretation of Genesis 9:25 during the Early Modern Period, see Whitford (2009).

²²⁷ He includes two chronological tables starting from this date: one of his own, and another large fold-out table from William Blair (Clarke, 1843:63, 86-87).

Clarke is not content to merely exegete the text. He also wants to establish the veracity of Genesis 1-11 wherever possible by appealing to “the most accurate observations of the best modern philosophers”²²⁸ (Clarke, 1843:32). To this end, his commentary reproduces some of the astronomical tables of Joseph Jérôme Lefrançois de Lalande (1732-1807) (Clarke, 1843:28-29). As to how the earth might arise out of a “fluid state”, he turns to Priestley and Newton (Clarke, 1843:32). Herschel²²⁹ is summoned to help him elaborate on the nature of the sun, moon and stars (Clarke, 1843:34). In his feasibility study of the ark, he relies heavily upon the work of John Wilkins (1614-1672) (Clarke, 1843:68-69). To those who doubt the universality of the flood, Ray’s *Physico-theological discourses* are recommended (Clarke, 1843:73). And, coming back to Newton, he finds in Genesis 9:16 an opportunity to discuss the natural properties of rainbows (Clarke, 1843:79).

Whilst Clarke’s commentary seldom ventures beyond the literal sense of the text, it is by no means conservative.²³⁰ He argues that there are Hebrew words that cannot be understood without the Arabic language because their meaning is “deficient” or even “lost” (Clarke, 1843:26). Citing the philologist, William Jones (1746-1794), he even advances the notion that Hebrew may originally be derived from Arabic (Clarke, 1843:26). This conviction plays a significant role in his interpretation of the serpent in Genesis 3. Drawing upon the etymological ties between the Arabic words for “ape” and “devil” along with his belief that the serpent was capable of walking (Gen. 3:14), Clarke (1843:46-47) concludes that the creature used by Satan was either an ape or an orangutan.²³¹ This would mean, as Bellamy (1811:5) wryly points out, that “Eve was tempted by a monkey”.

5.7.19 John Hewlett (1762-1844)

John Hewlett is equally concerned in his handling of Genesis 1-11 to exegete and explain the text in a way that maximises its scientific plausibility. Yet, unlike Clarke, Hewlett is prepared to jettison the literal sense in order to achieve this end. He states at the outset of his commentary that the Mosaic account should not be scrutinised for its scientific value (Hewlett, 1812:124). Instead, he argues that these chapters are written for “the minds of a gross, carnal people” incapable of comprehending a more factual recollection of events (Hewlett, 1812:132).

Hewlett adopts an eclectic style of interpretation that favours either a figurative or literal hermeneutic depending upon the scientific credibility of the text. Following the literal sense, he deems it credible that humanity arose from just two humans, accepting the genealogies of Genesis 5 and 10 as factually

²²⁸ Clarke is referring to scientists like Herschel, Lalande, Ray, Newton, Priestley, Woodward, Long, Digby, Tyson, Kirwan and Tournefort.

²²⁹ Following Herschel, Clarke (1843:34) believes that the sun is a “habitable world” and the moon so similar to earth, with “rivers, lakes and seas”, that “our earth serves as a moon to the moon herself”. He infers from this that all planets and moons are populated with intelligent lifeforms (Clarke, 1843:34).

²³⁰ Clarke’s commentary prompted a response from Bellamy (1811:3) that same year in which he calls Clarke, “a gentleman of liberal sentiments”. As will be seen under 5.8.18, Bellamy proved himself to be more liberal than Clarke by his own commentary which was published just seven years later.

²³¹ This was not the first attempt to make such a claim. Toward the end of the seventeenth century, Lodwick (2011:260) drafted a revision of the Genesis narrative in which he construes the serpent as a baboon (Poole, 2006:56).

accurate²³² (Hewlett, 1812:124, 131, 155, 157). The scientific justification for the longevity of the prediluvian patriarchs relies upon the hypothesis that the atmosphere before the flood was purer and therefore more life-sustaining (Hewlett, 1812:158). Hewlett (1812:125-144) accepts Ussher's 4004 BC date, and includes it in the margin of the first few pages.

Hewlett (1812:126-127) also allows light to be created before the sun because "recent improvements in science" and "experiments in chemistry and galvanism" suggest this to be possible. He then embarks into a long discourse on the physical nature of light citing many scientific authorities and articles from the *Philosophical Transactions* (Hewlett, 1812:127). As to the division of waters in Genesis 1:6 and the creation of the atmosphere, he refers his readers to Richard Watson's (1737-1816) and Newton's research to show that these things are "not altogether improbable" (Hewlett, 1812:128). Like Clarke, Hewlett (1812:165) refers his readers to the work of Wilkins to justify the historicity of the ark. To establish the universality of the flood, the writings of Henry Englefield (1752-1822), Halley and Whiston are summoned to the fore, along with various palaeontological and geological evidences (Hewlett, 1812:166-167).

But the second and third chapters of Genesis do not fare as well. Hewlett (1812:135-143) cannot conceive of how this story makes any sense apart from recourse to metaphor and symbolism. Quoting the philologist William Jones (1746-1794), he tries to retain the epistemic value of the account by arguing that the story is "true in every substantial part" whilst, at the same time, being figurative (Hewlett, 1812:134). To justify his rejection of the literal sense, Hewlett (1812:142-143) reminds his readers of the precedent already set by "the most learned of the Christian fathers": Clement; and "that learned and zealous champion for the truth of Christianity": Origen. His resulting exposition involves real humans in a real garden populated by metaphorical trees and a symbolic snake (Hewlett, 1812:134-135, 143-144).

5.7.20 George D'Oyly (1778-1846) and Richard Mant (1776-1848)

In 1817, two Anglican clergymen, George D'Oyly and Richard Mant, compiled a three-volume commentary on the Bible from "most eminent writers of the united church of England and Ireland". Of these latter men,²³³ Patrick's notes dominate the exposition of Genesis 1-11, and consequently, the interpretation strictly follows the literal sense (D'Oyly & Mant:1817:1-38). Once again, Ussher's date features in the margin from the beginning of Genesis 1:1 (D'Oyly & Mant:1817:1-14). D'Oyly & Mant (1817:1) estimate the period of history documented in Genesis to be approximately 2369 years.

²³² Here he quotes from Watson's *An apology for the Bible* (1796) - which had been written in response to Paine's *Age of reason* - to make the point that Genesis 10 is "one of the most valuable records of antiquity" (Hewlett, 1812:177).

²³³ i.e. Patrick, Wilson, Wells, Kidder, Pearson, Hall, Stackhouse, Horne, Barnabas, Butler, Bentley, Hales, Young, Beveridge, Clarke, Kennicott, Pyle, Sanderson, Mede, Delaney, Latimer, Wogan, Conybeare, Berriman, Shuckford, Derham, Whiston, Tillotson, Leland, Chandler, Waterland, Bedford, T. Newton, and Jones. NB: some earlier commentators also feature in this commentary, like Eusebius, Chrysostom and Philo.

5.7.21 John Bellamy (1755-1842)

John Bellamy, a Swedenborgian,²³⁴ wrote a critical commentary on the whole Bible in 1818. Amidst the “alarming growth of Deism” along with the “plausible objections of the infidels”, Bellamy (1818:iii, xiii) adopts a distinctly naturalistic posture towards the text. At the outset, he confesses his distrust in the authorised version of the Bible, believing all extant English translations to be a defective representation of the underlying Hebrew (Bellamy, 1818:i). His solution is to restore the text to its truest form in an endeavour to provide an account that is “more consistent with enlightened reason” (Bellamy, 1818:25, 33).

The resulting exposition of Genesis 1-11 resorts to both literal and allegorical interpretations. Bellamy (1818:7-8, 13) generally accepts the first chapter according to the historical sense, taking the days as “natural days” with the age of the earth being between five to six thousand years. But when it comes to how to understand Genesis 1:3 in relation to Genesis 1:14-16, he follows Origen, denying the creation of light before the sun and moon (Bellamy 1818:4-6).

In the two chapters that follow, Bellamy rejects most of the literal sense, preferring the allegorical approach. Therefore, whilst Adam and Eve are described as being “our first parents”, the environment that they are placed in is distinctly allegorical, and the creation of Eve is revised in a manner to suit a more sceptical readership (Bellamy, 1818:10-11). Instead of Eve being made from Adam’s rib, Bellamy (1818:11-12) construes the Hebrew to mean that “she was received by him”. In the same way, he refuses to accept that they sewed their own clothes (Gen. 3:7), explaining that technology and tools had not yet been acquired by man at this stage in history (Bellamy, 1818:17). He is equally dismissive of the possibility that thorns and thistles only arose after the fall; that real cherubim once guarded the entrance to Eden; and that God once conversed face to face with man in the garden (Bellamy, 1818:19, 23-24). In summary, he argues:

But it is certainly far more consistent with enlightened reason, as the history shews it is with truth; to conclude that God, as ages and daily experience prove, did not tum man out of the Eden state for *one transgression*, and that transgression erroneously supposed to be only the eating of the perishable fruit of a tree... And to a certainty there is nothing to support the childish opinion, that man was turned out of Eden...(emphasis in original; Bellamy, 1818:25-26)

Bellamy (1818:40-42), surprisingly perhaps, retains the historicity of a literal ark in the story of the flood. But in the account given of Babel, he attributes the confusion of tongues and dissemination of peoples, not to any miraculous intervention, but according to the natural consequences that arise when there are differences of opinion on various religious matters (Bellamy, 1818:54-55). Bellamy (1818:56) hopes that this will rescue the Bible from the ridicule of infidels.

²³⁴ I have included two Swedenborgian interpretations of Genesis 1-11 in this dissertation for the same reason that I have included atheistic and deistic interpretations of Genesis 1-11. Such interpretations provide useful historical value in ascertaining both the significance of these chapters to a diverse readership and the influence of the historical sciences upon the text.

5.7.22 Samuel Horsley (1733-1806)

In his *Biblical criticism on the first fourteen books of the Old Testament* (1820), Samuel Horsley strongly opposes the notion that Genesis 1-11 can be read in both literal and allegorical ways. He argues that the Mosaic narrative must either be taken as “plain matter of fact” or “all allegory” – but not both (Horsley, 1820:9). To illustrate the point Horsley (1820:10) asks his reader to consider the events of Genesis 2:

If the formation of the woman out of man be allegory, the woman must be an allegorical woman. The man therefore must be an allegorical man; for of such a man only the allegorical woman will be a meet companion. If the man is allegorical, his Paradise will be an allegorical garden; the trees that grew in it, allegorical trees; the rivers that watered it, allegorical rivers: and thus we may ascend to the very beginning of the creation; and conclude at last, that the heavens are allegorical heavens, and the earth an allegorical earth. Thus the whole history of the creation will be an allegory, of which the real subject is not disclosed; and in this absurdity the scheme of allegorizing ends.

He insists that if the Mosaic account is an allegory, “it is an allegory without a key, which no man can interpret” (Horsley, 1820:8). The proper approach to the text is to take it as true history, according to the “plain and literal” sense of the narrative (Horsley, 1820:8, 19). Horsley (1820:3-5) rejects all materialistic versions of creation, ruling out the possibility that the universe arose out of chaos, the earth from a lump of the sun, or the moon from a comet. He also denies that man originates from some prior creature that “originally existed in a savage state” (Horsley, 1820:6).

Horsley’s (1820:2) literal interpretation of Genesis 1-3 conforms to the typical *status quo* of this hermeneutical school except in his understanding of the first two verses of Genesis 1 where he allows an “undescribed and unknown” interval to separate the creation of matter from the creation of light.

5.7.23 George Stanley Faber (1773-1854)

In 1823, George Faber (1823:24) took Bishop Warburton to task for postulating that Adam and Eve had lived for an “undefined length” of time before being placed in Eden. In his reply, Faber (1823:120-121) addresses the apparent problems presented in Genesis 1 due to the vast ages attested to by the historical sciences. In doing so, he favours the day-age theory over the gap theory as a way of extending the time frame required in Genesis 1 (Faber, 1823:60, 111-128, 156-157). Faber (1823:134-135) derives most of his geological and palaeontological opinions from the work of Cuvier. Once the six days of Genesis are construed as six indefinite periods of time, he claims that the “minute accuracy” of the Mosaic history is demonstrably corroborated by modern science (Faber, 1823:143).

5.7.24 Francis Close (1797-1882)

Francis Close, an Anglican minister, had several sermons on the book of Genesis published in 1826. Close (1826:18) is weary of how Genesis 1-11 has invited ridicule from sceptics, but maintains that the Mosaic history is not threatened by any discovery of modern science. In particular, to circumvent any possible contradiction between the creation story and “astronomical truth”, he asserts that, “it is not the

object of God to reveal natural and physical, but spiritual truth only” (Close, 1826:18). Yet, this does not stop him from following the literal sense of Genesis 2-11,²³⁵ where he asserts that Satan possessed a literal snake in order to tempt Eve, Noah built a real ark, the flood covered the whole earth,²³⁶ and all human languages originate from the incident at Babel (Close, 1826:28, 38, 49-50, 97, 102-103, 105, 143-144). Overall, Close (1826:vii, 20, 81) believes the first eleven chapters of the Bible to be an indispensable, inspired history of the world from the beginning of time.

5.7.25 Summary

Even at this stage in the Enlightenment, more than half the commentaries continue to uphold a literal interpretation of Genesis 1-11 (see table 5.12). The day-age theory also increases in popularity during this time, enjoying equal prominence to the gap-theory as a means of reconciling Moses with the historical sciences.

Table 5.12 – The interpretation of Genesis 1-11 during the Late Enlightenment period

Publication Date	Author	Title	Interpretation
1753	Jean Astruc (1684-1766)	Conjectures sur les memoires originaux dont il paroît que Moyse s’est servi pour composer le livre de la Genese	naturalistic
1753	John Scott, D.D.	Notes and observations upon the three first chapters of Genesis	mostly allegorical
1753	Samuel Shuckford (1693?-1754)	The creation and fall of man: a supplemental discourse to the preface of the first volume of the sacred and profane history of the world connected	literal
1763	John Gill (1697-1771)	An exposition of the Old Testament; in which are recorded the origin of mankind, of the several nations of the world	literal
1764	Anthony Purver (1702-1777)	A new and literal translation of all the books of the Old and New Testament; with notes, critical and explanatory	literal
1765-1766	John Wesley (1703-1791)	Explanatory notes upon the Old Testament	literal
1765-1770	William Dodd (1729-1777)	A commentary on the books of the Old and New Testament	terrestrial (literal)
1776	Johann Georg Rosenmüller (1736-1815)	Antiquissima telluris historia à Mose	gap theory (naturalistic)
1778	Georges-Louis Leclerc, Comte de Buffon (1707-1788)	Les époques de la nature	gap theory, day-age theory (materialistic)
1778	John Brown (1722-1787)	The self-interpreting Bible, containing the Old and New Testaments	literal
1784	Anonymous (T. Wilkie)	A key to the three first chapters of Genesis, opening to the most common understanding the production of the world, the creation, formation and fall of man; and the origin of evil	Satan’s fall
1792	Alexander Geddes (1737-1802)	The Holy Bible, or the books accounted sacred by Jews and Christians	uninspired myth, terrestrial (naturalistic)
1792	Thomas Scott (1747-1821)	The Holy Bible; containing the Old and New Testaments	literal
1803	Joseph Priestley (1733-1804)	Notes on all the books of Scripture, for the use of the pulpit and private families	fable, day-age theory (naturalistic)

²³⁵ He only preaches one sermon from Genesis 1, focussing on verse 31. Judging from some of his comments on other portions of Genesis 1-11, Close (1826:49) would most likely consider this first chapter to contain “mysteries above our comprehension” and “difficulties which defy human reason” – which explains why he ignores most of it.

²³⁶ Close (1826:98) states that he is prepared to accept that the whole flood as a miraculous event, inexplicable on any natural grounds.

Table 5.12 (continued)

Publication Date	Author	Title	Interpretation
1804	Henry Dimock (c. 1751-1833)	Critical and explanatory notes on Genesis, Exodus, Isaiah, Jeremiah, Ezekiel, Daniel, and the minor prophets	literal
1806	Andrew Fuller (1754-1815)	Expository discourses on the book of Genesis	literal
1811	Joseph Benson (1749-1821)	The Holy Bible, containing the Old and New Testaments	literal
1811	Adam Clarke (1762-1832)	The Holy Bible, containing the Old and New Testaments	literal (scientific)
1812	John Hewlett (1762-1844)	The Holy Bible, containing the Old and the New Testament, and the Apocrypha, with critical, philological and explanatory notes	literal & figurative (naturalistic)
1817	George D'Oyly (1778-1846) Richard Mant (1776-1848)	The Holy Bible, according to the Authorized Version; with notes, explanatory and practical	literal
1818	John Bellamy (1755-1842)	The Holy Bible, newly translated from the original Hebrew: with notes critical and explanatory	naturalistic & allegorical
1820	Samuel Horsley (1733-1806)	Biblical criticism on the first fourteen historical books of the Old Testament	gap theory
1823	George Stanley Faber (1773-1854)	A treatise on the genius and object of the patriarchal, the Levitical and the Christian dispensations	day-age theory (naturalistic)
1826	Francis Close (1797-1882)	The book of Genesis considered and illustrated, in a series of historical discourses	literal

As evident above, more than half the nonliteral interpretations espoused during the Late Enlightenment are motivated by a naturalistic approach to Genesis 1-11. Of these, Buffon, Geddes and Faber assert the universe to be vastly older than the chronology suggested by Moses. At this stage, there are no French or German commentators that adhere to a literal interpretation of Genesis 1-11.

5.8 Conclusion

This survey of commentaries from Philo to Francis Close demonstrates that the literal interpretation of Genesis 1-11 remained dominant for the first eighteen centuries after Christ. It is also true that the allegorical interpretation had many adherents going back to the first century; but with far less prominence (see table 5.13). Of the 112 works reviewed in this chapter, 93 of them affirm Genesis 1-11 as history. In most cases, even when the allegorical sense is presented, the literality of the text is upheld as an unquestionable fact of Scripture.

It is only from the mid-seventeenth century onwards that the literal interpretation begins to wane on account of the “enlightened” opinions of men like Hobbes, La Peyrère, Vossius and Spinoza. This trend continues into the early 1800s until the number of commentaries advocating nonliteral approaches to Genesis 1-11 comes close to surpassing those commentaries that maintain the literal historicity of the Mosaic account. This is not to say that science had only recently imposed itself upon the exposition of Genesis. As early as the fourth century, scientific convictions often led commentators to find alien meanings in the text ranging from the supposition that the universe is comprised of four elements to the idea of spontaneous generation.

From 1650 to 1830, several hermeneutical innovations were introduced. Hale and Patrick suggested that an interval of thousands of years might exist within the first three verses of Genesis. Newton and Whiston went on to propose that the six days were periods of vast ages. Vossius and Stillingfleet restricted Noah's flood to an isolated region of the globe. Whiston limited the creation account to earth. La Peyrère postulated the existence of pre-Adamites. Hobbes, La Peyrère, Simon and Spinoza even denied that Moses wrote it. In all these cases, the decision to abandon the literal sense was motivated, at least in part, by naturalistic bias. By the turn of the nineteenth century, the entire chronology of Genesis 1-11 was viewed with renewed scepticism as the axiom of deep time, promulgated by the likes of Hutton, Laplace and Cuvier became an established orthodoxy.

Thus, the historical sciences continued to flourish and gain epistemic authority over Scripture, with commentators increasingly deferring to scientific experts to reconcile Moses with the edicts of geologists, palaeontologists and astronomers. In the years which followed, it became undeniable that a hermeneutical revolution was taking place. The prevailing consensus of eighteen centuries was about to change on how to read Genesis 1-11.

Table 5.13 – Allegorical and literal interpretations of Genesis 1-11 from Philo to Ussher

Date	Author	Age (yrs)	Six days	Sun, moon & stars	Eden	Adam & Eve	Serpent	Genealogy	Ark	Flood	Babel
1-50	Philo		L & A	L	L & A	L & A	L & A	A	L & A	L & A	
93-94	Josephus	5000				L	L	L	L	L	L
132-157	Justin	5000	L		L	L			L	L	L
c. 180	Irenaeus	< 6000	L		L	L	L	L	L	L	
180-185	Theophilus	5695	L	L & A	L	L	L	L	L	L	L
c. 197	Tertullian								L	L	
198-203	Clement	< 6000	L		A	L					
198-207	Tertullian				L	L	L		L	L	
202-211	Hippolytus	< 6000	L			L		L			
208-213	Tertullian			L	L	L	L		L	L	
c. 215	Origen			A		L & A			L & A	L & A	
c. 221	Africanus	~ 5700				L		L	L	L	
219-248	Origen	< 10 000	A	A	A	L & A	L & A	L	L	L	L & A
c. 303	Victorinus	< 6000	L	L		L	L		L	L	
310-320	Lactantius	5800	L	L	L	L		L	L	L	
c. 318	Athanasius					L	L				
325	Eusebius	< 6000				L		L	L	L	
357-359	Athanasius		L	L		L			L	L	
363-373	Ephrem		L	L	L	L	L		L	L	L
c. 370	Basil		L	L							
c. 375	Ambrose				L	L & A	L & A		L & A	L & A	
c. 380	Didymus		A	A		L & A	A		L	L	
380-381	Gregory		L	L	L	L	L				
c. 385	Chrysostom		L	L	L	L	L	L	L	L	L
387-389	Ambrose		L	L		L			L	L	
388-389	Augustine		L/A	L	A	A	A	L	L	L	L

Table 5.13 (continued)

Date	Author	Age (yrs)	Six days	Sun, moon & stars	Eden	Adam & Eve	Serpent	Genealogy	Ark	Flood	Babel
c. 392	Jerome					L		L	L	L	
393-401	Augustine		L/A	L	A						
401	Severian		L	L	L	L	L				
401-416	Augustine		A	L	L & A	L & A	L		L	L	L
412-423	Cyril			L	L	L	L		L	L	L
426	Augustine	< 6000	A		L	L	L	L	L	L	L
450-460	Theodoret			L	L	L	L		L	L	L
680-692	Anastasius	~ 6000		L & A	A	L & A	L		L & A	L & A	
709-731	Bede		L & A	L	L & A	L & A	L	L	L & A	L & A	L & A
729-743	Damascenus		L	L	L & A	L	L		L	L	L
1094-1098	Anselm		L/A		L	L					
c. 1129	Abelard		L/A	L & A	L	L & A	L		L	L	
c. 1150	Lombard		L	L	L	L & A	L				
1155	Ibn Ezra		L	L	L	L	L	L	L	L	L
c. 1190	Maimonides	~ 6000		A	A	L	A	L	L	L	L
c. 1225	Grosseteste		L & A	L & A	L & A	L & A		L & A	L	L	L
1269-1272	Aquinas		L	L	L	L & A	L	L & A	L	L	
1535-1545	Luther	< 6000	L	L	L	L	L	L	L & A	L & A	L
1554-1563	Calvin	< 6000	L	L	L	L	L	L	L	L	L
1592	Babington		L		L	L	L	L	L & A	L & A	L
1605	Willet	< 6000	L	L	L	L	L	L	L	L	L
1614	Ralegh	< 6000	L	L	L	L		L	L	L	L
1616	Ainsworth	< 6000	L	L	L	L	L	L	L	L	L
1617	Salkeld				L	L	L	L	L	L	
1641	Walker	5550	L	L	L	L	L	L			
1643	Jackson	< 6000	L	L	L	L	L	L	L	L	L
1647	Lightfoot	~ 5570	L	L	L	L	L	L	L	L	L
1649	Trapp	< 6000		L	L	L	L	L	L	L	L
1650	Ussher	4004 BC	L	L		L	L	L	L	L	L

Chapter 6. Genesis commentaries after 1830

6.1 Introduction

It is evident that commentaries on Genesis 1-11 reflect a fairly stable literal interpretation of the text until the mid-seventeenth century. After 1650, the vicissitudes of the Radical Enlightenment begin to leave an indelible impression on the Mosaic narrative. The historicity of the hexaemeron, Adam and Eve, the fall, the flood and the dispersion from Babel increasingly succumbed to new-fangled interpretations driven by scientific concerns. After 1830, the literal-historical approach to Genesis 1-11 ceases to retain its dominance and is gradually replaced by various non-literal interpretations of the text. This trend will be illustrated from eighty-one commentaries over the course of the next eighty years from Louis Bonnet's (1805-1892) *L'homme banni d'Eden* in 1835 to John Skinner's (1851-1925) critical commentary on Genesis in 1910. There are three distinct stages of development in the commentaries during this period. These stages will be categorised as the age of "intellectual iconoclasm"¹ (1830-1859), the Darwinian Revolution (1859-1886) and the mythologisation of Genesis 1-11 (1887-1910). The central question remains: how did the development of the historical sciences affect the interpretation of Genesis 1-11?

6.2 The age of intellectual iconoclasm (1830-1859)

The following twenty-seven commentaries lie within the bounds of two monumental publications: Lyell's *Principles of geology* in 1830 and Darwin's *Origin of species* in 1859 (see table 6.1). Both these works contributed in similar ways to the reinterpretation of Genesis 1-11.² It is interesting, therefore, to see from the commentaries themselves, how these eleven chapters fared during the eve of the Darwinian Revolution.

Table 6.1 – Works on Genesis 1-11 from 1830 to 1859

Publication Date	Author	Nationality	Religion or denomination	Original title
1834	Louis Bonnet (1805-1892)	Swiss	Swiss Reformed/Huguenot	<i>L'homme banni d'Eden</i>
1835	Peter von Bohlen (1796-1840)	German	Deist?	<i>Die Genesis historisch-kritisch erläutert</i>
1835	Richard Waldo Sibthorp (1792-1879)	English	Anglican/Catholic	The book of Genesis; with brief explanatory and practical observations and copious marginal references
1836-1855	John Kitto (1804-1854)	English	Anglican	The pictorial Bible: being the Old and New Testaments
1838	George Bush (1796-1859)	American	Presbyterian	Notes, critical and practical on the book of Genesis
1839	Edward Hitchcock (1793-1864)	American	Congregationalist	Connection between geology and the Mosaic history of the creation
1840	John Pye-Smith	English	Congregationalist	On the relation between the Holy Scriptures and some parts of geological science

¹ This is how Lints (2007:281-317) describes the nineteenth century in its "revolt against theism". It serves as a useful summary for the whole century, but I am using it more narrowly to define the three decades just prior to the Darwinian revolution in which the literal interpretation of Genesis 1-11 became a minority viewpoint for the first time in history.

² See chapter 4.

Table 6.1 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1841	Samuel H. Turner (1790-1861)	American	Episcopalian	A companion to the book of Genesis
1842	Johann Heinrich Kurtz (1809-1890)	German	Lutheran	Die astronomie und die Bibel
1843	Johann Heinrich Kurtz (1809-1890)	German	Lutheran	Lehrbuch der heiligen Geschichte
1847	George Wight (1817-1900)	Scottish	Congregationalist	The Mosaic creation, viewed in the light of modern geology
1848	Johann Heinrich Kurtz (1809-1890)	German	Lutheran	Geschichte des Alten Bundes
1849	Karl Friedrich Otto von Gerlach (1801-1849)	German	Evangelical Church of Prussia	Commentary on the Pentateuch
1850	Elias de La Roche Rendell (1779-1876)	English	Swedenborgian	The antediluvian history, and narrative of the flood; as set forth in the early portions of the book of Genesis, critically examined and explained
1852	William Thomas Hamilton (1796-1884)	American/English	Presbyterian	The 'Friend of Moses,' or a defence of the Pentateuch as the production of Moses and an inspired document, against the objections of modern skepticism
1852	William Paul (1804-1884)	Scottish	Church of Scotland	Analysis and critical interpretation of the Hebrew text of the book of Genesis
1852	Franz Delitzsch (1813-1890)	German	Lutheran	Die Genesis ausgelegt
1852	John Jervis-White Jervis (1766-1830)	Irish	Church of Ireland	Bereshit: Genesis elucidated
1854	John Cumming (1807-1881)	Scottish	Church of Scotland	Sabbath morning readings on the Old Testament: book of Genesis
1854	Marcus Dods (1834-1909)	Scottish	Free Church of Scotland	The book of Genesis
1856	Anonymous	Scottish	Secular	The creative week: being a secular exposition of the Mosaic record of creation
1856	Donald MacDonald (1783-1867)	Scottish	Church of Scotland	Creation and the fall: a defence and exposition of the first three chapters of Genesis
1857	Andrew John Jukes (1815-1901)	English	Church of England, Plymouth Brethren	The types of Genesis briefly considered as revealing the development of human nature in the world within, and without, and in the dispensations
1857	Charles Henry Mackintosh (1820-1896)	Irish	Plymouth Brethren	Notes on the book of Genesis
1857	Hugh Miller (1802-1856)	Scottish	Free Church of Scotland	The testimony of the rocks
1857	Thomas Alfred Davies (1809-1899)	American	Episcopalian	Cosmogony, or the mysteries of creation
1858	Marcus Moritz Kalisch (1825-1885)	German/English	Jewish	A historical and critical commentary on the Old Testament: Genesis

As evident from this table, these commentaries not only span a range of denominations and religious dispositions, but also represent commentators from England, Ireland, Scotland, Switzerland, Germany and America.

6.2.1 Louis Bonnet (1805-1892)

In 1834, a Swiss theologian, Louis Bonnet, produced a volume of discourses on the third chapter of Genesis. Bonnet (1839:6, 241) argues passionately for the literal historicity of the account on the premise that we should “allow Scripture to explain itself.” To view the Mosaic record as anything but “purely historical” is “bad and dangerous” (Bonnet, 1839:39-40, 244, 245). Bonnet (1839:92) blames German

Idealists for discouraging the literal interpretation of Genesis 3. His concern is that this kind of hermeneutic will eventually extend to the rest of Scripture:

If we *idealize* the third chapter of Genesis, that is, if we receive the *idea*, while we reject the historical facts which serve as its foundation and constitute its reality, why should we not do the same with regard to the creation of the world, the deluge, the miracles of Moses, the conception of Jesus Christ by the Holy Ghost, his miracles, or the conversion of St. Paul? It is well known that these are not gratuitous suppositions, but that modern idealism has realized them. (Bonnet, 1839:245)

In fact, the “seed and root of the whole growth of German Idealism” can be traced back to Kant³ (2001:285) who discourages anyone from deriving historical truths from Scripture (Kroner, 1948:5). Bonnet (1839:42) responds by affirming his faith in the “purely and simply historical sense of the narrative of Moses.”

6.2.2 Peter von Bohlen (1796-1840)

Peter von Bohlen (1862a:x-xiii; 1862b:2, 29, 56, 102), following in the wake of his Enlightened mentors, Wilhelm Gesenius (1786-1842),⁴ and Wilhelm Martin Leberecht de Wette (1780-1849),⁵ places Genesis 1-11 in the same category as the fantastical writings of the “Hindoos”. For Bohlen (1862a:12, 106; 1862b:3-4, 52, 56), these chapters are obviously fallible, a “simple and childlike myth”. Even their Mosaic authorship is rejected in favour of a priestly “confederacy” orchestrated by Hilkiah during the reign of Josiah (Bohlen, 1862a:263-265). Bohlen (1862a:32-33) appeals to studies in palaeography to argue that Moses was illiterate.⁶ In most cases, Bohlen finds the literal sense of Genesis 1-11 patently risible. He points out that the genealogies cannot be factual, despite their “outward appearance” to that effect, because contemporary physiologists have shown that the patriarchs could not have lived for the hundreds of years purported by the text (Bohlen, 1862b:96, 99). Likewise, he is persuaded by scientists that the world does not contain enough water to sustain the kind of flood described in Genesis 6-8 (Bohlen, 1862b:114). Bohlen (1862b:4) views all prior attempts by “naturalists and geologists” to establish the plausibility of Genesis 1-11 a futile enterprise.

6.2.3 Richard Waldo Sibthorp (1792-1879)

Richard Waldo Sibthorp’s approach to Genesis 1-11 is diametrically opposed to that of Bohlen. His stated intention at the outset of his commentary is to “make Holy Scripture its own interpreter and expositor” (Sibthorp, 1835:iv). Sibthorp (1835:vii) does not share Bohlen’s scepticism of Moses’ capacity to write such a record, stating to the contrary that Genesis is undoubtedly the “most ancient writing existing”. The

³ For the full discussion on Kant, see section 3.14.

⁴ Wilhelm Gesenius was a renowned biblical critic and advocate of the mythical interpretation of the Creation story, who produced his own translation of Genesis in 1828 entitled *Genesis, Hebraice ad optima exemplaria accuratissime expressa* (Bohlen, 1862b:56).

⁵ According to Julius Wellhausen, de Wette was principally responsible for advancing the historical criticism of the Pentateuch (De Wet, 1911:138). De Wette was a disciple of Herder and worked alongside Schleiermacher for nine years at the University of Berlin (Chisolm, 1910b:138; Puknat, 1958:376). Bohlen’s (1862a: xi, xiii) translation of Genesis is largely adapted from de Wette’s *Beiträge zur Einleitung in das Alte Testament* (1806-1807).

⁶ Bohlen (1862a:35) believes that mankind was incapable of writing prior to the tenth century BC.

conspicuous presence of Ussher's date in the margin from the first page prepares the reader for a literal interpretation of the creation story (Sibthorp, 1835:1-10). In a manner similar to that of Horsley and Stackhouse, Sibthorp (1835:1) finds an indeterminate period of time between Genesis 1:2 and Genesis 1:3 while the earth persists in a "primitive and chaotic state". But whatever duration this period might be, it does not interfere with Sibthorp's (1835:3) conviction that the world is not more than six thousand years old.

6.2.4 John Kitto (1804-1854)

John Kitto's (1855:9) pictorial Bible, first published in 1836,⁷ also cedes ground to geology from the first sentence of his commentary on Genesis. Kitto (1855:9) encourages the kind of interpretation which will be vague enough to conform to current and future scientific discoveries should the need arise. He therefore finds great merit in both the gap theory and day-age theory as a means of reconciling Genesis 1 with geology, but ends up rejecting the latter because of the "considerable violence" it perpetrates upon the plain sense of the text (Kitto, 1855:9-10). Astronomically, he also refuses to accept that God created the sun, moon and stars on the fourth day because the idea of light without these entities "scarcely satisfies the mind" (Kitto, 1855:10). The rest of his exposition follows the typical literal sense of the text, with Ussher's date in the margin (Kitto, 1855:8-20).

6.2.5 George Bush (1796-1859)

According to Spurgeon (1876:81), George Bush's commentary on Genesis plagiarises large sections from Fuller without providing any acknowledgement. In spite of this, Bush's approach to the first eleven chapters differs significantly from that of Fuller. Unlike Fuller, he is prepared to abandon the literal sense of the text to accommodate the "incontrovertible evidence" of geologists and astronomers (Bush, 1838:25, 29). Specifically, Bush (1838:28-29) is convinced by men like Sedgwick that the universe is much older than six thousand years.⁸

To reconcile the historical sciences with Genesis 1, he adopts both the gap-theory⁹ and the day-age theory (Bush, 1838:28, 32, 43). He denies that God made the light before the sun, arguing instead that these lights had been created before Genesis 1:3 and only appear to be created on the fourth day (Bush,

⁷ The first edition was considerably shorter with less room for notes. But in his 1847 revision, Kitto added a lot more commentary thereby making known his reticence to follow the literal interpretation of Genesis 1-11. This was published as the "standard edition" of the *Pictorial Bible* and increased the work from three to four volumes. The posthumously published 1855 edition marks little change from the standard edition.

⁸ Seven years later, in his *Anastasis: or the doctrine of the resurrection of the body, rationally and scripturally considered* (1845), Bush (1845:26-27) clearly states his epistemic predicament: "If, for instance, the obvious literal and grammatical sense of the sacred record leads me to believe that the material globe, with the various orders of its inhabitants, was first spoken into existence six thousand years ago, and geology at the same time brings to my mind absolute demonstrations, which I cannot possibly resist without doing violence to the fundamental laws of belief, that it has existed thousands and myriads of years before that time, what am I to think? ... if the facts are such as the science maintains, then I am necessarily driven upon some mode of accounting for them in accordance with the statements of holy writ; for, as the same God is the author of creation and of revelation, it is impossible that the teachings of the one, rightly understood, should conflict with those of the other."

⁹ Here he argues that the phrase **תֵּהָיוּ נֶבֱלָה** in Genesis 1:2 refers to vast ages before the six days of Creation in which the world existed as a "desolate, dreary, hideous waste, without order or beauty" (Bush, 1838:28).

1838:30, 35). After Genesis 1, however, Bush's interpretation follows the literal sense. Eden is treated as a real place with real trees; Adam and Eve are the first human beings; Satan possesses a "real natural serpent"; the story of Noah and the ark is accepted as fact; the flood is "strictly universal in its extent"; and the genealogies are taken at face value (Bush, 1838:54-61, 67, 70-74, 110-111, 125-126, 138). Bush (1838:26-94) even includes Ussher's 4004 BC date in the margin, despite the fact that he holds to an older chronology. This commentary is considered by Jacobus (1867:iii) to be one of the best treatments on Genesis for the average reader.

6.2.6 Edward Hitchcock (1793-1864)

In 1839 the American geoscientist, Edward Hitchcock, attempted to reconcile Genesis with geology and palaeontology in a work entitled, *Connection between geology and the Mosaic history of the creation*. Like most other geologists and astronomers from this period, Hitchcock (1839a:17-18, 20-22) is "forced to the conclusion" that the world is incredibly old. Hitchcock (1839a:74) insists that commentators who lack the necessary geological expertise cannot offer compelling expositions of Genesis 1-11.

To reconcile Scripture with the "indubitable facts of geology", he initially considers the day-age theory (Hitchcock, 1839a:31, 47-51). This he ultimately rejects, although Hitchcock (1839a:47-51) admits that treating the days as indefinite periods does satisfy some of the demands of geology. He is also sympathetic towards Georg Christian Knapp's (1753-1825) idea that the six days should be taken in a pictorial sense (Hitchcock, 1839a:74-77). But in the end, he follows Patrick, Horsley and Chalmers, adopting the gap theory as the "most probable" interpretation of Genesis 1 (Hitchcock, 1839a:79-94). Consequently, the sun, moon and stars must exist before the fourth day of creation (Hitchcock, 1839a:92). Hitchcock's (1839a:43-44; 1839b:394; 1855:353) geological convictions also lead him to argue that the flood was neither universal nor capable of producing all the geological strata.

6.2.7 John Pye-Smith (1774-1851)

In England, the Congregationalist minister, John Pye-Smith (1855:28, 116, 148, 265-279), concurred with Hitchcock's views on the gap theory¹⁰ and partial flood. But he presses his restrictions on Genesis 1-11 even further, arguing that the six days of creation only refer to a portion of the earth now located in Western Asia (Pye-Smith, 1855: 249-250, 255-256, 274). These views were published the following year in *On the relation between the Holy Scriptures and some parts of geological science* (1840). As with his American counterpart, Pye-Smith (1855:14-15, 69, 78, 148-149, 267-268) maintains a very high view of astronomy and geology leading him to conclude that the "archaic narrative" (referring to Genesis) must be interpreted to support millions of years or else be condemned as errant. Pye-Smith (1855:28-31, 47, 61, 77, 101-104, 153) forms his geological opinions from the writings of Hutton, Fleming, Buckland, Cuvier, Darwin, Sedgwick and Powell.

¹⁰ He also defends the gap theory by appealing to Patrick (Pye-Smith, 1855:165).

On this basis, he is led to believe that God could not make the sun, moon and stars on the fourth day of creation without recourse to “some gratuitous supposition of multiplied miracles of the most astounding magnitude” (Pye-Smith, 1855:78-79). Pye-Smith (1855:261-262) asserts that death should not be considered a “moral evil” since it has always been necessary to prevent the planet from being overpopulated.

Pye-Smith’s (1855:xi-xii) book did not go unnoticed, receiving praise from prominent figures like Whewell and Herschel. The regular quotations he enjoys in subsequent commentaries attest to his notable influence on the interpretation of Genesis 1-11 during the nineteenth century.¹¹

6.2.8 Samuel H. Turner (1790-1861)

Samuel Turner’s approach to Genesis 1-11 is similar to that of Bush. This alignment is readily acknowledged by him, although he claims to have arrived at his conclusions independently (Turner, 1846:134). Like Bush, Turner (1846:135, 137) asserts that God did not make light before the sun, moon and stars, and only revealed this light on the fourth day of creation. Turner (1846:164-165, 169) also embraces the gap-theory to reconcile the text with geology, pointing out that the proper interpretation of Genesis will always be in harmony with science. This is, in fact, the key to the true interpretation of Scripture: “science has suggested a rule of interpretation, and conducted the inquirer to a deeper investigation of the meaning of Scripture” (Turner, 1846:170). Turner (1846:165-166, 168-169) is reticent, therefore, to adopt the day-age theory (as advocated by Bush) because he does not see how lengthening the days of Genesis can “meet the demands of geological science”.

Overall, Genesis 1-11 is still viewed as an historical account, with a literal Adam and Eve occupying a real place called Eden, with physical trees, followed 1656 years later by a universal flood that drowns all humans and animals not preserved in the ark (1846:79, 83, 176, 201, 218-220). But Turner (1846:79, 184-196) is unsure of how to handle the serpent. He cannot decide whether Satan used a real snake to tempt Eve. Disagreeing with Horsley, Turner (1846:169) believes that allegorical and literal elements can exist alongside each other in the narrative without compromising the logical coherence of the text (Turner, 1846:169).

6.2.9 Johann Heinrich Kurtz (1809-1890)

In 1842, Johann Heinrich Kurtz completed a book on astronomy and the Bible, *Die astronomie und die Bibel*. Kurtz (1857:23-24) believes that the inspired text contains scientific errors that were typical to the age in which they were first inscripturated. In particular, Moses is suspected of “very many physically erroneous views” on the nature of the universe and its origin (Kurtz, 1857:24-25). But Kurtz (1857:22, 25-26) believes that these errors can be satisfactorily excused by affirming *a priori* the proposition that Scripture was never “intended to give instruction in physics” but only in religion. One of the big problems he finds

¹¹ See chapter 7.

in Genesis 1 is the idea that God would make all the stars in a single day (Kurtz, 1857:44). Citing the discoveries of Herschel concerning the size and apparent age of the universe, Kurtz (1857:44-45) finds this notion untenable. He asks how anyone could believe the world to be only six thousand years old when there are nebulae whose light must travel for three million years to reach us (Kurtz, 1857:45). If astronomy and geology can be trusted in their estimation of a universe that is “thousands or myriads of years” old, then it must follow that the world was made in a period of time greatly exceeding “merely six time twenty-four hours” (Kurtz, 1857:424). To simply regard the text as errant, however, would place the “divine structure of Christianity” upon a “delusion” (Kurtz, 1857:81). Kurtz’s solution is two-fold.¹²

His first inspiration comes from Eichhorn and Christoph Friedrich von Ammon (1766-1850). Kurtz (1857:110-113, 118) recasts the Mosaic record as a series of prophetic visions delineated by six prophetic days. Using this scheme he tries to preserve the inspiration and credibility of the account by allowing a sense in which the text might still be considered true without being anti-scientific.

His second idea is to restrict the scope of the hexaemeron. Kurtz (1857:425) asserts, “The six days’ work had nothing to do with the first creation of the earth, to say nothing of the creation of the universe.” In other words, both the heavens and the earth existed prior to Genesis 1:1 (Kurtz, 1857:425). Consequently, the Mosaic account is not an account of creation, but only a record of how “the earth received its *present form*” (emphasis in original; Kurtz, 1857:425).

Although Kurtz’s cosmology is, in one sense, thoroughly naturalistic, he is no materialist. He is deeply interested in the angelic realm. Thus, he finds in Genesis 1:2 the original fall of the angels (Kurtz, 1857:234-239). And just as de Fontenelle believed the planets to be inhabited with other life forms so Kurtz (1857:449-452) believes the stars to be populated by angelic creatures.

The following year, in 1843, Kurtz wrote a popular biblical theological treatise entitled, *Lehrbuch der heiligen Geschichte*.¹³ Curiously, throughout this work, he treats Genesis 1-11 according to its literal sense, estimating the time period from Adam to Christ at 4225 years (Kurtz, 1860:34-35). For Kurtz (1860:62), the table of nations in Genesis “exposes the fallacies of the mythical genealogies of pagans” refuting those chronologies that speak of “periods of millions of years”. In one of the few places where he refers to geology and palaeontology, it is only to corroborate the universality of the flood (Kurtz, 1860:55-56).

The palpable dissonance between his two books in 1842 and 1843 can perhaps be explained by the fact that in the latter work, Kurtz merely seeks to tell the story of the Bible as it stands, without the interruption of various scientific digressions. Whether or not he found this to be satisfactory, the fact remains that five years later, in 1848, Kurtz returned to the subject one last time to provide a comprehensive retelling of the sacred history – this time *with* all the scientific caveats and insights that he

¹² In the introductory chapters on astronomy, geology and the Bible, Kurtz (1870:cxiii) also endorses the gap theory by pointing out that the gaps between verses one and two, and verses two and three provide “two blank pages on which Science may write to fill up the gaps which Revelation has left” (Kurtz, 1870:cxiii).

¹³ i.e. “Manual of sacred history”

had omitted in his 1843 volume. The book was entitled *Geschichte des Alten Bundes*.¹⁴ This project shows him building upon the naturalistic foundation he began with his first book on the Bible and astronomy. Kurtz (1870:67-68) goes on to explore how other sciences like anthropology, biogeography and philology bear upon the story told in Genesis 1-11.

In addition to the views expressed in *Die astronomie und die Bibel*, Kurtz (1870:76-77) now questions the common origin of the human race, citing the research of several scientists including, most prominently, Prichard's *Researches into the physical history of mankind* (1813). Also following Prichard (1836:98-102), he subscribes to the theory of a local flood due to the biogeographical problems created by the universal alternative (Kurtz, 1870:102-103). The incident at the tower of Babel compels him to ask whether there might be a way of explaining the origin of languages on a "natural basis" without recourse to miracle (Kurtz, 1870:110-111). Despite Kurtz's (1870:46, 48) disparagement of previous rationalistic attempts to reinterpret the Old Testament, he evidently views his own proffered interpretations of Genesis 1-11 something substantially different.

6.2.10 George Wight (1817-1900)

George Wight (1847:19, 25-26, 42-43) is an advocate of the gap theory. This is the scheme he follows to harmonise Genesis with geology so that the definitive evidence of millions of years and the fossil record do not prove Moses to be a liar or Genesis "an idle tale" (Wight, 1847:246-247). Wight (1847:26-27) claims that the insight to allow an undefined interval of time before Genesis 1:3 gives the exegete "the key that will unlock many of the mysteries" that have confounded other commentators who have tried to accommodate modern science with the Mosaic story. What he does not accept as a viable hermeneutic in Genesis 1 is the "theory of indefinite periods" (i.e. the day-age theory) (Wight, 1847:141-144). Wight (1847:50, 144) insists that these days should be taken as ordinary days, according to the "common sense" reading of the text.

Although his main concern is to harmonise Genesis 1 with geology, Wight also submits to astronomy for guidance on how to interpret the creation of the heavenly bodies. He decides that the sun, moon and stars existed before the first day of creation and were only made to appear on the fourth when God changed the "condition of the atmosphere" so that they would suddenly be visible (Wight, 1847:187). These hermeneutical adjustments, however, do not dissuade him from maintaining that his exposition is "founded on the literal meaning" of the text (Wight, 1847:53).

In his discussion of Genesis 1:2, Wight (1847:129) cites Darwin's *Journal of Researches* (1839) from his voyage around the world. He finds in this book sufficient evidence of how natural forces have shaped and reshaped the earth's surface (Wight, 1847:129). This marks the rise of Darwin's influence on commentators more than ten years before the publication of his *Origin of species*. Wight (1847:236-242) is

¹⁴ i.e. "History of the Old Covenant"

aware of the “theory of development” (i.e. evolution), but rejects it as unsubstantiated and contrary to palaeontological evidence.

6.2.11 Karl Fredrich Otto von Gerlach (1801-1849)

Karl Fredrich Otto von Gerlach, one of the few conservative and evangelical scholars from this era, wrote a commentary on the Pentateuch in 1849. His exposition of Genesis 1-11 follows the literal sense of the narrative (Gerlach, 1860:1-86). Gerlach (1860:10, 47) considers any other interpretation to be forced and, in the case of allegory, ostensibly pretentious. Indeed, his stubborn adherence to the plain-sense reading of the text so frustrates his translator, Henry Downing, that the latter feels compelled to interject his own opinions on two occasions into the commentary: (1) in Genesis 1:2 where he advocates the gap theory; and (2) in Genesis 6:1 where he denies the possibility of a global flood (Gerlach, 1860:18, 58).

Gerlach (1860:16) also provides one of the earliest formulations of the framework hypothesis:¹⁵

The works of the first three days and the last three correspond with one another. On the first day is light created; on the fourth day, the lights in heaven; on the second, the visible heaven with the waters; on the fifth, the fishes of the sea and the fowls of the air; on the third, the dry land, with its clothing of vegetation; on the sixth, the land animals and man – on the first three days the inanimate substances, on the last three the living inhabitants, are produced.

It is worth noting that the observation of this pattern, as with Aquinas, does not discourage Gerlach from pursuing the literal sense of the text.

6.2.12 Elias de La Roche Rendell (1779-1876)

In 1850, Elias de La Roche Rendell, a Swedenborgian like Bellamy,¹⁶ wrote a critical commentary on the early chapters of Genesis. Rendell (1852:6) considers the literal sense of the narrative to be “offensive to judicious and rational thinking.” Resting his case upon the geological consensus of his day, he insists that any effort to reconcile Moses with “the unquestionable discoveries of science” is a fool’s errand (Rendell, 1852:18-20). Lengthening the days of Genesis or introducing a gap between the first two verses of chapter one does not make the text any more plausible (Rendell, 1852:21-22). Even the attempt to redefine “earth” in Genesis 1:1 to refer to a restricted area of the planet does little to convince Rendell (1852:24) of the credibility of the Mosaic record. He is convinced that Genesis 1-11 has no historical or scientific value (Rendell, 1852:15, 29). In other words, the literal sense is nonsense:

For instance, how difficult is it to conceive, that Eve was really made from a rib, taken from Adam, during a deep sleep, induced upon him for the purpose; – that a tree could produce the knowledge of good and evil; – that a serpent was capable of speech, and reasoned so successfully with the woman, as to induce her to violate the command of God! (Rendell, 1852:28)

¹⁵ About five hundred years earlier, Aquinas comments on the harmonious relationship between the first three days and the last three days. See section 5.4.10.

¹⁶ See section 5.7.21 for the discussion of Bellamy’s commentary.

Put simply, it is “embarrassing” (Rendell, 1852:50). Instead, following Origen, Rendell (1852:26, 31, 33) insists that these chapters can only be understood allegorically. Thus, by way of example, heaven and earth become symbolic for man’s internal and external constitution; the waters of Genesis 1:2 and 1:6 represent the knowledge of religious things; “day” refers to a state of mind; Adam’s rib is “selfhood”; the serpent is the “sensual principle of man”; Cain represents faith without charity; Abel denotes humility; Noah’s flood is a picture of temptations (Rendell, 1852:40, 42, 45, 48, 111, 122-123). Even the ages of the patriarchs are considered poetical and symbolic (Rendell, 1852:221, 223).

6.2.13 William Thomas Hamilton (1796-1884)

William Thomas Hamilton, unlike Rendell, believes that Genesis 1-11 can be reconciled with the discoveries of modern science. In 1852, he wrote a defence of the Pentateuch, challenging the “rationalistic critics of Germany”¹⁷ and other sceptics like “Paine, Volney, Voltaire, to Hobbs [*sic*], Bolingbroke, Hume, and Gibbon” (Hamilton, 1852:ix, xviii-xxxiv). Hamilton (1852:217) argues that Genesis should be accepted as a “true history” of the world. This does not mean, however, that his interpretation of the Mosaic record is unaffected by the scientific dogmas of his day.

Hamilton (1852:237-238) is firmly convinced by the geological evidence presented by Lyell and Benjamin Silliman (1779-1864) that there have existed “millions of ages” prior to Adam. To accommodate these vast time periods, he adopts both the gap theory and the day-age theory in his interpretation of the hexaemeron (Hamilton, 1852:239-243). Hamilton (1852:312-338) still retains his belief in the universality of the flood but, following Fleming, he views the deluge as placid and therefore geologically inconsequential. The true history of the universe, therefore, cannot be ascertained without the work of scientists. And because the evidence of antiquity resides in the historical sciences rather than Genesis, the Mosaic record becomes an appendix to a story that can only be told through the fossils, rocks, and stars. Integral to this naturalistic history is the “incontrovertible evidence” of death in the world for millions of years before the fall of man (Hamilton, 1852:391). Hamilton (1852:381-407) evidently sees the nature of this problem and devotes an entire chapter to it. His solution is to interpret the fall of man as an event that had no direct bearing on the animal kingdom (Hamilton, 1852:402). Animals died before the fall just as much as they did after it. From this standpoint, the fossil record can testify to untold ages of death and carnivory before the advent of man without any contradiction to Scripture.

With references to Lamarck and Lyell, Hamilton (1852:230-232) shows that he is aware of the growing interest in evolution, but because he is not persuaded by it, he makes no effort to find a place for it in Genesis. Similarly, after spending a whole chapter on Agassiz’s case for polygenism,¹⁸ he lets the biblical account of Adam and Eve stand, pointing out that the racist ideas advanced are “conjectures at best... plausible... but most assuredly, *not proved*” (Hamilton, 1852:233, 422).

¹⁷ i.e. Eichhorn, De Wette, Vater and Strauss (Hamilton, 1852:xviii-xxxiv).

¹⁸ In 1850, Agassiz (1850:110-145) wrote a paper entitled *The diversity of origin of the human races* in which he tries to prove that “negroes” are a distinct and inferior race to Caucasians.

6.2.14 William Paul (1804-1884)

In his critical interpretation of Genesis, William Paul (1852:ii, viii-ix, 1, 3) also finds merit in the gap theory as a means of extending the chronology in Genesis 1-11. He does this in order to reconcile Genesis with the opinions of the “most eminent geologists” who insist that the world is much older than six thousand years (Paul, 1852:ii). Paul (1852:ii-v) supports this exegetical decision with a lengthy quote from Hitchcock’s *Connection between geology and the Mosaic history of the creation* (1839). But, even though he embraces the gap theory, the day-age theory is rejected outright because he cannot find the “slightest warrant” for reinterpreting יָמִים in Genesis 1 figuratively (Paul, 1852:vi). Paul (1852:vi) argues that the context does not permit the hexaemeron to be read as anything other than six natural days. In further support of the literal interpretation of the first chapter, he claims that, “There is, perhaps, no chapter within the Sacred Record that is plainer, and freer from figurative language” (Paul, 1852:vi).

Paul (1852:vii) also affirms that the flood was a universal, but tranquil event. Following Hitchcock and Pye-Smith, he denies that it contributed in any way to the fossil record or the current topography of the planet (Paul, 1852:vii). Overall, Paul (1852:xi) believes that Genesis 1-11 should be recognised as the “only consistent and rational account that has ever been given of the creation of the world”.

6.2.15 Franz Delitzsch (1813-1890)

In 1852, Franz Delitzsch, a Lutheran theologian and Hebraist, finished his first commentary on Genesis. Delitzsch (1852:35, 41) readily asserts that we have no reason to approach the historical content of Genesis with suspicion or incredulity. He opposes Eichhorn and Herder’s attempts to find poetic embellishments in the text (Delitzsch, 1852:41). This does not stop him, however, from recognising the structure of the hexaemeron as two sets of three days with the first set corresponding directly to the second set in a type of parallelism (Delitzsch, 1852:51-52). But he does not use this pattern as a reason to abandon the historicity of the account. God created light before he made the sun; Eden was a real geographical location; Eve originated from Adam’s rib; Satan spoke through the serpent; and Cain married his sister (Delitzsch, 1852:99-104, 112-114, 116, 155, 167-171). Delitzsch (1852:168) also takes the genealogies literally, enumerating 1656 years from Adam to the flood.

That said, Delitzsch (1852:36) is disenchanted by the manner in which Genesis 1-11 was handled during the Reformation era because he believes that these commentators failed to fully grasp the text according to its human and divine elements. So, whilst he insists that the plain meaning of the record ought to be upheld irrespective of geology, he nevertheless chooses to interpret the days of creation as periods of time,¹⁹ pointing out that this leaves room for a universe of millions of years without contradicting Genesis 1:1-2:4 (Delitzsch, 1852:60-62). He also embraces the supplementary hypothesis,²⁰ being persuaded, in

¹⁹ Delitzsch (182:62) states, “Die Schöpfungstage sind Schöpfungsperioden.” But he dismisses Kurtz’s theory to construe these days as prophetic visions (Delitzsch, 1852:42).

²⁰ i.e. the idea that the Pentateuch, whilst attributed to Moses, is also the product of other authors who made substantial additions to the document before it attained its final form.

part, by Ernst Hengstenberg's (1802-1869) dissertations on the genuineness of the Pentateuch from 1836 to 1839 (Delitzsch, 1852:16-17, 30-32).

When it comes to the flood, he is quick to challenge Cuvier's dogmatic denial of a universal deluge (Delitzsch, 1852:189). But at the same time, he concedes that, while a global flood has "exegetical validity" (exegetische Zulässigkeit), it is more reasonable to take the description in Genesis 7:19-20 in a relative sense (Delitzsch, 1852:193). He also suggests that some animals could have survived the flood without being on the ark (Delitzsch, 1852:189).

6.2.16 John Jervis-White Jervis (1766-1830)

In the same year that Delitzsch's commentary went to print, John Jervis-White Jervis published his own thoughts on Genesis 1-11. Jervis's contribution is akin to many other enlightened thinkers of this age. Believing the universe to be eternal, he reinterprets the expression "in the beginning" to allow for an unlimited amount of time prior to Genesis 1:1 (Jervis, 1852:5-6). Jervis (1852:40) prefers to derive his history from geology, palaeontology and astronomy rather than the Mosaic record. Thus, even though he claims that the "accuracy of the Scripture narratives is fully borne out by the inductions of geological research", a few pages later he states, "if we think to gather physical science from Scripture, or the knowledge of the actual nature of the external world, we shall find ourselves continually at fault" (Jervis, 1852:17, 21).

Jervis (1852:8-9, 10-15) accepts the nebular hypothesis and Herschel's astronomical claims about stars and light, concluding from them that the universe must be older than 1 900 000 years. Thus the six days of the hexaemeron are reduced to a literary device designed to serve the fourth commandment of the decalogue (Jervis, 1852:15-16). Equally, the terms "evening" and "morning" are made to denote an "undefined period of time" (Jervis, 1852:20). Jervis finds the text to be as malleable as he needs to incorporate the conclusions of various scientists. Following the Scottish geologist, John MacCulloch (1773-1835) (1831:216, 226, 310, 455), and his two-volume work, *A system of geology, with a theory of the earth and an examination of its connection with the sacred records* (1831), he assigns vast geological ages to Genesis 1:5 (Jervis, 1852:20). Likewise, repeated citations from Pye-Smith give credibility to a progressive creation model leaving space for the "very long and very slow progression" of geological processes over multiple epochs and millions of years (Jervis, 1852: 22, 25, 28, 30, 33-36, 38, 40, 46, 60-61, 127). When it comes to the flood, Jervis (1852:125-128, 132-133, 136-137) appeals to Stillingfleet and Pye-Smith to construe it both as placid and localised. Citing the irrevocable "ascertained laws of zoology", he also disallows the possibility that animals might have originally survived without carnivory in Eden (Jervis, 1852:43-44).

6.2.17 John Cumming (1807-1881)

John Cumming, a Scottish clergyman, published his Sabbath morning readings on Genesis in 1854. Cumming (1854:19-20) subscribes to the gap theory, relying mainly upon Hitchcock's *Religion of geology* (1851), which he highly commends. This allows him to reconcile the Mosaic account with the geological

opinion that the earth is hundreds of thousands of years old (Cumming, 1854:15, 19, 53). Cumming (1854:15, 20) limits the creation account to the earth and its atmosphere, believing the sun and moon to have existed a long time before the first day of the hexaemeron. The days of Genesis, however, are taken as literal days (Cumming, 1854:20). In general, his hermeneutical policy is to follow the literal interpretation of a passage unless there are “good reasons” not to (Cumming, 1854:20). For most of Genesis 1-11, he stands by the literal sense of the text.

Cumming (1854:68) is not convinced by Hitchcock’s case for a “partial deluge”. He points out that there are geologists who still believe that the flood was universal and the rationale for an ark filled with animals makes little sense if only a portion of the planet was going to be covered with water (Cumming, 1854:68-72). Cumming (1854:27) is also aware of the evolutionary arguments proposed by Chamber’s *Vestiges of the natural history of creation* (1844) – which he dismisses as “one of the most unscientific and mischievous books” ever written. But significantly, he denies the possibility of evolution, not because of Genesis, but because of geology. Without any reference to Genesis 1-2, the case is settled by the fact that there is not a single example of any species evolving in the fossil record (Cumming, 1854:27).

6.2.18 Marcus Dods (1834-1909)

Marcus Dods, another Scotsman, completed his own commentary on Genesis in the same year as Cumming. Like Cumming, Dods (1854:5, 13) believes that the antiquity of the earth has been definitively settled by scientists to be millions of years old. But unlike Cumming, he asserts that Genesis 1-11 is utterly “irreconcilable with teachings of science” and has nothing to contribute to our understanding of the history of the world or the history of mankind (Dods, 1854:3, 28). He even goes so far as to state that the first chapter is not about the “subject of creation” but should only be consulted for its moral or spiritual value (Dods, 1854:2-3).

Dods’ (1854:1) concern to preclude Genesis from any scientific discussion is made conspicuous in the very first sentence of his commentary:

If any one is in search of accurate information regarding the age of this earth, or its relation to the sun, moon, and stars, or regarding the order in which plants and animals have appeared upon it, he is referred to recent text-books in astronomy, geology, and palaeontology. No one for a moment dreams of referring a serious student of these subjects to the Bible as a source of information.

As implied by this opening statement, Dods (1854:2, 4) is convinced that the first two chapters of Scripture contain “various discrepancies”, “historical anachronisms” and “glaringly incompatible” accounts of creation that “no ingenuity can reconcile.” Therefore the exegete must avoid any inclination to reconcile science with Scripture. In particular, those who “distort” the days of Genesis to accommodate the edicts of geologists are the “worst friends” of revelation because they make the interpretation of Scripture hopeless (Dods, 1854:4). Instead, Dods (1854:9, 11) advocates a minimalistic interpretation of Genesis 1-2, reducing all exposition down to three bare facts: (1) that creation happened;

(2) that there was a “presiding intelligence” responsible for it; and that (3) man is the “crown and lord of this earth”. Essentially, this hermeneutic rejects the “outer husk” of the literal interpretation of Genesis 3 to try and discern the remaining “kernel” of truth (Dods, 1854:15). Dods (1854: 16) is aware of how this “opens the door” to a vast and diverse array of allegorical interpretations, but he still thinks that this is “not to be lamented” but rather embraced. The alternative is supposedly unthinkable: only “shallow and careless men” read Genesis as literal history (Dods, 1854:17).

Dods’ minimalistic engagement with Genesis 1-11 – or lack thereof – allows him to ignore large portions of the account: completely omitting chapters 5 and 10 from his commentary along with narrative concerning the tower of Babel. And where he does venture into discussion with the text, his exposition barely follows the contours of the narrative. In the case of the flood, only those regions of the earth within the bounds of the Tigris and Euphrates may have been affected (Dods, 1854:55-56). As to the details presented in the text, he states, “it is not the physical but the moral aspects of the Flood” which are relevant (Dods, 1854:57).

Dods is the first ostensibly Christian commentator to not oppose an evolutionary version of origins. Quoting Huxley, he argues that evolution reinforces belief in a Creator along with intelligent design (Dods, 1854:9-10). Given that Dods writes this commentary just five years before Darwin’s *Origin of species*, this is not surprising. To quote Ruse (2006:65), “evolution was in the air”.

Overall, Dods (1854:8) continues to affirm the divine inspiration of Scripture, but in these opening chapters, its revelatory content is severely truncated.

6.2.19 Anonymous

In 1856 an anonymous²¹ work was published, bearing the title: *The creative week: being a secular exposition of the Mosaic record of creation*. Like Dods, the approach of this book typifies the naturalistic school. The author is convinced that – without expertise in cosmogony, geology, astronomy and chemistry – the exegete cannot correctly understand Genesis 1-11 (Anon, 1856:145). That said, he does not approve of either the gap theory or the day-age theory as a viable means to reconcile the “record of creation” with the “facts of geology” (Anon, 1856:iii, 4-5, 13-14, 58, 68). Chalmers, Pye-Smith, Hitchcock, Miller and Buckland are deemed primarily responsible for these “heretical” theories (Anon, 1856:87-90, 276, 320, 330-352).

His own contention is that the account should be read as a “series of pictures” from the sixth geological epoch, marking the beginning of the human race (Anon, 1856:6, 8-9, 69, 71, 392-393). He maintains that the six days of creation are ordinary twenty-four hour days; Adam and Eve are the first human beings; Eden was a real place; and the flood was a global, albeit tranquil, event (Anon, 1856:99, 188, 232, 233). With the flood deemed geologically and paleontologically insignificant, he ascribes the fossil record to the millions of years supposedly prior to Genesis 1 (Anon, 1856:67, 80). This leads him to assert that the “*ex nihilo* men” (a title he gives to exegetes who follow the literal sense of the text) must believe that God

²¹ The unknown writer cryptically refers to himself as the author of “Commentaries on the Georgics of Virgil”.

created all the fossils *in situ* during the first week – thus giving him an easy strawman to refute (Anon, 1856:31, 35). He also insists that it is scientifically impossible for God to make light or grow plants without a sun (Anon, 1856:147-148, 285-286). In his conclusion, he commends the “*ne utri* men” (a title he gives to his own school of interpretation) for their “thoroughly sound and enlightened views” in the “facts of geology” which makes them the only ones who read Genesis correctly.

6.2.20 Donald MacDonald (1783-1867)

Donald MacDonald (1856:92-103, 248, 254), like Hamilton, adopts an interpretation of Genesis 1 that incorporates aspects of both the day-age theory²² and gap theory.²³ Although he repeatedly maintains that it is dangerous to abandon the “literal, historical sense” of the text,²⁴ at the same time, he restricts the narrative from asserting any propositions in contradiction to the accepted science of his day (MacDonald, 1856:9, 11, 71-72, 206, 218, 220, 227). MacDonald (1856:69, 72) asserts that although Genesis has nothing to offer science (having only a moral purpose), science offers an interpretive key to unlock the true meaning of Genesis. Thus, he states at the outset that the Mosaic record does not have anything to say concerning the starting date of creation or the antiquity of the earth (MacDonald, 1856:82, 243-244). These are questions which only astronomy and geology can answer (MacDonald, 1856:74-75). Conceding ground to the nebular hypothesis, MacDonald (1856:266, 268-269) assigns the creation of the sun, moon and stars to a distant period prior to the fourth day of creation.²⁵

Zoologically, MacDonald’s (1856:138, 387) convictions about carnivores, along with palaeontological evidence, convinces him that decay, “incessant war” and “death’s ravages” existed in the world before the fall. To justify how these realities might be deemed “very good” by God, he proposes that we view death as a “benevolent law” (MacDonald, 1856:392-393). Although MacDonald (1856:76, 83-84, 279-280, 371) rejects the evolutionary theories of Lamarck and de Maillet, he accepts the concept of the great “chain of being” and the geological evidence of progressive and “successive creations” over millions of years.

MacDonald (1856:168-170) also brings botanical arguments to bear upon the text, citing John Stevens Henslow (1796-1861) and John Hutton Balfour (1808-1884)²⁶ as he explores how thorns and thistles might arise naturalistically after the curse.

6.2.21 Andrew John Jukes (1815-1901)

Andrew John Jukes (1858:v-vi, xi, xv-xvi, 4) also does not deny the value of the literal sense of Genesis 1-11, but believes that greater treasures can be found through the allegorical interpretation of the “tale of

²² Here, he credits Descartes, Whiston and Deluc for their pioneering work in advancing the day-age view (MacDonald, 1856:92).

²³ MacDonald (1856:88-89) accepts the gap theory tentatively, expressing a critical distaste for some of the torturous embellishments given to it by Buckland and Pye-Smith.

²⁴ Adam and Eve, the garden of Eden and the serpent are all taken according to the literal sense (MacDonald, 1856:10, 372, 330-359, 395-397, 405-415).

²⁵ MacDonald (1856:270-271) disapproves of the idea that these astronomical bodies were deliberately hidden for the first three days and revealed on the fourth. Instead, he proposes that somehow God “lighted up” the sun and moon on the fourth day (MacDonald, 1856:268).

²⁶ Charles Darwin had close relations with both these men: Henslow was his lecturer and Balfour a regular correspondent.

creation”. His initial attempt at a typological interpretation of the hexaemeron was published in 1855, entitled, *The six days: or, the various stages of the word of God, being notes on Genesis 1*. This was later revised and expanded in 1857 to *The types of Genesis briefly considered*.

Jukes’ commentary draws upon the writings of Origen, Augustine, Ambrose and other church fathers from the allegorical school. There is little originality in his work. The six days of creation are spiritualised in much the same way as before: light is taken to mean spiritual light; the waters represent “restless lusts”; the sun is Christ and the moon is the church; the four rivers are intuition, perception, testimony and reason; Adam and Eve are two conflicting aspects of the human soul; the flood is a story of regeneration with the ark representing Christ and the church; *et cetera* (Jukes, 1858:12, 19-20, 27, 39-40, 49-50, 104-105). Jukes (1858:92-93) even attempts to derive allegorical meaning from the names in Genesis 5 by exploring their etymology.

Although Jukes (1858:56-57) does not present his literal interpretation of Genesis 1-11, he evidently takes most of the account historically because he affirms the same millennial expectations advocated by Augustine and other church fathers.²⁷ This means he believes the world to be less than six thousand years old. The universe might, however, be older. Jukes (1858:5) appears to endorse the gap theory in his handling of Genesis 1:2 in which he describes the world as ruined and “utterly wrecked” under God’s judgment.

6.2.22 Charles Henry Mackintosh (1820-1896)

In his *Notes on the book of Genesis* (1857), Charles Henry Mackintosh does not deny the historicity²⁸ of the Mosaic record, but he takes no interest in it. He prefers to let geologists and astronomers pursue their research, confident that their efforts will ultimately harmonise with Scripture (Mackintosh, 1863:13-14, 16-17). Avoiding any discussion concerning the facticity of Genesis 1-11, he expounds the typological sense of the text, providing spiritual application throughout. In a manner akin to the great allegorisers, Mackintosh (1863:17-20, 36-37, 114, 116) treats “day” and “night” as the “two great symbols” of spiritual light and darkness; the sun and moon as typifying Christ and the church; the river that flows out of Eden as the “river of God” carrying God’s rest to sinners; the flood is about judgment and baptism with Noah being a type of Christ; and at the tower of Babel, Babylon is the “corrupt religious system”.

6.2.23 Hugh Miller (1802-1856)

Driven by geological convictions, Hugh Miller proposes that the six days in Genesis 1 should be taken as prophetic days.²⁹

²⁷ See Victorinus, Lactantius, Hippolytus and Irenaeus.

²⁸ For example, he uses descriptions like the “history of Cain and Abel” and “Noah’s history” (Mackintosh, 1863:77, 100).

²⁹ See section 4.6 for the full discussion.

6.2.24 Thomas Alfred Davies (1809-1899)

Thomas Alfred Davies (1857:198, 297) believes that Genesis 1-11 proves the world to be exactly 5860 years old. Adhering to the “literal truth” of the first chapter, he argues that the six days of creation are “six consecutive diurnal days” (Davies, 1857:12, 65-67, 93). To resolve the distant starlight problem,³⁰ Davies (1857:91-92) suggests that because the light is created independently of the stars, it does not need to travel any distance to bridge the gap – God “stretches” out the light from the beginning. This does not mean, however that the sun, moon and stars are created on the fourth day. Davies (1857:71-72, 293) claims that these astronomical bodies are already in existence and merely receive their light on this day.

Davies (1857:109, 195, 289-291, 329-330) is not intimidated by geological claims, offering an alternative interpretation of the fossil record that sees God creating the fossils *in situ* at the same time that he makes the rocks. This allows him to reject any natural history based on the conventional palaeontological argument. Davies (1857:189, 191-192, 195, 330) believes that these fossils should be taken, not as the “fossilated remains of animals”, but rather as the “primitive types” or blueprints of all the creatures God has made.

Davies’ interpretation of Genesis, however, remains conspicuously scientific. For example, in his treatment of Genesis 1:3, he interprets “Let there be light” as “God combined the seven prismatic colors and primordial rays, and made white light” (Davies, 1857:69). This appropriation of scientific terminology continues throughout his commentary. On the second day, God is said to have “combined nitrogen and oxygen to make air” Davies, 1857:70). And although his geological and palaeontological views are unorthodox, he takes more than a passing interest in the historical sciences, devoting nearly two hundred pages to the third day of creation, in which he discusses the nature of granite, sedimentation, stratification, quartz, the volatility of various metals, slates, fossils, limestone, sandstone, coal, soil, rock salt, resins, sulphur, and atmospheric air (Davies, 1857:107-291).

When it comes to the creation of man, Davies (1857:382-383) is strongly influenced by the scientific arguments advanced by various anthropologists including, most prominently, Samuel George Morton (1799-1851) who argues for polygenism. For the first time in his exposition, Davies openly abandons the literal sense of the text. Eve cannot be the “mother of all living” as stated in Genesis 3:20 “because we know she was not so, under any circumstances” (Davies, 1857:354). Davies (1857:338-339, 367-368) is convinced that Caucasians are radically different from and superior to the “Negro, Hottentot, Malay, and Australian”. To sustain this scientific conviction – as he sees it – he makes a distinction between the “men” created in Genesis 1 and the couple created in Genesis 2 (Davies, 1857:347-348). Thus, Adam and Eve were not the only human beings to be placed on the earth in the beginning. This, of course, helps Davies (1857:352-353, 356) explain where Cain found his wife. But it also means that the flood must be restricted to a small portion of the earth so that non-Caucasian races might survive (Davies, 1857:269,

³⁰ This is the problem highlighted by Herschel relating to how long light must take to reach earth given the displacement between the stars and the earth.

371, 388). In 1860, he devoted a whole book to this subject,³¹ in which he continues to expose the “error” that all men have descended from Adam and Eve.

6.2.25 Marcus Moritz Kalisch (1825-1885)

Marcus Moritz Kalisch (1858:25-26) shares Davies’ derogatory view of non-Caucasian races but affirms the monogenic unity of mankind. Kalisch (1858:1) believes that the claims of natural science are “incontrovertible” and should not be dismissed as in the days of Copernicus and Galileo. He repeatedly states that geology and astronomy are “utterly and irreconcilably at variance” with the account presented in Genesis (Kalisch, 1858:2-6, 13, 31, 40, 51). Following Laplace, Herschel, Cuvier, Deluc and Dolmieu,³² Kalisch (1858:10-11, 23, 140-143) affirms an immeasurably old universe, the nebular hypothesis, progressive creation, and a localised tranquil flood. At the same time, he points out the creation narrative yields a chronology not older than six thousand years going back to 4160 BC (Kalisch, 1858:viii, 2).

Previous attempts to employ the day-age theory and gap theory are deemed exegetically untenable and geologically futile (Kalisch, 1858:35-37). Kalisch (1858:36) insists that these literary devices are “unworthy of Biblical science” because they make the text arbitrarily malleable to conform to the ever “fluctuating movements of heterogeneous studies”. Instead, Kalisch (1858:39, 41) argues that Genesis 1-11 should be recognised as a “simple prose narrative” to be read in a “plain and unsophisticated” manner. By this, he aims to treat the entire narrative as a myth³³ containing an important kernel of truth (Kalisch, 1858:140, 145). Not surprisingly, therefore, he finds a lot of merit in comparing Genesis with the legends and myths preserved by the Hindus, Persians, Chaldeans and Greeks (Kalisch, 1858:43-47, 49, 56-58, 63-65, 138-140). He goes on to dismiss the creation of Eve and the talking serpent as remnants of a “common traditionary lore of the Asiatic nations” which can be “found in other oriental tales” (Kalisch, 1858:63, 66). And in his explanation of the “manifest contradiction” between Genesis 7:2-3 and Genesis 6:19-20, he appeals to the documentary hypothesis (Kalisch, 1858:123-126).

Overall, Kalisch (1858:32, 146) tries to retain a divine purpose for Genesis 1-11 by appealing to its religious and moral truths.

6.2.26 Summary

Of the twenty-seven commentaries reviewed, only three retain a literal interpretation of Genesis 1-11 (see table 6.2). For the first time in history, the literal hermeneutic ceases to be the most popular way to understand these eleven chapters. In terms of Genesis 1-11, this period captures the turning point in the hermeneutic revolution that redefined these chapters.

³¹ i.e. *Genesis disclosed: being the discovery of a stupendous error which changes the entire nature of the account of the creation of mankind* (1860).

³² i.e. the French geologist, Dieudonné Sylvain Guy Tancrède de Gratet de Dolomieu (1750-1801).

³³ Kalisch (1858:70, 76, 106, 125) likes to speak of the narrative as history but the assertions he makes of the text do not sustain this claim. He does not hesitate to directly contradict the text whenever it is at odds with his scientific convictions. For example, in his discussion on the flood, he categorically states, “No deluge destroyed, therefore, a wicked and disobedient race of men” (Kalisch, 1858:141).

Publication Date	Author	Title	Interpretation
1834	Louis Bonnet (1805-1892)	L'homme banni d'Eden	literal
1835	Peter von Bohlen (1796-1840)	Die Genesis historisch-kritisch erläutert	myth (naturalistic)
1835	Richard W. Sibthorp (1792-1879)	The book of Genesis; with brief explanatory and practical observations and copious marginal references	gap theory
1836-1855	John Kitto (1804-1854)	The pictorial Bible: being the Old and New Testaments	gap theory (naturalistic)
1838	George Bush (1796-1859)	Notes, critical and practical on the book of Genesis	gap theory & day-age theory, terrestrial (naturalistic)
1839	Edward Hitchcock (1793-1864)	Connection between geology and the Mosaic history of the creation	gap theory, partial flood (naturalistic)
1840	John Pye-Smith (1774-1851)	On the relation between the Holy Scriptures and some parts of geological science	gap theory, regional, ³⁴ partial flood (naturalistic)
1841	Samuel H. Turner (1790-1861)	A companion to the book of Genesis	gap theory, terrestrial (naturalistic)
1842	Johann H. Kurtz (1809-1890)	Die astronomie und die Bibel	gap theory, prophetic vision (naturalistic)
1843	Johann H. Kurtz (1809-1890)	Lehrbuch der heiligen Geschichte	literal
1847	George Wight (1817-1900)	The Mosaic creation, viewed in the light of modern geology	gap theory (naturalistic)
1848	Johann H. Kurtz (1809-1890)	Geschichte des Alten Bundes	gap theory, prophetic vision, terrestrial, partial flood (naturalistic)
1849	Karl F. O. von Gerlach (1801-1849)	Commentary on the Pentateuch	literal
1850	Elias Rendell (1779-1876)	The antediluvian history, and narrative of the flood; as set forth in the early portions of the book of Genesis, critically examined and explained	allegorical (naturalistic)
1852	William T. Hamilton (1796-1884)	The 'Friend of Moses,' or a defence of the Pentateuch as the production of Moses and an inspired document, against the objections of modern skepticism	gap theory & day-age theory, tranquil flood (naturalistic)
1852	William Paul (1804-1884)	Analysis and critical interpretation of the Hebrew text of the book of Genesis	gap theory, tranquil flood (naturalistic)
1852	Franz Delitzsch (1813-1890)	Die Genesis ausgelegt	day-age theory, partial flood (naturalistic)
1852	John J. Jervis (1766-1830)	Bereshit: Genesis elucidated	nebular hypothesis, day-age theory, partial flood (naturalistic)
1854	John Cumming (1807-1881)	Sabbath morning readings on the Old Testament: book of Genesis	gap theory, terrestrial (naturalistic)
1854	Marcus Dods (1834-1909)	The book of Genesis	moralistic, evolutionary, partial flood (naturalistic)
1856	Anonymous	The creative week: being a secular exposition of the Mosaic record of creation	pictorial, terrestrial, tranquil flood (naturalistic)
1856	Donald MacDonald (1783-1867)	Creation and the fall: a defence and exposition of the first three chapters of Genesis	nebular hypothesis, gap theory & day-age theory (naturalistic)
1857	Andrew J. Jukes (1815-1901)	The types of Genesis briefly considered as revealing the development of human nature in the world within, and without, and in the dispensations	allegorical, gap theory
1857	Charles H. Mackintosh (1820-1896)	Notes on the book of Genesis	typological (naturalistic)
1857	Hugh Miller (1802-1856)	The testimony of the rocks	vision-day theory, partial flood (naturalistic)
1857	Thomas A. Davies (1809-1899)	Cosmogony, or the mysteries of creation	polygenism, partial flood (naturalistic)
1858	Marcus M. Kalisch (1825-1885)	A historical and critical commentary on the Old Testament: Genesis	nebular hypothesis, myth (naturalistic)

Table 6.2 – The interpretation of Genesis 1-11 from 1830 to 1859

Of all the nonliteral ways of reading Genesis, the gap theory establishes itself as the most popular hermeneutic employed in chapter 1.³⁵ In almost every case, this decision is directly motivated by

³⁴ “regional” refers to the fact that the commentator restricts the purview of Genesis 1 to an isolated region on earth.

astronomic, geologic or palaeontological convictions. New to this era of biblical interpretation is the notion that Noah's flood was a localised event; a view that is promulgated by seven commentators. Also new to this era is the introduction of an evolutionary interpretation of Genesis 1 by an ostensibly Christian commentator.³⁶ Overall, the prevailing opinion presented in most of these commentaries³⁷ is that if Genesis 1-11 does not affirm the edicts of historical science, it is patently wrong. Therefore, as Browne (2006:86) relates, by the time *Origin of species* came to print, the creation account in Genesis posed little threat to the reception of Darwin's big idea.

6.3 Darwinian Revolution (1859-1886)

How did Genesis 1-11 fare after the publication of *Origin of species* in 1859? Given that the literal sense of the account had already been jettisoned by most commentators, what further hermeneutical innovations were there to explore during the Darwinian Revolution? Did Darwin make any notable impact on the following thirty-one commentaries? These are the questions we will explore in this era as we seek to ascertain how the relationship between Genesis 1-11 and the historical sciences developed (see table 6.3).

Table 6.3 – Commentaries on Genesis during the Darwinian Revolution

Publication Date	Author	Nationality	Religion or denomination	Original title
1854-1860	Edward W. Lane (1801-1876)	English	Muslim?	The genesis of the earth and of man: or the history of creation and the antiquity and races of mankind
1860	William H. Hoare (1809-1888)	English	Anglican	The veracity of the book of Genesis with the life and character of the inspired historian
1861	Carl F. Keil ³⁸ (1807-1888)	German	Lutheran	Biblischer commentar über das Alte Testament
1861	Isaac Williams (1802-1865)	English	Tractarian	The beginning of the book of Genesis, with notes and reflections
1861	Henry C. Groves (1822-1903)	Irish	Church of Ireland	A commentary on the book of Genesis
1862	John W. Colenso (1814-1883)	South African (English)	Anglican	The Pentateuch and book of Joshua critically examined
1863	Robert Jamieson (1802-1880)	Scottish	Church of Scotland	A commentary, critical and explanatory, on the Old and New Testaments: Genesis–Deuteronomy
1863	James G. Murphy (1808-1896)	Irish	Presbyterian	A critical and exegetical commentary on the book of Genesis with a new translation
1864	Henry A. Henry (1800-1879)	American	Jewish	Discourses on the book of Genesis
1864	Melancthon W. Jacobus (1816-1876)	American	Presbyterian	Notes, critical and explanatory on the book of Genesis
1864	Johann P. Lange (1802-1884)	German	Calvinist	Die Genesis: oder das erste Buch Mose
1865	Robert S. Candlish (1806-1873)	Scottish	Free Church of Scotland	The book of Genesis expounded in a series of discourses
1866	John Quarry (1809-1899)	Irish	Anglican	Genesis and its authorship: two dissertations

³⁵ The gap theory should be seen as a nonliteral reading of Genesis 1:1-2 for the simple fact that it does not advocate a straightforward reading of the text at this point. If this was a natural reading of the text, there would be ample evidence from the first sixteen centuries of the church. But this is not the case. Moreover, the gap theory was only seriously advanced by scholars at a time when the historical sciences required it, and it is commonly associated with other nonliteral interpretive choices in Genesis 1-11 (see table 6.2).

³⁶ De Maillet's *Telliamed* in 1748 would otherwise be the first evolutionary reinterpretation of Genesis.

³⁷ As indicated by the label "naturalistic"

³⁸ Although Franz Delitzsch contributed to this commentary series, the exposition of Genesis 1-11 was done by Keil. See sections and 6.3.3. and 6.4.1.

Table 6.3 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1868	Horatius Bonar (1808-1889)	Scottish	Church of Scotland/ Free Church of Scotland	Earth's morning: or, thoughts on Genesis
1868	Thomas J. Conant (1802-1891)	American	Baptist	The book of Genesis: the common version revised for the American Bible Union with explanatory notes
1870	Joseph P. Thompson (1819-1879)	American	Congregationalist	Man in Genesis and in geology: or the biblical account of man's creation tested by scientific theories of his origin and antiquity
1870	George Warrington (1840-1874)	English	Anglican	The week of creation, or the cosmology of Genesis considered in its relation to modern science
1872	Henry Alford (1810-1871)	English	Anglican	The book of Genesis, and part of the book of Exodus
1873	Edward H. Browne (1881-1891)	English	Anglican	Genesis; or the first book of Moses
1874	Jacob M. Hirschfelder (1819-1902)	Canadian (German-Jewish)	Anglican	The creation: being two lectures on the Mosaic account of the creation, as recorded in Genesis 1
1875	John M. Arnold (1817-1881)	German	Lutheran	Genesis and science: or the first leaves of the Bible
1875	Charles B. Warring (1825-1907)	American	Presbyterian	The Mosaic account of creation, the miracle of to-day; or, new witnesses to the oneness of Genesis and science
1877	Frederick W. Robertson (1816-1853)	English	Anglican	Notes on Genesis
1879	John M. Gibson (1838-1921)	Scottish	Presbyterian Church of England	The ages before Moses
1881	Ebenezer Nisbet (1826-1893)	American	Baptist	The science of the day and Genesis
1881	Thomas Whitelaw (1840-1917)	Scottish	United Free Church of Scotland	The pulpit commentary: Genesis
1882-1892	Christian F. A. Dillmann (1823-1894)	German	Lutheran	Die Genesis
1885	Jacob M. Hirschfelder (1819-1902)	Canadian (German-Jewish)	Anglican	Biblical expositor and people's commentary: historical and critical commentary on the book of Genesis
1885	Joseph S. Exell (1849-1910) Thomas H. Leale (1838-1913)	English	Anglican	Homiletical commentary on the book of Genesis
1886	Joseph Parker (1830-1902)	English	Congregationalist	The people's Bible: discourses upon Holy Scripture: the book of Genesis
1886	John W. Burgon (1813-1888)	English	Anglican	The first chapter of Genesis: a reply and a postscript

6.3.1 Edward William Lane (1801-1876)

In 1854, an anonymous work, later attributed to Edward William Lane, was published on the subject of creation (Gange, 2013:27).³⁹ Whilst, strictly speaking, not a commentary, this book deals extensively with the first eleven chapters of Genesis in an effort to reconcile the text with the “unmistakeable evidences” presented by “geology, ethnology, zoology, and botany” (Lane, 1860:29, 91). Lane (1860:xxiv, 36) maintains that the Bible does not contain any “scientific instruction”; yet at the same time, he expects it to conform to the scientific edicts of his day.

The first means by which he aims to reconcile Moses with geology is to construe Genesis 1-3 as a “series of visions” (Lane, 1860:2, 11, 17). In doing so, Lane (1860:12) denies that the narrative should be taken as

³⁹ The book was entitled, *The genesis of the earth and of man* (1854). The second edition that came out in 1860 was significantly revised and updated which is why it is placed here, after Darwin, rather than before him.

a parable or myth. But he cannot accept it according to the literal sense because “no sound geologist” will affirm that God made the world in “six natural days” (Lane, 1860:15). Instead, he proposes that these six days correspond to “six distinct enormous periods” of geological history (Lane, 1860:16). In other places in the narrative, Lane encourages the reader to treat the account figuratively so that the exegete does not promulgate a “very grave error” like those who believe the cherubim in Genesis 2:24 to be real living creatures (Lane, 1860:14). Lane (1860:29) advocates this approach to Genesis 1-11 because “it concedes to the philosopher all the license that he can desire to enjoy in his speculations”. Where science and Scripture disagree, he argues that Scripture must cede to the “revelations of science” (Lane, 1860:92).

Following the “abundant and overwhelming evidence” presented by geologists and the “most eminent ethnologists”, Lane (1860:45-46, 54-55, 108) also denies the common origination of mankind from Adam and Eve. “Negroes”, Malaysians, Mongolians, Hottentots and Aboriginal Australians are excluded from the story told by Moses (Lane, 1860:95). Lane (1860:85-86) claims that only the “purely or predominantly Caucasian” races can be traced back to Noah and the dispersion of nations at Babel. To sustain this claim, he argues that the flood was a localised incident in Asia (Lane, 1860:97-102). Lane (1860:146) also believes that the genealogies in Genesis are erroneous and that no accurate copy of the original records exists today.

6.3.2 William Henry Hoare (1809-1888)

One year after Darwin’s *Origin of species*, William Henry Hoare published an apologetic work on the veracity of Genesis. Hoare (1860:144-145, 181, 247-248, 250-251) reconciles the Mosaic record with the historical sciences by resorting to the gap theory (as expressed by Chalmers and Buckland) and a modified version of Miller’s vision theory. Moses is believed to have received Genesis via a vision that God gives him optically (Hoare, 1860:247). This allows the six days to be taken as six prophetic or mystic visions (Hoare, 1860:248, 250-251, 271). Like Lane, Kalisch and Davies, Hoare (1860:vii, 131-132, 143, 147) accepts the geological and astronomical case for vast ages and progressive creation to be undeniable, and therefore determinative for what conclusions Genesis 1-11 cannot reach.

Hoare (1860:147-148, 185, 193) believes that the solar system and stars were all brought into existence long before Genesis 1:3. He even suggests that there may be other intelligent creatures in the universe on their own inhabitable planets like ours (Hoare, 1860:134). Hoare (1860:9-12, 165, 228) denies the evolution of species, but allows the possibility of Pre-Adamite races. With regards to the latter, he advises his readers, in the spirit of Augustine, to not unnecessarily commit themselves to “particular dogmas” which belong to the realm of science, not Scripture (Hoare, 1860:229, 232).

Overall, Hoare (1860:270) commends a hermeneutic that endeavours to follow the literal sense of Genesis wherever the meaning does not impinge upon the “latest discoveries of science.” Where a conflict occurs, he recommends pursuing the “mystic sense” of the text (Hoare, 1860:271).

6.3.3 Carl Friedrich Keil (1807-1888)

In 1861 Carl Friedrich Keil finished the first volume of what would become a ten-volume commentary series on the Old Testament with Franz Delitzsch.⁴⁰ Upsetting the prevailing trend, he argues that Genesis 1-11 is the “true and actual history” of the world, without any fictitious elements (Keil & Delitzsch, 1885:37, 45, 70). The Mosaic narrative is not vague or mysterious, but “sober, definite, clear and concrete” (Keil & Delitzsch, 1885:38). Unlike the creation myths propagated by the Persians, Babylonians and other “heathen nations”, Genesis stands out as the only accurate record of events from the beginning of the world to the death of Joseph, encompassing a period of 2306 years (Keil & Delitzsch, 1885:34, 39-40, 121).

Keil is sceptical of the claims being made by geologists, palaeontologists and astronomers concerning the origin of the universe (Keil & Delitzsch, 1885:41-42, 52, 59-60). Beside the Bible, the historical sciences can only offer “mere opinion and conjecture” (Keil & Delitzsch, 1885:42). Moreover, he asserts that subject of creation is beyond the realm of “natural science” and can only be explored by revelation (Keil & Delitzsch, 1885:52). Contradictions between “geological doctrines” and Genesis may exist; but he does not challenge the credibility of Scriptures (Keil & Delitzsch, 1885:44).

Keil rejects all hermeneutical theories (like the gap theory and day-age theory) that endeavour to “alter the plain sense of the words of the Bible” to accommodate the “so-called certain inductions of natural science” (Keil & Delitzsch, 1885:52). His commentary consistently retains the literal sense of Genesis 1-11.

6.3.4 Isaac Williams (1802-1865)

In the same year that Keil’s commentary was published, Isaac Williams produced his own partly-literal, partly-allegorical exposition on the first four chapters of Genesis. Unlike Keil, Williams (1861:1-2) believes that the opening chapters of the Bible are mysterious and obscure. And although he asserts that Scripture is the “interpreter of science” as much as science is the interpreter of Scripture – at the same time – he states that Genesis has nothing to contribute towards matters of scientific inquiry (Williams, 1861:6, 10, 30). This leads him to accept the gap theory as a means of accommodating all the “convulsions” required by geologists in their models of earth history (Williams, 1861:53-54). Thus, Williams (1861:181) believes that spiritual and physical evil were endemic to creation before the fall of man, citing Genesis 1:2 as a justification. The interpretation of the six days, however, is an open question which he does not believe can be resolved, although he prefers taking these days according to their “natural” sense (Williams, 1861:54, 211-217).

⁴⁰ Although this is not indicated in the commentary itself, Rogerson (2007:606-609) explains that it was Keil who contributed the most to these volumes, in particular, his exposition of Genesis. As discussed in 6.2.14, Delitzsch had already written his own commentary on Genesis by 1852 in which he abandons the literal sense in several places. In later years he became a lot more radical in his thinking, whilst Keil maintained an orthodox stance towards Scripture (see section 6.4.1).

Williams (1861:41-42) prefers not to engage in the various scientific theories offered to reconcile the Mosaic record with the historical sciences, believing them to be a detraction from the main purpose of the text. Instead, he prefers the allegorical approach championed by Augustine, and for most of his commentary seeks to emulate him, supplementing the literal sense with the “higher and more spiritual” interpretation (Williams, 1861:71, 75, 78, 94, 100, 205, 248). The allegories offered are not new: physical light depicts spiritual light; “day” and “night” refer to “life” and “death”; the sun is a type of Christ; the number six is a perfect number; and the creation of Eve from a rib is a picture of what Christ does for his church (Williams, 1861: 75-76, 89-90, 134, 205-206, 269).

6.3.5 Henry Charles Groves (1822-1903)

Henry Charles Groves (1861:10), like Williams, subscribes to the gap theory, citing Chalmers, Buckland, Sedgwick, Wagner and Kurtz in support. This allows him to incorporate “all those great pre-Adamite periods of which geology speaks” into the undefined interval between the first two verses of Genesis (Groves, 1861:10). Groves (1861:15) believes that the fall of Satan and his angels happened during this time period.

Following Kurtz, he argues that the days in Genesis 1 are regular days (Groves, 1861:21-22). Groves (1861:4-5, 8) disapproves of Miller’s prophetic vision hypothesis. But, in agreement with Miller (and Lyell, Richardson and Mantell), he finds sufficient geological evidence to reject the existence of pre-Adamite races (Groves, 1861:36).

After the first chapter of Genesis, Groves (1861:98) generally follows the literal sense of the text but, citing the “imperfect conclusions of geology”, he withholds judgment on whether the flood was localised or universal.

6.3.6 John William Colenso (1814-1883)

In 1862, Bishop John Colenso published a highly controversial work on the first six books of the Old Testament. The central thesis is that these books are historically “untrue”, fraught with “absolute, palpable, self-contradictions” and “many absolute impossibilities” (Colenso, 1862: viii, xvii, 8, 10-11, 17, 149). After completely dismissing the Genesis story as a “legend” in the introduction, Colenso (1863:xxi, 17-146) devotes the rest of his treatise to proving that the other four books of the Pentateuch, along with Joshua, are just as errant and historically bankrupt.

Colenso’s (1862:vii-viii, xiv-xvi, xxiii) opinions of the Mosaic record are attributed to several German rationalists and higher critics,⁴¹ and Lyell’s *Elements of geology* (1838) – which convinces him to reject Noah’s flood outright. He also denies that Moses wrote the Pentateuch (Colenso, 1862:8). Having stripped Genesis to Joshua of any scientific or historical veracity, the only value he retains for these books is the religious or spiritual “consolation” that they might offer (Colenso, 1862:150-151).

⁴¹ i.e. Hengstenberg, Ewald, Kurtz, De Wette and Hävernick.

Colenso's treatment of Genesis 1-11 was by no means novel, but the extension of this hermeneutic to the next five books of the Bible quickly elevated his notoriety. Within a few years, his book had elicited dozens of critical reviews and rebuttals on both sides of the Atlantic: Anon (1862), Fowler (1862), Odhams (1862), Anon (1863), Benisch (1863), Bullock (1863), Cumming (1863), Davidson (1863), Drew (1863), Fowle (1863), Garbett (1863), Green (1863), Greswell (1863), Hill (1863), Hirschfelder (1863), Hoare (1863a; 1863b), Ingram (1863), Mann (1863), Page (1863), Porter (1863), Savile (1863), Scott (1863), Stephen (1863), Stone (1863), McCaul (1864), and the Jewish Association for the Diffusion of Religious Knowledge (1865).

6.3.7 Robert Jamieson (1802-1880)

Robert Jamieson wrote the first volume of the popular six-volume work: *A commentary, critical and explanatory, on the Old and New Testaments* (1863) by Jamieson, Fausset and Brown. Like those mentioned above, Jamieson (1871:vi, xvi-xvii) also expresses his disapproval of Colenso's thoughts on the Pentateuch. Jamieson (1871:xi, xlvi) wants to retain the "historic truth of the Pentateuch", and refers to Moses as the "historian of Creation". That said, he does not advocate the strictly literal sense of the text. To explain his naturalistic approach, we are told that Moses writes this account to meet the low expectations of a credulous and ignorant people of limited intellectual capacity, bereft of the "wonderful disclosures" offered by geology, palaeontology, astronomy, zoology, physiology, botany and anthropology (Jamieson, 1871:xlvi-xlviii, 1). This becomes the "new commentary" from which the true meaning of Genesis 1-11 can be ascertained (Jamieson, 1871:xlvi). Without the "facts of science", Jamieson (1871:15) states that the exegete cannot correctly interpret these chapters of Genesis. These "facts" include Laplace's nebular hypothesis; the conviction that the universe is millions of years old;⁴² progressive creation and the great chain of being; the immutable carnivory of meat-eating animals; and the geological and zoological evidences against a universal deluge (Jamieson, 1871: xlviii-xlix, 2, 9, 12, 14, 98-100).

To accommodate these scientific tenets, a period of undefined duration is placed between Genesis 1:1 and 1:2 (following Buckland, Chalmers and Hitchcock); the first word of Genesis 1:1 (בְּרֵאשִׁית) is interpreted to mean "some remote era... hid in the depths of an unknown and incalculable antiquity"; and the sun, moon and stars are said to exist before God said, "Let there be light" (Jamieson, 1871:2-4, 6, 16). Jamieson (1871:17, 19, 44) discusses the feasibility of Darwinian evolution, but, after citing the work of Murchison, Agassiz and Owen, ends up rejecting it. He also acknowledges the "formidable objections among men of science against unity of the race" – particularly, the debate with regards to "negroes" – but ultimately affirms the historicity of Adam and Eve as our universal parents, pointing out that even these "inferior" races are capable of "improvement" (Jamieson, 1871:24-27, 44-46).

⁴² Ussher's date of 4004 BC is placed in the margin of the first 66 pages of his commentary, but it is evident that this date pertains only to the history of mankind, not Creation (Jamieson, 1871:1-66).

6.3.8 James Gracey Murphy (1808-1896)

James Gracey Murphy (1873:68, 193) also employs the gap theory and a localised flood to reconcile Genesis 1-11 with the “elementary facts of geological knowledge”. To accommodate the “present state of astronomical science” and allow enough time for light to travel for millions of years to earth, he asserts that the sun, moon and stars were created a long time before the six days of creation (Murphy, 1873:33-34, 39, 43, 68). This conviction influences his interpretation of the first three verses of Genesis in three ways: (1) the heavens created in Genesis 1:1 includes the sun, moon and stars; (2) the darkness mentioned in Genesis 1:2 was a “local darkness” not pertaining to the whole universe; and (3) the light in Genesis 1:3 existed before God spoke the words, “Let there be light” (Murphy, 1873:35, 39, 43). Murphy (1873:68) denies that these decisions are in any way eisegetical or equivalent to “importing modern notions into the narrative.” He states this, despite admitting later that he feels “compelled” by the “investigations of geology” to believe that God used a process of progressive creation (Murphy, 1873:132). In other places, he follows the literal sense of the text despite its scientific absurdity. For example, he affirms that Eve originated from a “literal rib of bone and flesh”; that the patriarchs were able to sustain an average life expectancy “ten times” greater than that of his own day; and that the tongues at Babel arose supernaturally (Murphy, 1873:105, 174). Like Jamieson, Murphy (1873:56) entertains a degree of chronological snobbery towards those who were contemporary with Moses, attributing to them the characteristics of a primitive “unsophisticated mind”.

6.3.9 Henry A. Henry (1800-1879)

Henry A. Henry’s *Discourses on the book of Genesis* (1864) are pitched at a popular level. Although he does not delve into all the details of Genesis 1-11, his brief interaction with the Mosaic account stands by the literal sense (Henry, 1864:1-36). God creates the light before the stars and planets, and the flood is universal in scope – which he substantiates from palaeontological evidence (Henry, 1864:11-12, 26-27, 30).

6.3.10 Melancthon W. Jacobus (1816-1876)

In 1864, Melancthon Jacobus finished his critical commentary on the book of Genesis. Jacobus (1867:iii-iv) compares Colenso to Pilate, calling him a “pseudo-bishop” and an “apostate bishop”. His concern is to recover the true historical value of Genesis 1-11 in the wake of sceptics and infidels (Jacobus, 1867:iii-iv). Jacobus (1867:v, xli, xliii-xlvi) opposes the day-age theory as not doing justice to the plain sense of the text. He calls any science that ignores the Scriptures a “science falsely so called” (Jacobus, 1867:v). Yet Jacobus (1867:xxiv-xxv) maintains a high view of the sciences: geology confirms the recent origin of man; physiology confirms the homogeneity of the human race; philology confirms the account at Babel; and ethnology confirms the races of men who dispersed. Like most other commentators from this period, his respect for the historical sciences impinges upon his interpretation. Jacobus (1867:62-63, 65-66) adopts the gap theory to give “ample room” to the “many revolutions” and extinct species suggested by geology,

and the light years required by astronomy. This leads him to believe that God did not create the light when said “Let there be light” because it already existed long before (Jacobus, 1867:65-66). It also leads him to believe in death and carnivory before the fall (Jacobus, 1867:1-li, 76). Darwinian evolution, however, turns out to be a step too far; but Jacobus (1867: 76-77, 79, 81) leaves open the possibility for pre-Adamite races should palaeontology discover them.

There is a notable tension in his commentary between embracing science as a hermeneutical key whilst at the same time keeping science and Genesis apart. For example, he first states that, “we have nothing to do with the record of the rocks in the interpretation of the Mosaic account” (Jacobus, 1867:73). But this is followed two pages later by: “The facts claimed by geology are held to be thus in remarkable keeping with the Mosaic account” (Jacobus, 1867:75). Thus, on the one hand, he will allow for a geological gap between Genesis 1:1 and 1:2, but later in Genesis 6-8, he affirms a global flood despite the geological consensus against it (Jacobus, 1867:174-175).

6.3.11 Johann Peter Lange (1802-1884)

Johann Lange belongs to the school of German higher critics. In his commentary on Genesis, he makes a case for taking the narrative as a “religious symbolic chronicle” (Lange, 1869:177). What he means by this is that the “primitive tradition” captured in Genesis 1-11 has its basis in history, but is clothed in symbolism (Lange, 1869:104-105, 243). Lange (1869:24) disapproves of the orthodox literal interpretation of Scripture because it is scientifically unacceptable. He considers it a “matter of ridicule” to believe that God made the sun, moon and stars on the fourth day of creation; or to suggest that the world is only 6000 years old; or that the hexaemeron might be “six ordinary astronomical days”; or the sun stopped during the days of Joshua; or Lot’s wife became an actual pillar of salt; or Balaam’s ass spoke intelligibly (Lange, 1869:24, 71, 171). Instead, he ascribes to Genesis 1-11 a “poetically elevated style” (Lange, 1869:26). The days of Genesis are the “peculiar days of God” allowing for millions of years (Lange, 1869:166-167, 170, 190). The flood was localised (Lange, 1869:296, 306). He allows the possibility of pre-Adamites (Lange, 1869:355-356). Lange (1869:354) is even open to a Darwinian origin for man via “successive evolutions from the dust”.

Whilst Lange (1869:25-26, 28) prefers to disassociate himself from those who view the Old Testament as myth, he still believes that there is an affinity between mythology and Scripture. This leads to the paradoxical assertion that Genesis is “all true but is not all actual” (Lange, 1869:28).

6.3.12 Robert Smith Candlish (1806-1873)

Robert Candlish wrote a popular-level devotion commentary on Genesis in 1865. He states at the outset that he has no interest in exploring any of the “vexed questions” which arise concerning the scientific credibility of Moses’ cosmogony (Candlish, 1868:15-16). Candlish (1868:18, 20) believes that the purpose of Genesis is purely religious, not scientific. That said, he subscribes to the gap theory, creating “room and space” for geological ages between the first and second verses of Genesis 1, and pegging the start of

creation at a time “indefinitely remote” (Candlish, 1868:19-21). After chapter one, his exposition assumes the literal sense of the text (Candlish, 1868:34-180).

6.3.13 John Quarry (1809-1899)

John Quarry (1866:7-12) is dissatisfied with the various imaginative schemes employed to reconcile Genesis with science. He considers them to be contrived and exegetically unwarranted (Quarry, 1866:7-12). Instead, Quarry (1866:12-15) proposes that readers should “give up looking for physical truth” in Genesis, and realise that these chapters only have a religious purpose. The initial account of creation is, therefore, strictly non-historical in nature (Quarry, 1866:20, 87-88, 94, 108). The literal or historical sense of the text, however, is “simply ludicrous and silly” (Quarry, 1866:145).

To justify this approach, he draws upon the insights of Gilbert Rorison (1821-1869) to present a prototype of the framework hypothesis, arguing that the two triads of days in the hexaemeron have a “highly artificial arrangement” in which the first three days correlate strongly in their “poetic structure” with the second three days (Quarry, 1866:22, 44-45). This allows Quarry (1866:15, 47, 108) to dismiss the first three chapters of Genesis as a “paraboliical representation” of a hidden historical reality, clothed in “mystic drapery” or “poetic imagery”. The principal force driving Quarry’s (1866:52, 71) hermeneutic is the desire to liberate Genesis from the difficulties presented by astronomy and geology. Now science can freely speculate on the nature of origins without impinging in any way on the Bible.

When he comes to Genesis 4, Quarry (1866:156-157) claims that the “poetical character” disappears and the account resumes in a strictly historical sense. This does not mean, however, that he accepts the history recorded from chapters four to eleven as authentic or reliable. Quarry (1866:176-177) believes that the genealogy in Genesis 5 is most likely inaccurate due to the discrepancies between the Hebrew, Septuagint and Samaritan versions. In Genesis 6-8, following Stillingfleet, he takes the flood either as a localised event or an allegorical account with its basis in history (Quarry, 1866:184-186, 188-189). The Babel incident is also subjected to naturalistic scrutiny. Quarry (1866:201-202) proposes that the confusion of languages arises from the dissemination of tribes, not *vice versa*. He denies the “operation of any miraculous inference” from God (Quarry, 1866:205).

6.3.14 Horatius Bonar (1808-1889)

Horatius Bonar (1875:v) tries to avoid controversy in his commentary on Genesis 1-6 by not engaging with any of the historical or scientific ramifications in the text. He states that God might have made the universe six or sixty thousand years ago (Bonar, 1875:5). But it is also obvious that he subscribes to the gap theory and believes that stars and planets, even light, existed before Genesis 1:3 (Bonar, 1875:8, 11-12, 23). Whilst Bonar (1875:5, 40) accepts astronomical and geological ages, he considers evolution to be “irrational”, “unphilosophical” and “absurd”. He accepts the literal historicity of Adam and Eve,⁴³ the

⁴³ Although Bonar’s (1875:81-104) exposition of Adam and Eve is mostly typological.

garden, the serpent and the ark (Bonar, 1875:63, 109, 154, 315-317). His commentary ends with the flood but does not comment on its scope.

6.3.15 Thomas Jefferson Conant (1802-1891)

In his commentary on Genesis, Thomas Jefferson Conant (1868:xvi) refers to the early chapters of Genesis as the “sublime epic of Creation” containing both “figurative imagery” and “poetic grandeur”. Conant (1868:xvi) is persuaded by the “teachings of geology” that the earth has an ancient pedigree. To accommodate these eons he adopts the day-age theory (Conant, 1868:xvi). The gap theory,⁴⁴ however, he rejects for exegetical, theological and scientific reasons (Conant, 1868:xix-xx). Conant (1868:2, 4) also dismisses the idea that God must first make light-bearers before he creates light. In this case, he points out that this is unnecessary for at least two reasons: (1) there is no settled consensus on the physical nature of light; and (2) the “known truths of astronomy” do not conflict with the idea that light could exist before the sun (Conant, 1868:2, 4).

Conant (1868:8, 10) affirms the historicity of Adam and Eve and the garden of Eden. But he is not confident to assert that the serpent and the two trees were physically realities. He allows for a psychosomatic interpretation in which the communication with Satan was “purely mental” occurring entirely within the “mind of Eve” (Conant, 1868:21). Conant (1868:36-37) is also undecided as to whether the flood was local or global.

6.3.16 Joseph Parish Thompson (1819-1879)

In *Man in Genesis and in geology* (1870), Joseph Thompson looks at the biblical account of man’s creation in light of modern scientific theories. Thompson (1870:v) argues that science should be granted equal authority to Scripture given its “divine origin”. In practice this equality does not extend to any claims that the Bible might make upon the history of the universe. Thompson (1870:13, 20) distrusts Genesis 1-11 as a source of scientific information because it was composed by a man who “knew nothing of geology” during a time when the “human mind” was incapable of discerning the true nature of the universe. To rightly interpret the Mosaic account, therefore, requires an understanding of astronomy, geology, palaeontology, anthropology and zoology (Thompson, 1870:13-16, 21, 28-29, 38-55, 82). Whilst Thompson (1870:94) admits that he is no “man of science” but merely an “interpreter of the Bible”, he feels compelled to spend most of his exposition discussing the merits of competing scientific theories. Where the literal sense of the text seems to agree with science, it is lauded for being prescient, but where it is opposed to the consensus of scientific experts it is reframed as a vague literary feature of sufficient malleability to accommodate the physical theories required.⁴⁵ Thus, to allow for the nebular hypothesis and geological eons, he finds in Genesis 1:2 “no limitation of time”, and the days of Genesis become

⁴⁴ Surprisingly perhaps, Conant’s (1868:1) rejection of the gap theory does not prevent him from ascribing to Genesis 1:2 an undefined period of time.

⁴⁵ Thompson (1870:19) adopts this scientific hermeneutic whilst admitting at the same time that geology has “many times changed its own theories.”

indefinite periods of any duration⁴⁶ (Thompson, 1870:15-17). God's words, "Let there be light" become a "disturbed action or combination of molecules" to achieve "exact accordance with the teachings of science" (Thompson, 1870:30). Studies in anthropology⁴⁷ bring into question the unity of mankind which allows for the possibility of other races outside of Adam (Thompson, 1870:101). Likewise, the supposed antiquity of man rules out the accuracy of any chronology based upon Genesis. Darwin's theory of evolution is also accommodated to some extent,⁴⁸ on the grounds that it "does not displace the personal Creator" (Thompson, 1870:41). Thompson (1870:80) even alleges that Darwin is a bona fide Bible-believing Christian.

6.3.17 George Warington (1840-1874)

George Warington (1870: 44-45, 109-112), like Thompson, wants to leave ample room in Genesis for Darwin's origin of species. Even human evolution is entertained as a possible means by which God could have produced man (Warington, 1870:124). At the same time, Warington's (1870:25) commentary maintains that the purpose of Genesis is to teach theology, not science. He states that the interpretation of this narrative should be "independent of science" and "unbiased by scientific opinion or facts" (Warington, 1870:19). But this does not stop Warington (1870:56) from suggesting an interpretive scheme of his own to harmonise the text with science.

He claims that although Genesis 1-11 was intended for the "unscientific", there is a deeper hidden meaning that science can unveil (Warington, 1870:18). This is the meaning that he appeals to when he states that "science is entirely at one with Genesis" and "geology accords exactly with Genesis" or "geology is exactly the same as that taught by Genesis" (Warington, 1870:49-50, 121-122, 130-131).

To illustrate how Warington (1870:56, 58, 61, 67) applies this hermeneutic, consider the six days of creation. Here, he dismisses both the day-age theory and gap theory as exegetically-strained and damaging to the authority of Scripture. In his view, this is unwarranted appropriation of science in exegesis. Instead, he argues that the six days should be taken as "divine days" in an "anthropomorphic" sense (Warington, 1870:56, 68, 72, 83). What he means by this is that the days described in Genesis 1 are to be understood in the same manner as other passages that speak of God in human terms (e.g. Numbers 6:25 & Exodus 7:5). In other words, these days are not to be taken as ordinary human days, as from man's perspective, but rather they are to be taken as days from God's perspective. This allows him to superficially retain the literal sense of the text whilst, at the same time, construing its meaning as completely inscrutable to the exegete (Warington, 1870:67). This deeper meaning is, of course, completely impervious to the time scale

⁴⁶ By way of justification, he offers Augustine and 2 Peter 3:8 as an auxiliary support for his interpretation (Thompson, 1870:17). But it is evident that the decision has already been reached because of the science, not because of any argument that could be presented on purely exegetical grounds.

⁴⁷ Typifying the scientific racism endemic to this period of history, Thompson (1870:101) struggles to see how Caucasians can share a common origin with the "Black (Negroes)".

⁴⁸ Following James Dwight Dana (1813-1895), Owen and Agassiz, Thompson (1870:38-42, 54-55, 79) is reticent to include the human beings in Darwin's evolutionary scheme.

required by geology and astronomy. Genesis and science can therefore be reconciled harmoniously. Warington's exposition relies almost exclusively upon German scholarship.⁴⁹

6.3.18 Henry Alford (1810-1871)

Henry Alford (1872:17) shares Warington's belief that Genesis 1-3 has a "deeper or parabolic" meaning that needs to be unveiled. He also appeals to the so-called "anthropomorphic" nature of the record to motivate its non-literality (Alford, 1872:3). Yet, unlike Warington, Alford (1872:3, 6) does not believe it appropriate to explore how various geological and astronomical theories might be embedded within the text. Alford (1872:3, 14-15, 19) believes that the first three chapters are "parabolic and symbolic", and therefore antithetical to the literal sense. To read the days of creation according to their "strict historical consecutiveness" is to be "slaves of the letter" (Alford, 1872:13-14). Alford (1872:5) is convinced by geological and palaeontological evidences that the world is very old. Yet, he still regards Adam and Eve as the "first progenitors of mankind" (Alford, 1872:23, 25).

After Genesis 3, Alford (1872:33) is prepared to explore the literal sense of the text to a greater extent, but not without pointing out alleged inaccuracies and contradictions in the narrative. Accordingly, he rejects the genealogy in chapter 5 as inaccurate (Alford, 1872:27).⁵⁰ But, surprisingly, when he gets to Genesis 6-8, he argues for the indisputable "universality of the flood" (Alford, 1872:35).

6.3.19 Edward Harold Browne (1881-1891)

Following Kurtz and Miller, Edward Browne (1873:36, 75-76) believes it likely that Moses received the early chapters of Genesis in a series of prophetic visions. He also subscribes to the gap theory (Browne, 1873:32). Although Browne (1873:30, 32-34) admits that errors of interpretation might be committed by either exegetes or scientists, he assumes the veracity of geology when it comes to the age of the earth, and is persuaded by Alexander McCaul (1799-1863) that the sun existed before the light, being part of the creation described in Genesis 1:1.

Browne (1873:43, 62-63) is opposed to Darwin's "hypothesis of development" and does not accept Lyell's case for the antiquity of man. Adam and Eve should be regarded as the "first parents" of mankind (Brown, 1873:48). This does not mean, however, that everything mentioned in Genesis 2 is "philosophically accurate" (Browne, 1873:39). Although the story of Eden and the fall is historical, it is veiled in allegory (Browne, 1873:48-49).

In chapters 5 and 11, Browne (1873:62, 64) asserts that the genealogies in chapters 5 and 11 are unreliable and incomplete. He also anticipates that the "exaggerated" longevity of patriarchs will be shown to be impossible by future physiological studies (Browne, 1873:62). Browne (1873:77) rejects the universality of

⁴⁹ i.e. De Wette, Kalisch, Tuch, Keil, Knobel, Delitzsch, Gesenius, Ewald, and Kurtz.

⁵⁰ Alford (1872:27) dismisses the genealogies in Matthew and Luke on similar grounds.

the flood because of the “serious difficulties” which arise in trying to explain how various species of animals became distributed across the continents.

6.3.20 Jacob Mair Hirschfelder (1819-1902)

In 1874, Jacob Hirschfelder wrote up two lectures on the first chapter of Genesis. This was subsequently expanded upon and published as a full commentary in 1885. Hirschfelder (1874:22, 37-38, 44-45; 1885:10) appeals to the gap theory as the only means of reconciling Genesis 1 with the “stubborn facts” of geology. After the first verse of Genesis, which applies to the universe, the rest of the account is restricted to the “human period” of history (Hirschfelder, 1874:36-38). He also ascribes the creation of the sun, moon and stars to Genesis 1:1 instead of Genesis 1:14-16 (Hirschfelder, 1874:61; 1885:14, 21).

Hirschfelder (1874:33, 46) insists that the Mosaic record is communicated in “plain, simple, and purely historical narrative”. Therefore, he dismisses the day-age theory as exegetically untenable and geologically useless (Hirschfelder, 1874:24-26, 31-34; 1885:50-58). He also affirms from Genesis 1:30 that all animals were herbivorous before the fall (Hirschfelder, 1885:48). Hirschfelder (1885:106-108) considers Darwin and Huxley’s “novel theory” of evolution to be, not only absurd, but also completely antithetical to Genesis 1-2. He cannot see why ministers are “bowing down to this new idol” (Hirschfelder, 1885:106-107). Hirschfelder (1885:108) predicts that, “The man is not born, and never will be born, who will be able to reconcile these two directly opposite accounts.” The account given in Genesis 2 must be accepted as it stands or else the whole Bible is undermined (Hirschfelder, 1885:99). He argues that the creation of Eve from a rib should be taken at face value because, if God can supernaturally form a man from the dust, surely he can make a woman from a rib (Hirschfelder, 1885:114).

But when it comes to the flood, Hirschfelder (1885:218-224) does not consider the zoological, geological and palaeontological reasons advanced against the literal sense of the text to be as farcical as evolution. In this case the text must be reinterpreted to harmonise with science. Noah’s deluge must be understood as a localised phenomenon (Hirschfelder, 1885:218-224). The ark would not be big enough to hold all the species of animals required; the biodiversity across continents would be inexplicable; and there would not be enough water for a universal flood (Hirschfelder, 1885:224-226). To make his case, Hirschfelder (1885:218-224) reproduces Miller’s arguments.

6.3.21 John Muehleisen Arnold (1817-1881)

In his engagement with Genesis 1-11, John Arnold is less impressed by the edicts of science. Science is demonstrably fallible and mutable (Arnold, 1875:1, 3). Arnold (1875:1) therefore encourages his readers to regard “scientific dogmatism” with a healthy dose of suspicion. He singles out the idea of evolution as a conspicuous case in point. Darwin’s theory is a “scientific mistake”, “contrary to facts” and “wholly unfeasible” (Arnold, 1875:65, 69, 74). He claims that the only reason why people would be so inclined to entertain it is because of their deep craving for a materialistic alternative to biblical creation (Arnold,

1875:66). Arnold (1875:57, 101-112) is also sceptical of Laplace's nebular hypothesis, Lyell's the purported antiquity of man, and the polygenic origin of humanity.⁵¹

Genesis 1-11 is upheld as the "*bona fide* record of beginnings", a "historical matter-of-fact" account, being the original source from which all other pagan myths and legends deviate (Arnold, 1875:186-189, 196). Challenging the geological convictions of his day, Arnold (1875:235-239, 328) argues that Noah's flood was unmistakably universal in its extent, and not tranquil. Moreover, the ark was definitely large enough to house all the required animals⁵² (Arnold, 1875:240-247).

To resolve the distant starlight problem, Arnold (1875:258) suggests that God could have made the stars visible at the instant they were created without requiring their light to travel exorbitant distances over millions of years. He disapproves of attempts to insert millions of years into the first three verses of Genesis or elongate the six days into periods of undefined durations⁵³ (Arnold, 1875:294, 298, 332-334). Instead, the hexaemeron should be taken literally (Arnold, 1875:336-341).

To resolve the geological and astronomical claims to vast ages, he advocates the idea that God could have made the world with an apparent age, in full maturity from its inception (Arnold, 1875:300). Adding to this, Arnold (1875:281) questions the reliability of the scientific claims being made concerning the age of the universe, warning his readers, "all such calculations are not to be trusted".

The only place in his treatise where he questions the reliability of the Genesis record is when it comes to the genealogy found in chapter 5. Here he prefers to adopt an agnostic position due to the "fragmentary" and "imperfect" nature of the account which he infers from the discrepancies between the Hebrew, Septuagint and Samaritan versions (Arnold, 1875:137, 140).

6.3.22 Charles Bartlett Warring (1825-1907)

In *The Mosaic account of creation* (1875), Charles Warring (1875:vi, ix) provides his own attempt to reconcile Genesis 1-2 with "*all* the astronomical and geological facts" including Darwin's increasingly popular version of evolution. Warring (1875:11, 18, 41, 52-53) claims to abide by the "*verba ipsissima*" of Moses, asserts that the "literal truth" of Genesis "means exactly what it says", and describes the first chapter as "the most literal prose, a record of hard, dry facts... absolute realism". Yet, his approach is far from literal. Everything in the text must be read through the lens of modern science or else remain "incomprehensible" (Warring, 1875:29, 64).

Relying predominantly upon James Dwight Dana's (1813-1895) *Manual of geology* (1863), the days in Genesis 1 become "six great epochs" encompassing millions of years (Warring, 1875:36, 46, 75, 90).

⁵¹ This does not prevent Arnold (1875:110-111) from asserting his own racist view which envisages Adam and Eve as the first Caucasians from which darker-skinned races degenerated.

⁵² To explain all the extinct creatures in fossil record, Arnold (1875:321) claims that Noah was not instructed to save the dinosaurs.

⁵³ Arnold (1875:336) asserts that the reinterpretation of days as periods impinges upon the historicity of Adam himself.

These are divided into three periods: (1) the “cosmic period” (Gen. 1:1-3); (2) the “telluric period” (Gen. 1:4-5; 2:5-6); and (3) the “life period” (Gen. 1:7-31; 2:1-2) (Warring, 1875:120-125, 193).

Believing Laplace’s nebular hypothesis to be an unquestionable law of the universe, Warring (1875: 12, 34, 55-56, 59-61, 115, 244) finds ample confirmation in Genesis 1:2. The true interpretation of Genesis 1:5 is thereby rendered as “the complete transition from the gaseous, self-luminous, cometary condition, to the solid, opaque, planetary body” (Warring, 1875:61). He points out that these things, although hidden from Moses, were revealed to Laplace (Warring, 1875:94). Likewise, Warring (1875:78, 195-243) explains that God made the lights in the heavens by increasing the inclination of the earth’s axis.

Embracing a theistically-driven form of Darwinian evolution, Warring (1875:107-108, 139-140) allows Adam to be made from the dust via some intermediary beast. Eve’s creation from a rib is explained as a generative act of “fission” (Warring, 1875:143). He affirms both death and carnivory before the fall (Warring, 1875:172-173).

6.3.23 Frederick William Robertson (1816-1853)

Frederick Robertson (1883:6-7) does not approve of the gap theory, day-age theory or any other attempt to reconcile Genesis with science. He believes that God has provided two revelations, to be found on the “page of creation” and the “page of Scripture”, which should be kept strictly apart (Robertson, 1883:7). These revelations are said to be equally inspired, although Robertson (1883:7, 12) immediately asserts that the account in Genesis relates the fallible, scientifically-inaccurate perceptions of men from that period of history. This is excused on the basis that Genesis 1-11 exists to relate “broad spiritual truths” instead of physical realities (Robertson, 1883:7, 11). Robertson’s (1883:2, 19) interest with the text is only to derive some moral or spiritual value from the narrative. For example, the chaos of Genesis 1:2 reflect the chaos in man’s soul; in Genesis 1:3, light is a symbol of “all things divine”; and the fall of man provides a lesson on the “sin of frailty” (Robertson, 1883:4, 6, 29-30). Robertson makes no comments on chapters 4-11.

6.3.24 John Monro Gibson (1838-1921)

John Gibson (1875:56, 78) believes that the first two chapters of Genesis are not historical, but apocalyptic, having been revealed to several prophets in a series of visions or pictures. Gibson (1875:60, 64) is aware of the geological and astronomical difficulties presented by the creation story and seeks to mitigate them by maintaining that the account makes no scientific claims. But wherever the account accords with modern science, he is quick to point out the “wonderful” manner in which it harmonises (Gibson, 1875:17, 70). Thus, the order of creation is said to be geologically sound; the succession of days testifies to “progressive development”; the creation of light before the sun is lauded as a profound pre-scientific insight; and the creation of man from the dust is confirmed by chemistry (Gibson, 1875:68-70, 84).

In Genesis 1, Gibson (1875:60, 65) is not concerned with what manner of interpretation is adopted so long as it does not impinge upon geology or astronomy, leaving ample room for long periods of time. The day-age theory, gap theory and vision-day theory are all viable options (Gibson, 1875:60, 65). What is incontrovertible, however, is the idea that the Mosaic record is “dateless” and, following 2 Peter 3:8, “measureless” (Gibson, 1875:57-58).

In Genesis 2-3, Gibson (1875:78-79) claims that the narrative takes on a more historical form, albeit in a “peculiar” way. This leaves room for the two trees of Eden and the serpent to be taken symbolically (Gibson, 1875:78-80). With the fossil record as his guide, Gibson (1875:89) asserts that there was death before the fall.

Gibson (1875:125-126) is sceptical of the chronological value of Genesis 5 but is convinced by physiologists to accept the credibility of ancient people being able to live for long ages. The flood, however, cannot be universal because of the inherent geological difficulties created (Gibson, 1875:128-131). Persuaded by ethnological and anthropological studies, he is prepared to affirm the unity of the human race (Gibson, 1875:140, 143-144).

6.3.25 Ebenezer Nisbet (1826-1893)

Ebenezer Nisbet (1881:15-16, 22), like Warring, is convinced that the God of Genesis is the same God of Laplace’s cosmogony. Although he categorically states that the Mosaic record has nothing to contribute towards science, being entirely spiritual in its purpose, he still finds in Genesis 1:2 a confirmation of the nebular hypothesis (Nisbet, 1881:16, 23). Nisbet (1881:29, 31) believes the rocks and fossils are an autobiography produced by the “earth’s own handwriting”, proving the world to be millions of years old. Genesis, on the other hand, has nothing to say about the duration or antiquity of creation (Nisbet, 1881:31).

To reconcile Genesis 1 with the historical sciences, Nisbet (1881:35-36) treats the days of Genesis as prophetic days, representing a series of visions, *à la* Kurtz, Gibson, Browne and Hoare. Finding supporting from Origen, Nisbet (1881:39-40) explains that the sun, moon and stars merely “appear” on the fourth day when God removes the “enshrouding cloud” that hid them at the time. Palaeontological evidence leads Nisbet (1881:43-44) to believe that death was already in the world before Adam’s sin. He also denies the possibility of carnivores ever being able to survive without killing and eating other animals (Nisbet, 1881:44).

When it comes to Darwinian evolution, Nisbet (1881:50) is extremely sceptical. It is a failed hypothesis, not demonstrable from nature and disproved by many facts (Nisbet, 1881:50-52, 54, 57-58, 71, 73). Reproducing Matthias Jakob Schlieden’s (1804-1881) parody, he concludes, “Darwinism is forever like the lunatic, looking for his pig to appear” (Nisbet, 1881:68). That said, he does not reject evolution on any biblical grounds. Nisbet (1881:48-49) believes that Genesis 1-2 is flexible enough, in theory, to embrace Darwinism as the means by which God made his world.

6.3.26 Thomas Whitelaw (1840-1917)

In the first sentence of Thomas Whitelaw's (1881:1) pulpit commentary, he states that Genesis 1 should not be taken as history. In the next sentence, he denies Genesis 1 any scientific value (Whitelaw, 1881:1). Being neither historical nor scientific, Whitelaw (1881:1, 15) argues that the purpose of the hexaemeron is found in its "religious truth". But, like Nisbet, this stance does not preclude him from asserting at the same time the various ways in which Genesis has been corroborated by modern science, in particular, Laplace's nebular hypothesis, hydrodynamics and geology (Whitelaw, 1881:5). In his comments on Genesis 1:14-15, he praises the "scientific accuracy" of the text in its description of the "celestial luminaries" (Whitelaw, 1881:21). He even finds in Genesis 1:24 sufficient grounds to reject the opinions of "modern evolutionists" concerning the evolution of animals (Whitelaw, 1881:29).

The determining factor relies entirely upon the perceived credibility of the science. For example, because astronomy and geology attests to millions of years, Whitelaw (1881:6, 12-13) follows the science, subjecting the six days to a scientific hermeneutic.⁵⁴ Again, the scope of Noah's flood cannot be universal, even though the text "depict[s] a complete submergence of the globe", because Whitelaw (1881:100, 118-11) is convinced, on scientific grounds, that the required species of animals could never be accommodated by the ark (Whitelaw, 1881:100, 118-119). In other cases, the meaning assigned to a particular verse is almost entirely resolved by scientific authorities. Notice, for example, his reliance upon physicists to expound the true sense of Genesis 1:3,

As to how the light of incandescent bodies is transmitted to the eye, the Pythagorean and Newtonian theory of small, impalpable particles of luminous matter being constantly emitted from their surfaces towards the eye may be said to have been successfully displaced by that of Descartes, Huygens, and Euler, which accounts for the phenomena of vision by the existence throughout space, and in the interstitial spaces of bodies, of an infinitely attenuated *ether*, which is thrown into undulations by luminous bodies precisely as the atmosphere is made to vibrate by bodies which are sonorous. (Whitelaw, 1881:10)

This kind of rationale exemplifies what Kuhn (1996:43-51, 77-91) has in mind when he discusses the power of a prevailing paradigm. Wherever the scientific evidence is "too powerful to be resisted", the interpretation adopted must be shaped to fit the science (Whitelaw, 1881:31). Indeed, Whitelaw (1881:18) decides that the "modern dogma of the origin of species by development" is unbiblical because "it has not yet been *proved* to be scientific" (emphasis in original). The understanding seems to be that if evolution were proved upon scientific grounds, it would cease to be unbiblical. Genesis 1-11, therefore, must conform to the established scientific consensus of the day.

After Genesis 1, Whitelaw's (1881:41-42, 44-45, 47, 57, 87) interpretation mostly upholds the literal sense of the text, affirming Adam and Eve to be the first human beings in a literal Eden, in which they were accosted by a real serpent possessed by Satan. He also takes the genealogy in chapter 5 at face value, accepting the longevity of the prediluvian patriarchs (Whitelaw, 1881:94). Similarly, the table of nations in

⁵⁴ Whitelaw (1881:2), like Nisbet, prefers Kurtz's vision theory of the six days.

chapter 10 is treated as bona fide history along with the dispersion of people groups from Babel in chapter 11 (Whitelaw, 1881:155, 167).

In addition to all the scientific authorities cited, George Smith's (1840-1876) *Chaldean Genesis* (1840-1876) also features prominently in Whitelaw's commentary (1881:4-5, 19, 23, 52-53, 59-60, 166). As we will see, in subsequent commentaries this fascination with alternative creation myths continues to increase as commentators to employ comparative analyses in their exposition of Genesis 1-11.

6.3.27 Christian Friedrich August Dillmann (1823-1894)

August Dillmann's (1875:v-vi) first commentary on Genesis, published in 1875, was mostly a revision of August Wilhelm Knobel's (1807-1863) own exposition, *Die Genesis*, from 1852-1860. Dillmann (1882:v-vi) eventually became dissatisfied with Knobel's approach⁵⁵ and decided to publish his own thoughts on Genesis in 1882.

Christian Dillmann (1897:7-8), following the German school, endorses Wellhausen's documentary hypothesis. Genesis 1-11 is taken to be a heavily redacted compilation of ancient legends and myths passed down imperfectly through the ages (Dillmann, 1897:9, 19-21, 28, 42, 99-100, 144, 231, 250, 256, 387). The resulting product portrays a "naïve", "childlike view of the universe" fraught with inconsistencies, contradictions and corruptions (Dillmann, 1897:15, 42, 81, 132, 136). Whatever purpose Genesis 1-11 might hold,⁵⁶ it retains very little, if any, historical value (Dillmann, 1897: 44, 47, 103). Not surprisingly, Dillmann (1897:45-47, 30, 74) sees no point in trying to compare, let alone reconcile, Genesis with geology or astronomy. If anything, the record attributed to Moses depicts the gross ignorance of a bygone generation (Dillmann, 1897:44).

Having abandoned any need to establish the veracity of the account in light of modern science, Dillmann discusses the authorial intent of the text without concern for the scientific credibility of the narrative. On this premise, the literary form of the hexaemeron requires the six days to be understood according to their ordinary sense (Dillmann, 1897:64-65). Likewise, the sun, moon and stars must be created on the fourth day (Dillmann, 1897:71). Any objection raised concerning the diet of carnivores before the fall is considered equally inappropriate because such "difficulties" would never have occurred to the original author of the text (Dillmann, 1897:88). Dillmann (1897:254-255) stresses that the flood has nothing to do with "geological *diluvial*" and, if based on an actual event, would be limited in scope because of the "narrow geographical range of vision possessed by the ancient Hebrews".

6.3.28 Joseph Samuel Exell (1849-1910) and Thomas Henry Leale (1838-1913)

In their *homiletical commentary on the book of Genesis* (1885), Joseph Exell and Thomas Leale (1885:7, 12-13) placate the historical sciences by employing both the gap theory and day-age theory. Unlike Dillmann,

⁵⁵ This was not because Knobel was any more conservative than Dillmann. Indeed, Knobel (1852:v-vi, xviii) also embraced a version of the documentary hypothesis and believed that most of Genesis 1-11 was mythical.

⁵⁶ Dillmann (1897:42-43) believes the only value to be found in Genesis 1-11 is its theology.

they accept Genesis 1-11 as an historical account, but not without conceding that the earth may have existed for “myriads of ages” before humans appeared on the scene (Exell & Leale, 1885:1, 3-4, 7).

As a general principle of exegesis, Exell and Leale (1885:13) advocate a naturalistic approach to the text, pursuing, where possible, explanations that “follow the ordinary course of nature”. Thus, in their treatment of Genesis 5, the vast ages reached by antediluvians is attributed to “good constitutions”; “stalwart frames”; “pure blood”; a temperate climate and a superior diet (Exell & Leale, 1885:99). In Genesis 1:1, they even insist that the “true explanation” of this verse *must* comply with “geological discoveries” (Exell & Leale, 1885:14). Yet, when it comes to Darwinism, Genesis 1:11 is regarded as sufficient grounds to reject the idea *in toto* (Exell & Leale, 1885:17, 40). In this case, the literal sense of the text presides over and against a competing historical science.

Evidently, Exell and Leale are not as dogmatically committed to naturalistic interpretations as initially stated. The same inconsistency is found in their discussion on the flood, where Exell and Leale (1885:137) explicitly dismiss any interpretation that attempts to explain the text according to the “natural workings of physical laws”. Thus, the deluge⁵⁷ is regarded as a universal catastrophe despite Hitchcock’s objections (Exell & Leale, 1885:149). Also following the literal sense, Adam and Eve are regarded as the “two progenitors” of the human race; Eden is a real place; and the serpent a real creature (Exell & Leale, 1885:45-46, 53-54, 57-58, 90).

6.3.29 Joseph Parker (1830-1902)

Joseph Parker’s (1886:vii) commentary is intended for pastors. In his view, Genesis 1-11 only has religious value (Parker, 1886:123). Although Moses was inspired, he writes like an uneducated “little child” (Parker, 1886:127). Parker (1886:119, 124-125) finds ample room in Genesis 1 to accommodate both geological ages and the theory of evolution. He insists that the story of creation cannot be understood correctly without the help of astronomers and geologists (Parker, 1886:120, 124). Parker believes that only a small “segment” of the story is told in Genesis (Parker, 1886:120). Moreover, whatever Moses relates is exclusively theological in nature (Parker, 1886:124). Therefore, the only information which can be gleaned from the account is that God did it (Parker, 1886:103-110, 124-125). Consequently, Parker ignores most of the text in his exposition. For example, he calls any discussion of the talking serpent in Genesis 3 a “vain wrangling of words” and summarily dismisses the problem stating, “Evidently *something* has disagreed with the world” (Parker, 1886:132).

6.3.30 John William Burgon (1813-1888)

John Burgon’s commentary on Genesis 1 is written in response to Charles Pritchard’s (1808-1893) *The creation poem of Genesis* (1886). Burgon (1886:3, 6-7) takes issue with Pritchard for representing the Mosaic narrative as a “weak fabrication”, irreconcilable with modern science. Instead, he argues that the account

⁵⁷ Although the flood is treated historically, their exposition of the Ark is primarily concerned with the typological meaning of the story (Exell & Leale, 1885:118-125).

should be taken “quite literally” (Burgon, 1886:12). This means that the hexaemeron should be read as six ordinary days, “an actual week of days”, originating approximately 6000 years ago (Burgon, 1886:6, 12, 17, 19). But before this week, appropriating the the gap theory, Burgon (1886:5-8) inserts a period of “millions upon millions of years” into the “awful catastrophe” of Genesis 1:2. Thus, geology, palaeontology and astronomy establish facts that cannot be ignored in the interpretation of Scripture (Burgon, 1886:9, 22-23). Upon these grounds, he asserts that the sun has shone for millions of years before the first day of creation (Burgon, 1886:7-8, 10). Therefore, the fourth day records merely the first appearance of what had already existed for vast ages (Burgon, 1886:9-10). Yet, like Exell and Leale, when it comes to Darwin, science must submit to the text. The repeated refrain in Genesis 1, “after his kind”, is deemed a sufficient refutation of evolution (Burgon, 1886:12, 29). In other words, wherever the historical sciences are considered implausible, the biblical text is granted the final epistemic authority (Burgon, 1886:20). But where the historical sciences are believed to be “well-ascertained”, the Scriptures must be remoulded and shaped to fit the scientific parameters imposed upon it (Burgon, 1886:22-23).

6.3.31 Summary

During the Darwinian Revolution (1859-1886), there are only three commentators who contend for the literal sense of Genesis 1-11 (see table 6.4). More than half the commentaries utilise the gap theory and many continue to take the Mosaic days as periods of indefinite length. The partial flood theory also gains traction. As expected, Darwin is mentioned frequently in these commentaries, but only four commentators incorporate his views into their exposition.

Table 6.4 – The interpretation of Genesis 1-11 during the Darwinian Revolution

Publication Date	Author	Title	Interpretation
1854-1860	Edward W. Lane (1801-1876)	The genesis of the earth and of man: or the history of creation and the antiquity and races of mankind	vision-day theory, figurative, polygenism, partial flood (naturalistic)
1860	William H. Hoare (1809-1888)	The veracity of the book of Genesis with the life and character of the inspired historian	gap theory, vision-day theory, polygenism, partial flood (naturalistic)
1861	Carl F. Keil (1807-1888)	Biblischer commentar über das Alte Testament	literal
1861	Isaac Williams (1802-1865)	The beginning of the book of Genesis, with notes and reflections	gap theory, allegorical (naturalistic)
1861	Henry C. Groves (1822-1903)	A commentary on the book of Genesis	gap theory (naturalistic)
1862	John W. Colenso (1814-1883)	The Pentateuch and book of Joshua critically examined	legend (naturalistic)
1863	Robert Jamieson (1802-1880)	A commentary, critical and explanatory, on the Old and New Testaments: Genesis–Deuteronomy	nebular hypothesis, gap theory, partial flood (naturalistic)
1863	James G. Murphy (1808-1896)	A critical and exegetical commentary on the book of Genesis with a new translation	gap theory, partial flood (naturalistic)
1864	Henry A. Henry (1800-1879)	Discourses on the book of Genesis	literal (scientific)
1864	Melancthon W. Jacobus (1816-1876)	Notes, critical and explanatory on the book of Genesis	gap theory (naturalistic)
1864	Johann P. Lange (1802-1884)	Die Genesis: oder das erste Buch Mose	symbolic myth/legend, day-age theory, partial flood (naturalistic)
1865	Robert S. Candlish (1806-1873)	The book of Genesis expounded in a series of discourses	gap theory (naturalistic)

Table 6.4 (continued)

Publication Date	Author	Title	Interpretation
1866	John Quarry (1809-1899)	Genesis and its authorship: two dissertations	framework hypothesis, myth/legend, poetic, partial flood (naturalistic)
1868	Horatius Bonar (1808-1889)	Earth's morning: or, thoughts on Genesis	gap theory (naturalistic)
1868	Thomas J. Conant (1802-1891)	The book of Genesis: the common version revised for the American Bible Union with explanatory notes	day-age theory, symbolic (naturalistic)
1870	Joseph P. Thompson (1819-1879)	Man in Genesis and in geology: or the biblical account of man's creation tested by scientific theories of his origin and antiquity	nebular hypothesis, gap theory, day-age theory, polygenism, evolutionary (naturalistic)
1870	George Warrington (1840-1874)	The week of creation, or the cosmology of Genesis considered in its relation to modern science	anthropomorphic, evolutionary (naturalistic)
1872	Henry Alford (1810-1871)	The book of Genesis, and part of the book of Exodus	anthropomorphic, parabolic, symbolic (naturalistic)
1873	Edward H. Browne (1881-1891)	Genesis; or the first book of Moses	gap theory, vision-day theory, allegorical, partial flood (naturalistic)
1874	Jacob M. Hirschfelder (1819-1902)	The creation: being two lectures on the Mosaic account of the creation, as recorded in Genesis 1	gap theory (naturalistic)
1875	John M. Arnold (1817-1881)	Genesis and science: or the first leaves of the Bible	literal (scientific)
1875	Charles B. Warring (1825-1907)	The Mosaic account of creation, the miracle of to-day; or, new witnesses to the oneness of Genesis and science	nebular hypothesis, day-age theory, evolutionary (naturalistic)
1877	Frederick W. Robertson (1816-1853)	Notes on Genesis	moralistic, symbolic (naturalistic)
1879	John M. Gibson (1838-1921)	The ages before Moses	apocalyptic, symbolic, gap theory, day-age theory, partial flood (naturalistic)
1881	Ebenezer Nisbet (1826-1893)	The science of the day and Genesis	nebular hypothesis, vision-day theory (naturalistic)
1881	Thomas Whitelaw (1840-1917)	The pulpit commentary: Genesis	religious, nebular hypothesis, vision-day theory, partial flood, ANE (naturalistic)
1882-1892	Christian F. A. Dillmann (1823-1894)	Die Genesis	myth/legend, partial flood, ANE (naturalistic)
1885	Jacob M. Hirschfelder (1819-1902)	Biblical expositor and people's commentary: historical and critical commentary on the book of Genesis	gap theory, partial flood (naturalistic)
1885	Joseph S. Exell (1849-1910) Thomas H. Leale (1838-1913)	Homiletical commentary on the book of Genesis	gap theory, day-age theory (naturalistic)
1886	Joseph Parker (1830-1902)	The people's Bible: discourses upon Holy Scripture: the book of Genesis	religious, gap theory, day-age theory, evolutionary (naturalistic)
1886	John W. Burgon (1813-1888)	The first chapter of Genesis: a reply and a postscript	gap theory (naturalistic)

Almost all commentators adopt a naturalistic stance in relation to the historical sciences, allowing the established opinions of geologists, astronomers, palaeontologists and anthropologists to determine various aspects of the interpretation of Genesis 1-11. At least eight commentators reject or seriously question the historicity of Adam and Eve as the original progenitors of the human race.

In terms of new developments, the ANE⁵⁸ discoveries and translations provided by Archibald Sayce (1845-1933) and George Smith (1840-1876) along with the documentary hypothesis advanced by Julius Wellhausen (1844-1918) begin to convince commentators that Genesis is compiled from myths and legends. This is a trend that grows exponentially in the following years (1887-1910).

⁵⁸ i.e. Ancient Near East – referring in particular to the Assyro-Babylonian corpus that addresses events detailed in Genesis 1-11 like Epic of Gilgamesh which George Smith translated in 1872.

6.4 The mythologisation of Genesis (1887-1910)

After 1887, the idea of Genesis as myth becomes an increasingly popular viewpoint. From Delitzsch's highly-acclaimed commentary in 1887 through to the publication of Skinner's critical and exegetical commentary on Genesis in 1910 for the ICC series, the epistemic value of the Mosaic record is overwhelmed by the notion that these eleven chapters retain little to no historical value, but instead resemble other ancient legends and myths. This era was consumed by the mythologisation⁵⁹ of Genesis. To explore what happened during these years, the following twenty-three commentaries will be reviewed (see table 6.5).

Table 6.5 – Genesis commentaries from 1887 to 1910

Publication Date	Author	Nationality	Religion or denomination	Original title
1887	Franz Delitzsch (1813-1890)	German	Lutheran	Neuer Commentar Ueber die Genesis
1888	Edward Huntingford (1820-1905)	English	Anglican	Popular misconceptions about the first eleven chapters of Genesis
1891	Benjamin Wisner Bacon (1860-1932)	American	Congregationalist	The Genesis of Genesis: a study of the documentary sources of the first book of Moses in accordance with the results of critical science illustrating the presence of bibles within the Bible
1892	Edgar Innes Fripp (1861-1931)	English	Unitarian	The composition of the book of Genesis
1892	Herbert Edward Ryle (1856-1925)	English	Anglican	The early narratives of Genesis: a brief introduction to the study of Genesis I-XI
1892	John Doughty (1825-1893)	American	Swedenborgian	The parable of creation: being a presentation of the spiritual sense of the Mosaic narrative as contained in the first chapter of Genesis
1893	Peter E. Kipp (1847-1900)	American	Presbyterian	Is Moses scientific? First chapter of Genesis tested by latest discoveries of science
1894	John D. Davis (1854-1926)	American	Presbyterian	Genesis and semitic tradition
1894	Charles W. E. Body (1851-1912)	American	Episcopalian	The permanent value of the book of Genesis: as an integral part of the Christian revelation
1896	George Woosung Wade (1858-1941)	English	Anglican	The book of Genesis: edited with introduction, critical analysis and notes
1897	Warren Raymond Perce (1843-1914)	American	Presbyterian	Genesis and modern science
1897	John Cynddylan Jones (1841-1930)	Welsh	Calvinistic Methodist	Primeval revelation: studies in Genesis I-VIII
1900	Fred W. Grant (1834-1902)	English/ Canadian/ American	Anglican/Plymouth Brethren	Genesis in the light of the New Testament
1901	Elwood Worcester (1862-1940)	American	Episcopalian	The book of Genesis in the light of modern knowledge
1901	Henry B. Pratt (1832-1912)	American (Spanish)	Presbyterian	Estudios sobre el Libro del Genesis
1901-1910	Hermann Gunkel (1862-1932)	German	Lutheran	Die sagen der Genesis
1904	Samuel Rolles Driver (1846-1914)	English	Anglican	The book of Genesis: with introduction and notes
1904	William H. Bennett (1855-1920)	English	Congregationalist	Genesis: introduction; revised version with notes, giving an analysis showing from which of the original documents each portion of the text is taken; index and map

⁵⁹ By “mythologisation” I refer to the tendency to treat Genesis as an ancient work of religiously-motivated folklore akin to that of the Sumerian, Babylonian, Greek, Roman, Celtic and Hittite mythologies. I include both the categories of “legend” and “myth” within this rubric., recognising that whilst “legend” points to a forgotten history behind the text, that history is essentially lost and therefore the narrative obtains the same historical value as for “myth”.

Table 6.5 (continued)

Publication Date	Author	Nationality	Religion or denomination	Original title
1907	Ellen Mary Knox (1858-1924)	Canadian	Anglican	Bible lessons for schools: Genesis
1907	Alex Reid Gordon (1872-1930)	Scottish	United Free Church of Scotland	The early traditions of Genesis
1909	Calvin Goodspeed (1842-1912) Daniel M. Welton (1831-1904)	American	Baptist	The book of Genesis
1909	Hinckley G. Mitchell (1846-1920)	American	Methodist	Genesis
1910	John Skinner (1851-1925)	Scottish	Free Church of Scotland	A critical and exegetical commentary on Genesis

As before, to demonstrate the global and interdenominational nature of these trends, commentaries have been selected from America, Canada, England, Wales, Scotland and Germany representing Presbyterian, Anglican, Lutheran, Baptist, Methodist, Episcopalian, Brethren, Congregationalist and even Swedenborgian traditions.

6.4.1 Franz Delitzsch (1813-1890)

As mentioned earlier,⁶⁰ from 1861 to 1875, Keil and Delitzsch collaborated on a very popular and influential Old Testament commentary series, that affirmed a literal interpretation of Genesis 1-11. For this period, it was an exceptionally conservative commentary. But by 1888, in the 5th edition of his own *Die Genesis ausgelegt* (1852),⁶¹ Delitzsch had further distanced himself from Keil by embracing an even more critical stance towards the Mosaic narrative. In particular, Delitzsch (1888:1, 26-28, 58-59, 67) had come to accept the documentary hypothesis. This leads him to view the “child-like” narrative as less than history and more like a fragmented record passed down from antiquity via various traditions (Delitzsch, 1888:111, 148, 157, 190). Seeking to preserve some reverence for the Scriptures, he insists that the account has had its “mythological tinsel” stripped from it, but not enough to rise above the realm of “popular legends” (Delitzsch, 1888:148, 151). That said, Delitzsch (1888:58, 115) never goes so far as to reject the historicity of Adam and Eve as the first human pair. But all other details relating to them should not be taken literally (Delitzsch, 1888:148-150). He even places the Assyro-Babylonian account of creation alongside that of Genesis, claiming that they both originate from an older common source (Delitzsch, 1888:151, 252).

Following MacDonald and the Canadian geologist, John William Dawson (1820-1899), Delitzsch (1888:84) asserts that the six days of creation should be taken as six aeons. In the same way, he rejects the possibility of a global flood for geological and palaeontological reasons (Delitzsch, 1888:243, 270, 248, 262). Thus, Delitzsch’s mythologisation of Genesis is definitively shaped by the science of his day.

⁶⁰ See discussion on Keil and Delitzsch’s commentary in section 6.3.3.

⁶¹ See discussion on Delitzsch’s earlier commentary in section 6.2.15.

6.4.2 Edward Huntingford (1820-1905)

The trend to ascribe Genesis 1-11 to the realm of mythology continues with Edward Huntingford. In this case, Huntingford (1888:xii, xv-xvii) rejects the documentary hypothesis, but he still views Genesis as an amalgamation of several legends. In general, he believes that the Bible should not be taken as an infallible record, but rather final product of various ignorant writers attempting to provide an honest account of what they thought to be true (Huntingford, 1888:12-14, 20). This is particularly the case when it comes to science. According to Huntingford (1888:14), Genesis has nothing to offer science. The first chapter of Genesis is also “not real history”, but instead should be taken as a “sublime drama” (Huntingford, 1888:19, 22-23, 26, 29, 32). Whether the second and third chapters of Genesis are literal or allegorical, Huntingford (1888:34, 46, 52-53, 55-56, 58, 69) cannot decide, nor does he believe it matters either way. The fourth chapter is treated more in line with the historical sense (Huntingford, 1888:74-85). But Genesis 5 is judged to be chronologically unreliable on the grounds that it is more likely that copyists grossly exaggerated the numbers listed than to believe that some men actually lived for hundreds of years (Huntingford, 1888:87).

Geology has great authority over Huntingford’s exposition. It convinces him that God did not make the world in six days and that the antiquity of man is more ancient than Genesis suggests (Huntingford, 1888:5, 23, 25, 36). It also compels him to reject the possibility of a global flood, despite the fact that “scarcely one reader in a thousand” would deny that Genesis 6-8 depicts a catastrophe affecting the entire planet (Huntingford, 1888:90, 95). To explain the dissonance between these chapters and the historical sciences, he claims that Moses incorrectly inferred from his limited understanding of “geography and natural history” that the whole world was flooded (Huntingford, 1888:95-96).

When it comes to Darwinism, Huntingford (1888:36, 41, 212-213) thinks it probable but is sceptical of human evolution, calling it a “modern fiction” that man evolved from some ape-like ancestor. Yet, at the same time, he is quick to point out that if evolution is eventually proved to be true, it would be perfectly compatible with Genesis (Huntingford, 1888:214, 227). Significantly, Huntingford (1888:214) argues that evolution can be reconciled with Genesis 1 “once we give up the literal interpretation of the natural days.” Thus, the accommodation of evolution into the Mosaic record is strongly tied to the rejection of the literal interpretation of בְּיָמֵי in the hexaemeron.

6.4.3 Benjamin Wisner Bacon (1860-1932)

Benjamin Bacon (1892:335-350), like Huntingford, believes that Genesis 1-11 is essentially mythological in origin, being compiled and modified by later redactors from which it derives its final form. But unlike Huntingford, Bacon (1892:ix-xiii, 1-94) embraces the documentary hypothesis and higher criticism to explain the “genesis of Genesis”. He states that the Bible is filled with the “mistakes of copyists”, but it is still retains some “divine element” (Bacon, 1892:2). In terms of the presumed mythological origins of the text, Bacon (1892:338) states that the tree of life is “common property in Oriental folk-lore”. Genesis 2

and the Babylonian story are said to come from a “common stock” (Bacon, 1892:339). The story of Cain killing his brother and founding a city is attributed to the “union of two ancient myths” (Bacon, 1892:340). In the end, Bacon (1892:335-350) offers very little commentary on the interpretation of Genesis 1-11 or how it might relate to the historical sciences,⁶² being mainly concerned with exploring how the document relates to the Assyro-Chaldean records and other supposed sources.

6.4.4 Edgar Innes Fripp (1861-1931)

The mythologisation of Genesis continues with Edgar Fripp. Also following the documentary hypothesis, Fripp (1892:1-21, 23-41) argues that the first eleven chapters rightly belong to the realm of mythology. He suggests that the text betrays an “obvious dependence” upon the “Chaldean originals” (Fripp, 1892:37-38). Fripp, like Bacon, sees no point in comparing the creation narrative with any historical sciences. Once Genesis is myth, any discussion on how the text might relate to science becomes nonsensical.

6.4.5 Herbert Edward Ryle (1856-1925)

In the same vein as the last three commentaries reviewed, Herbert Ryle (1912:2, 4-5, 10, 30, 37, 44-45, 54, 66, 94-95, 129) embraces the documentary hypothesis, viewing Genesis 1-11 as a compilation of prehistoric legends “coloured by primitive mythology”. His hermeneutical approach rests predominantly upon a comparative study of Assyro-Babylonian legends via the works of Smith, Sayce and Schrader (Ryle, 1912:7, 9, 14-16, 17, 21).

Ryle (1912:9, 24-26) is dismissive of the day-age theory and the reinterpretation of Genesis 1:14-19 according to the nebular hypothesis because they advocate a “non-natural metaphorical exegesis” of the text. This kind of explanation, he reasons, would never have entered the mind of an “ancient Israelite” and only gained popularity after the “discoveries of modern science” (Ryle, 1912:26). Moreover, as a means of reconciling the creation story with scientific facts, it fails (Ryle, 1912:26). Instead, Ryle (1912:viii, ix, 64, 112, 128) advises biblical scholars to sit at the feet of anthropologists, physiologists, geologists and astronomers who can teach them how to correctly interpret the first eleven chapters of Genesis.

For Ryle (1912:10), modern science proves the ignorance of those who first read the stories in Genesis 1-11. Citing the opinions of physiologists, he rejects the historicity of Genesis 5, calling the genealogy “exaggerated” and a “fragmentary and disjointed” account from “primitive legends” (Ryle, 1912:81-82, 85, 87-88). Ryle (1912:87) does not hide where his ultimate authority lies: “The study of science precludes the possibility of such figures being literally correct.” Likewise, geology proves that the flood narrative is equally exaggerated, betraying its dependence upon “primitive tradition” (Ryle, 1912:112). Essentially, Genesis 1-11 is treated as typical mythology.

⁶² Judging from his overall approach to Genesis 1-11, it is evident that he would find little meaning in comparing these chapters with the findings of modern science.

6.4.6 John Doughty (1825-1893)

Exhibiting a slight deviation from the trend, whilst John Doughty (1892:15) believes that Genesis 1-11 was compiled from other ancient sources, he nevertheless ascribes the final document to Moses. Adopting a Swedenborgian interpretation of the Bible, Doughty (1892:11-12, 14-16, 78) insists that it should not be interpreted literally and was never intended to teach history, geography, geology, cosmogony or any other science. Genesis 1 is therefore taken as a “parable of regeneration” (Doughty, 1892:14-16, 73, 104). The six days are the six stages through which God perfects man (Doughty, 1892:19, 150-151). Genesis 1:1 describes the creation of the “spiritual nature”; the earth is symbolic for the “natural mind”; the creation of light is mental enlightenment; and the beasts of the earth symbolise “spiritual affections” (Doughty, 1892:23-24, 25, 28, 134). Those who try to explain, according to the literal sense, how light might exist before the sun contradict reason and the “facts of known science” (Doughty, 1892:84-85). Doughty might not refer to the Genesis text as a myth, but it still holds little to no historical value.

6.4.7 Peter E. Kipp (1847-1900)

Peter Kipp’s commentary on Genesis provides another exception to the overarching trend of this age. He does not try to construe the text as mythology or legend. Instead, Kipp (1893:104, 146) answers the question, “Is Moses scientific?” in the affirmative. Genesis 1 is lauded as the “Apostle’s creed of science” (Kipp, 1893:29). Strangely enough, this does not mean that the Mosaic record should be taken as history (Kipp, 1893:15). In his own words, the text should be understood as “prophecy turned backward” (Kipp, 1893:15). Following William Henry Green (1824-1900), Kipp (1893:219-220, 223) argues that the genealogies in Genesis 1-11 cannot be used for chronological purposes. Even the dates of Egyptologists are preferred over biblical chronology (Kidd, 1893:223-224). But as a scientific document, Kipp (1893:10, 12, 20, 141) repeatedly maintains, *contra* Draper, that there is “perfect agreement between Genesis and science”.

To demonstrate this claim, Kipp (1893:10, 202) applies a scientific hermeneutic to Genesis 1. Laplace’s nebular hypothesis and vast geological ages are undeniable facts (Kipp, 1893:39, 42-44, 95). Therefore the days of Genesis must be taken as indefinite periods of time, even though the text suggests “natural days” (Kipp, 1893:31-36, 67, 199). The earth apparently originates from the sun, which means that the fourth day describes merely the appearance of the sun, moon and stars (Kipp, 1893:117-118, 121). Based upon his zoological understanding of “ferocious and carnivorous” animals, he infers that Eden would have been a dangerous place had these creatures occupied the same region (Kipp, 1893:172-173). This problem is solved by appealing to palaeontology which asserts that many of these animals were already extinct before man arrived on the scene (Kipp, 1893:174). Kipp (1893:175-176) finds no incongruity with the existence of death and suffering in a pre-fallen world. Kipp (1893:204, 206, 209-210, 214) also finds no inherent problem, exegetically or theologically, with God using evolution as his means of creation. Like

Huntingford, he is hesitant to ascribe the origin of man to Darwin's evolutionary framework, but agrees with Lyell that man is of greater antiquity than that suggested by Genesis 1-11 (Kipp, 1893:216-232).

6.4.8 John D. Davis (1854-1926)

John Davis's commentary in 1894 reinforces the trend of mythologisation. Like Bacon and Fripp, Davis (1894:iii) is enamoured by Smith's recovery of the Assyro-Babylonian corpus and its similarities to Genesis 1-11. Believing that the creation story shares a common literary ancestor with the Babylonian myths, Davis (1894:9-10, 21, 40, 50, 120, 129-130) assigns most of Genesis 1-11 to the realm of legend. Comparing Genesis 1 with its supposed Babylonian cousin, Davis (1894:18) is led to believe that the days of creation should be understood as indefinite periods of time. To bolster his case, he cites the recent genealogical theory of Green and the opinions of Augustine (Davis, 1894:16-17).

Davis (1894:50-53, 73) believes the creation of Adam and Eve and their interactions with the serpent should be understood symbolically and recognised as a "poetic composition". When it comes to the flood, he is confident that the story is not a myth but based on a "foundation of fact" (Davis, 1894:120, 123). But Davis (1894:130-131) does not believe that the biblical text or extrabiblical traditions establish the deluge as a universal catastrophe. He also denies that the origin of all languages can be attributed to the Babel event (Davis, 1894:149-150).

6.4.9 Charles William Edmond Body (1851-1912)

Charles Body shares Davis's general disposition towards the text. In his efforts to reestablish the "permanent value" of Genesis, he finds in the first eleven chapters examples of "mythological idealization" and other legends (Body, 1894:59, 113, 185, 191). That said, Body (1894:166) is careful to distinguish Genesis from its Babylonian cousin, pointing out that the Scriptural account exhibits a "purer monotheistic conception" in comparison to the pagan records which are permeated by polytheistic mythology.

Body (1894:19-20, 30-31) is an advocate of the documentary hypothesis and German higher criticism. As long as God oversaw the process of redaction and compilation, he believes that the authorship and origin of Genesis is immaterial (Body, 1894:26-27, 156). Body (1894:33) also argues that there is a "rich treasure of [God's] truth" to be mined from the Assyro-Babylonian literature in assisting the exposition of Genesis 1-11. Referring to Sayce's observations in *The "higher criticism" and the verdict of the monuments* (1894),⁶³ he compares the Genesis record with the Sumerian epic (Body, 1894:103-116, 165-174, 184-185). In his view, both the Hebraic and Sumerian records share a common origin (Body, 1894:103-116, 165-174, 184-185).

Although Genesis 1 has nothing to offer science, Body (1894:15-16, 92-93) considers evolution to be a friend to theologians and expositors, "enrich[ing] theology with deeper and grander views of teleology".

⁶³ This research builds upon Smith's *Chaldean account of Genesis* (1876).

Overall, he insists that Genesis 1-11 is not a compilation of “cunningly devised fables” (Body, 1894:200). Instead, there is a tentative assumption that the narrative may be based upon factual events⁶⁴ (Body, 1894:82). For interpretation, he relies heavily upon the commentaries of Augustine and Chrysostom, who allow him to depart from the literal sense of the text (Body, 1894: 44, 93, 96-97, 117, 123-124 136-137, 139).

6.4.10 George Woosung Wade (1858-1941)

George Wade (1896:26, 34-36, 41) also believes that Genesis 1-11 resembles the myths and fables of other nations. These eleven chapters are in no way to be trusted scientifically or historically (Wade, 1896:6-7, 10, 16, 27, 33, 37-39). Wade’s (1896:33, 37-38) cosmogony affirms the nebular hypothesis, vast geological epochs, and the gradual evolution of man from a “state of utter savagery.” If Genesis 1-3 is true, it is only “true to moral experience” (Wade, 1896:38). As an account of “actual events” it is worthless and “out of date” (Wade, 1896:39-40). Wade (1896:3-26, 34-36, 41) also joins the spate of commentators who subscribe to the documentary hypothesis and draw upon the Chaldean records for insight into how to interpret the creation, fall and flood narratives.

6.4.11 Warren Raymond Perce (1843-1914)

Departing from the mythologisation of Genesis 1-11, Warren Perce (1897:1) denies the supposition that these chapters arose from the compilation of various “Semitic traditions”. Neither does he view the Mosaic narrative as historically and scientifically irrelevant. Perce (1897:2) asserts that the Bible is true in everything it states, “whether in history, science, ethics or theology.” Therefore he sets out to demonstrate the “scientific accuracy” of Genesis (Perce, 1897:3, 45, 221-222).

To achieve this end, Perce devotes most of his attention to the exposition of scientific journals rather than the exposition of Genesis 1-11.⁶⁵ His interpretation of these eleven chapters is directly informed by studies in geology, palaeontology, astronomy, chemistry, botany, zoology, evolution, anthropology and archaeology. His scientific hermeneutic is amply summarised in a quote from Alexander Winchell’s (1824-1891) *Adamites and Preadamites: or, a popular discussion* (1878):

The pretense [*sic*] that the Bible must be interpreted grammatically and Hebraically, without scientific aids, is an implicit denial of its divine inspiration, and is one of those self-destructive

⁶⁴ Notably, he points out, in the account of the flood, that the “inspired writer” does not intend to impart “correct historical information” to his readers (Body, 1894:179).

⁶⁵ Perce’s understanding of Genesis 1-11 is unquestionably shaped by the many scientists he cites: Lyell, Laplace, Hough, Herschel, Leibnitz, Kant, Le Conte, Mayer, Helmholtz, Green, G. Darwin, Barnard, Olbers, Mattison, Patteron, Secchi, Copernicus, Newton, Priestley, Hunt, Logan, Winslow, Adhemar, Croll, Thomson, A. Smith, Gray, Ball, Nordenskjöld, Keerl, Reclus, Humboldt, Hooker, C. Darwin, Agassiz, Hartt, Dana, Newberry, Croll, Cassini, Bianchini, Schröter, Proctor, Schiaparelli, Tacchini, Lowell, See, Mangin, Klee, Bourchepon, Drayson, Bell, Warring, Kingsley, Linnaeus, Richeraud, Blainville, Spencer, Lewes, Holmes, Dewey, Murchison, Hutton, Carpenter, Forbes, la Beche, Huxley, Kuntze, Saporta, Heer, Tenney, Leunis, Figuier, Buffon, Cuvier, Lamarck, Prestwich, Marsh, Berthoud, Lubbock, Topinard, Whitney, Lenormant, Wallace, Laing, Quatrefages, Fraissent, Warren, Bunsen, Dawson, Rawlinson, Pritchard, Latham, Orton, Packard, Scribner, Belcher, Van Baer, Mann, Giekie, Newcomb, Shaler, Whewell, Salter, Babbage, Winslow and Hutchinson. Of these, Dana features most prominently in the discussion (Perce, 1897:10, 77-78, 86, 122-123, 134, 149-150, 166, 181-186, 195-196, 203, 227, 230, 235, 239, 256-258, 263-264, 272, 288, 323-324).

claims which a blind faith is ever setting up against the demands of common sense. (Perce, 1897:333)

Following this course of action, Perce (1897:6) immediately recognises the “very evident contradiction between science and the Bible” when it comes to the days of creation.⁶⁶ To resolve this conflict, he dismisses Miller’s version of the day-age theory, Kurtz’s vision theory, all flood geologies that purport to explain the fossil record, Buckland’s gap theory, along with the idea that Genesis 1 should be restricted to an isolated region on earth, allegedly within central Asia (Perce, 1897: 8-13).

Perce’s (1897:16) solution is to question whether the first seven days of the world constitute a week. He argues that the first three days, whilst encompassing a time period from morning till evening, are indefinitely long amounting to “myriads of years” whilst the universe evolved from a nebulous gas (Perce, 1897:53, 56-57). Only on the fourth day is the twenty-four hour period instated (Perce, 1897:177). Put simply, his proposal is merely a variant of the day-age theory.

Following Laplace, Perce (1897:34-35, 171-172) does not believe that the sun, moon and stars were created on the fourth day. Darwinism is accepted in part, granting the evolution of species, but not genera (Perce, 1897:229, 233). Perce (1897:239-240, 309) does not accept the genealogies in Genesis 5 and 10 at face value.⁶⁷ Mankind must be of greater antiquity. He even suggests that these genealogies, if sufficiently lengthened, might be a means of providing greater reconciliation between Genesis and Darwin (Perce, 1897:309).

Surprisingly, perhaps, Perce (1897:252, 278, 281, 297-298) makes the case for a universal deluge, presenting both exegetical and scientific arguments in support. He claims that the partial flood theory creates more geological problems than a global flood (Perce, 1897:295).

6.4.12 John Cynddylan Jones (1841-1930)

John Jones (1897:47, 72-75, 207) believes that the first three chapters of Genesis are pictorial and poetic. Although they are presented in a mythical and legendary form, he affirms their historical trustworthiness (1897:vii, 9, 208, 161-162, 183, 199, 205-206, 210, 230-231). But as to what history these chapters specifically communicate, he is intentionally vague – as a poet, Moses does not need to define his terms (Jones, 1897:73). The kind of history found in Genesis 1-3 is to be distinguished from secular histories (Jones, 1897:67). His point is this: if someone wants to study the history of creation, they should refer to “natural history” and “Nature’s autobiography” instead (Jones, 1897:67).

That said, Jones (1897:68) also views the historical sciences as errant and incomplete. For this reason, efforts to harmonise Genesis with astronomy, geology and palaeontology are pointless (Jones, 1897:68-72). But Jones (1897:81) then goes on to claim that Genesis 1 does indeed resemble “in general outline,

⁶⁶ The quandary has geological underpinnings. Perce (1897:17) asks how anyone could think that 100 000 feet of sediment could be deposited within merely “one hundred and forty-four hours.”

⁶⁷ Perce is particularly troubled by the longevity presented in Genesis 5. Here he suggests that the years given should be assigned to households, not persons (Perce, 1897:300-307).

the order promulgated by geological science”. He points out that modern science demonstrates Moses’s profound insight that light existed before the sun (Jones, 1897:95-96). This he offers as “cogent proof” of the “supernatural origin” of Genesis (Jones, 1897:97). Apparently, although Moses does not teach geology, he does teach astronomy (Jones, 1897:69-70). This scientific hermeneutic prevails in his handling of the fourth day of creation where, following Laplace, we are told that the sun, moon and stars were already created beforehand (Jones, 1897:98). Jones (1897:72, 78-79, 101) cites 2 Peter 3:8 as his rationale for interpreting the days of Genesis as millions of years, but the determining factor is his adherence to the nebular hypothesis and the “well-established facts of geology”.

Jones (1897:110) even suggests that Genesis 1 anticipates the theory of evolution. What he has in mind, however, is not the evolution promulgated by Darwin, but rather a supernatural type of evolution governed by God (Jones, 1897:122-123, 125, 127, 139-140, 143-145). When this is brought to bear upon Genesis 2:21-22, Jones (1897:184) asks, “Is not the Divine evolution of woman out of man quite as honourable as her undivine evolution out of a monkey?”

Jones (1897:180-273, 312) affirms the historicity of Adam and Eve, the serpent and the garden of Eden. He also accepts the literal sense of the genealogies given in Genesis 5 and 10, advising his readers that this “chronology may yet prove to be true” (Jones, 1897:200, 328). Jones (1897:355-357) accepts that the flood was a supernatural event, but restricts it to the region of Armenia. To those who raise scientific questions concerning the narrative, he states that the deluge should be understood according to the “laws of God”, not the “laws of nature” (Jones, 1897:357, 365).

6.4.13 Fred W. Grant (1834-1902)

Fred Grant’s commentary on Genesis bears a striking resemblance to commentaries from the early church fathers in that he cultivates a keen interest in the typology of the narrative. The tree of life, Adam, Abel, Noah and the ark are all types of Christ (Grant, 1912:21, 22, 26, 32). Even the flood is seen as a “type of the death of Christ.” (Grant, 1912:33).⁶⁸ But this does not negate the historical value of Genesis 1-11 which Grant (1912:2, 7, 13-14, 23) strongly affirms.

Setting him apart from the early church period, he adopts the gap theory⁶⁹ to accommodate the millions of years required by geology and palaeontology (Grant, 1912:17). Grant (1912:15) briefly mentions evolution, but dismisses it as scientifically problematic. Overall, he claims that the Mosaic record, far from being in conflict with modern science, has been confirmed by it (Grant, 1912:7-8, 17). He even states that geology proves that the world was deluged by a universal flood (Grant, 1912:10-11).

⁶⁸ The Holy Spirit is also typologically represented by the rivers in Eden and Noah’s dove (Grant, 1912:21-22, 34).

⁶⁹ Grant (1912:16) believes that Genesis 1:2 describes the time when Lucifer fell. This line of interpretation adds support to his contention in Genesis 6:1-4 that the sons of God really were angels (Grant, 1912, 29-30).

6.4.14 Elwood Worcester (1862-1940)

Reinforcing the mythologisation of Genesis, Elwood Worcester (1901:64, 67-68, 124, 131, 138-140, 164, 167, 184-185, 210, 212, 438, 460, 497) argues that the first eleven chapters of the Bible belong to the realm of myth. He believes that this is the only justifiable position given all the “scientific errors”, “strange repetitions, inconsistencies, and contradictions” in those eleven chapters (Worcester, 1901:4, 11, 25-28). Taken literally, the Genesis record would be scientifically absurd (Worcester, 1901:82-83).

In his examination into the origin of Genesis 1-11, he relies upon the documentary hypothesis, comparing the Mosaic narrative with various Assyro-Babylonian records, the “mythical history” of Romulus and Remus, the “old mythical legendary lore” of Homer, and even “Vedic hymns” (Worcester, 1901:10-14, 62-63, 65, 400-401, 410). Not surprisingly, Bishop Colenso is portrayed as a martyr for the “science of the Pentateuch” (Worcester, 1901:22).

Worcester’s (1901: 80, 84, 90, 165-166, 413) cosmogony embraces the nebular hypothesis, evolution and the consensus of contemporary geologists. To his mind, it is inconceivable that anyone would still believe in a global flood (Worcester, 1901:413). He states, “It would be a difficult task to discover any first-class theological or Biblical text-book written within the past ten years, which maintains the universality of Noah’s Flood” (Worcester, 1901:413).

6.4.15 Henry Barrington Pratt (1832-1912)

Worcester’s sentiment finds a similar expression in Henry Pratt (1906:7) who maintains that he does not know of any man who believes that God actually made the world in six days. Like Worcester, Pratt (1906:12) considers it a “vain endeavour” to attempt to harmonise Genesis with science. But, at the same time, Pratt (1906:10) contends that all scientists should “admire the accuracy” of Moses’ account of creation. This “accuracy” is achieved by interpreting Genesis 1 according to the nebular hypothesis, employing the gap theory, and Miller’s idea of the days being a series of visions (Pratt, 1906:2-3, 5-7, 13). His exposition of Genesis 1:2 details how matter condensed over millions of years⁷⁰ due to gravitation which, in turn, led to an increase in temperature, followed by a “rapid, gyratory movement” that precipitated “globes of fire” from the “mother sun” which eventually cooled down to form planets (Pratt, 1906:3-4).

Pratt (1906:12) reminds his readers that Moses did not intend to delineate the natural history of the universe. This task is left to the custodians of “modern science” for whom “indubitable certainty” remains (Pratt, 1906:2-3, 14). But when it comes to evolution, Pratt (1906:11) finds in Genesis 1:24-25 sufficient proof that such an idea is irreconcilable with the Mosaic record. Adam cannot be viewed as a son of some “four-handed beast” of the “monkey family” or, for that matter, that the son of God was the “son of an anthropoid ape” (Pratt, 1906:29). Thus, it must be understood that although “day” in Genesis

⁷⁰ Pratt (1906:1, 17, 20, 28, 30, 34, 70) reproduces Ussher’s date several times, but clearly ascribes this chronology only to the beginnings of mankind, not the universe.

1 does not preclude long geological ages; “according to its kind” definitively rules out the possibility of evolution.

Pratt (1906:87, 90, 96, 109) affirms the story of Noah and the ark, but keeps the flood localised. Assuming that the distribution of animals across the continents has remained the same throughout history, he argues that there could not have been sloths, kangaroos, elephants and tigers on the ark (Pratt, 1906:91-92). Yet, he concedes that Moses genuinely thought, albeit erroneously, of the flood as a universal event (Pratt, 1906:101). In this case, Moses is exonerated for his limited knowledge of geography, but if any modern man affirms the historicity of a global flood today, it is “arrant nonsense” (Pratt, 1906:101).

6.4.16 Hermann Gunkel (1862-1932)

The mythologisation continues with Herman Gunkel. Falling back upon the documentary hypothesis and the perceived influence of the Assyro-Babylonian records, Hermann Gunkel (1901:4, 12, 14, 18, 23, 69, 80, 90, 119-160) argues that Genesis is comprised of “primitive legends” conveyed through the ages via oral tradition “derived from myths”. He does not expect to find any authentic history in Genesis 1-11 because these chapters originate from a people who “more credulous than we are” who could only offer “childish” and “infantile” explanations for what they believed (Gunkel, 1901:8, 14, 25, 27, 73). Consequently, when Jesus and the apostles erroneously consider these stories to be “literal history”, they show that they merely share “the point of view of their time” (Gunkel, 1901:3). As evident in the following quote, Gunkel’s (1901:10) hermeneutic is thoroughly naturalistic:

In this world iron does not float and serpents do not speak; no god or angel appears like a person among other persons, but everything happens as we are used to seeing things happen.

Not surprisingly, he considers the events in Genesis 1-11 to be laughable when taken literally (Gunkel, 1901:7).

6.4.17 Samuel Rolles Driver (1846-1914)

Samuel Rolles Driver also believes that the first eleven chapters of the Bible are myth. In the first edition of his commentary on Genesis, published in 1904, Driver (1904:xi-xii), tipping his hat to Dillmann, also encourages a “critical and historical” approach to the text. In summary, Genesis 1-11 is presented within the framework of the documentary hypothesis,⁷¹ fraught with the typical inconsistencies, fabrications, factual errors, “foolish superstitions”, religious glosses and exaggerations (Driver, 1904: iv-xxv, xlvi-xlvii, lx, lxiv, lxxiii, 67, 79, 133). These chapters, therefore, retain “no historical value” (Driver, 1904:xxx, xliii, xlvi, lvii-lviii, lxi, 1, 133). The entire account is construed as legendary and mythological, the product of a scientifically illiterate people steeped in “Hebrew folk-lore” and oral tradition (Driver, 1904:lviii, lxxii, lxxiv, 9, 62). If there is anything left to commend in Genesis 1-11, it is to be found in the supposition that

⁷¹ In the tenth (and last) edition of his commentary, Driver (1916:xlii-xlix) becomes more critical of Wellhausen’s hypothesis and the dependence of Genesis upon Assyro-Babylonian tradition.

these early writers were presenting this history according to what they honestly believed to be true (Driver, 1904:xlīi).

Driver's (1904:xxxi-xlii, lxi) rejection of Genesis as history is heavily influenced by the opinions of Assyriologists, Egyptologists, philologists, anthropologists, ethnologists, archaeologists, astronomers, geologists and palaeontologists. He claims that modern science is completely irreconcilable with Genesis 1-11 (Driver, 1904:lxii). Geology has established without question the "immense antiquity of the earth" (Driver, 1904:19-20). The nebular hypothesis proves that Genesis 1 is astronomically erroneous (Driver, 1904:20, 25). Human beings likely evolved⁷² from some "anthropoid ancestors" in a state of "savagery" (Driver, 1904:32, 36). Genesis 1:30 is inconsistent with the "evidence of palaeontology" (Driver, 1904:17). Both pain and death existed in the world long before man arrived (Driver, 1904:36). The numbers in Genesis 5 are "certainly all artificial" (Driver, 1904:79). An actual universal flood would have required a "stupendous miracle" (Driver, 1904:100). Thus, overall, the "cosmogony of Genesis" is utterly antithetical to the "cosmogony of science" (Driver, 1904:33). Dismissing the day-age, gap and vision theories, he argues that all attempts to reinterpret the text to solve these problems fail exegetically and scientifically (Driver, 1904:xxviii, 20-23). Instead, following Smith and Sayce, he claims that Genesis should be understood in terms of its true origin: the Babylonian myths from which its cosmogony and folk-lore are derived (Driver, 1904:lxiii, 27, 30-31, 53, 103). The only value which Driver (1904:xxxi, xlii-xliii) preserves in Genesis 1-11 is its "moral and spiritual lessons".

6.4.18 William Henry Bennett (1855-1920)

William Bennett's commentary is very similar to Driver's. Both the documentary hypothesis and the Assyro-Babylonian myths feature strongly as interpretive keys to Genesis (Bennett, 1904:9-40, 45-48, 67-71, 95, 137, 168). Once again, Genesis 1-11 becomes a text filled with inconsistencies, omissions, obscurities and "obvious errors" due to "careless copying" and intentional scribal modifications (Bennett, 1904:99, 107, 114, 116, 119, 126-128, 159, 166). Consequently, Bennett's (1904:72) view of inspiration allows for factually incorrect statements, explained by the fact that the Holy Spirit does not override the naivety and ignorance of primitive peoples when it comes to the inscripturation of history.

Bennett (1904: 16-21, 48, 67-70) claims that most of the mythical elements borrowed from Assyria, Babylon and Egypt have been "carefully removed" by the redactors of Genesis. Yet, this does not alter the fact that the first eleven chapters retain enough myth, legend and folklore to be decidedly ahistorical and non-scientific (Bennett, 1904:72, 95, 103). Previous attempts to salvage scientific respect for the narrative are regarded as "ingenious but futile" (Bennett, 1904:128).

⁷² This confidence wains in the tenth (and final) edition of his commentary where Driver (1916:xxiv) expresses some reticence on the matter of evolution, preferring to leave the matter open for debate.

6.4.19 Ellen Mary Knox (1858-1924)

Ellen Mary Knox provides a break in the trend, writing a commentary that does not try to construe the Genesis record as myth or legend. Instead, pitching her book at a more popular level, Knox (1907:vi) deliberately avoids all “critical questions” in her succinct Bible lessons on the creation story. Knox (1907:26) affirms Mosaic authorship, but she believes that Moses adapted his account from the Chaldeans. Her main goal is to extract spiritual insight from the narrative, especially in the case of Genesis 1, which she describes as a “vision of Creation” (Knox, 1907:7). That said, she speaks of Adam and Eve as “our first parents” and Genesis 2-11 is treated as real history (Knox, 1907:7-8, 10, 13-16). Even in the case of Genesis 5 where Knox (1907:21) cannot account for the longevity of the patriarchs, she lets the literal sense stand.

6.4.20 Alex Reid Gordon (1872-1930)

Alex Gordon’s *The early traditions of Genesis* (1907) was published the same year as Knox’s commentary. But unlike Knox, he believes that Genesis 1-11 should be received as mythology. From the preface, Gordon (1907:vii, 5, 11-12, 50, 52-53, 56, 76, 123, 140) expressly states his intention to write within the “main trend of recent scholarship”, namely, to treat the narrative as a primitive myth. Being persuaded by Sayce, Friedrich Delitzsch (1850-1922)⁷³ and the “majority of Assyriologists”, he views the final form of Genesis 1-11 as a product of the documentary hypothesis, derived ultimately from “purer and more original” Babylonian legends and myths (Gordon, 1907:1-35, 38, 43, 46-50, 54-55, 58, 70). Taking the six days according to their literal sense, he maintains that the creation story was intended as a scientific account and is therefore representative of how the “primitive mind” once understood the origin of the universe (Gordon, 1907:79, 137). As to what value the Genesis record retains, he follows Bennett and Driver, describing these Scriptures as “naively anthropomorphic”, disjointed and fragmentary, inconsistent, contradictory, filled with discrepancies and “childish fancies” (Gordon, 1907:4-6, 8-10, 12, 14, 29, 126, 153, 229-230).

6.4.21 Calvin Goodspeed (1842-1912) and Daniel Morse Welton (1831-1904)

In 1909, Calvin Goodspeed and Daniel Welton co-author a commentary on Genesis that reinstates the text as more than mythology, but still less than history. In terms of the former, Goodspeed and Welton (1909:xi-xxxvii) are critical of higher criticism and the documentary hypothesis, arguing instead for the reinstatement of Moses as the true author of Genesis. This is a much more conservative commentary for this period, affirming Adam and Eve as the first human beings, Eden as a real place; Satan posing as literal serpent, along with the historicity of Noah’s ark and the flood (Goodspeed & Welton, 1909:52, 57-60, 62-65, 75, 84-88). But whilst Goodspeed and Welton (1909:39) state that Genesis 1 should not be

⁷³ Friedrich Delitzsch, the son of Franz Delitzsch, was a prominent German Assyriologist.

taken mythologically,⁷⁴ they also assert that the Mosaic account is neither history nor science. Indeed, nothing that Moses writes has any astronomical or geological relevance (Goodspeed & Welton, 1909:39). This does not discourage them, however, from quoting Dawson on how to understand Genesis 1:2 in strictly scientific terms involving the “vaporous or aeriform mass mantling the surface of our nascent planet” from which the atmosphere is later formed (Goodspeed & Welton, 1909:42).

Subscribing to the nebular hypothesis, they also attribute the light in Genesis 1:3 to the “luminous matter” of “our condensing planet” and “its sister planets” (Goodspeed & Welton, 1909:42). Likewise, following Conant, the days of creation become indefinite periods of time to leave room for the vast ages that have been “proved” by geology and the fossil record (Goodspeed & Welton, 1909:43-44, 46). Arguing zoologically, Goodspeed and Welton (1909:88) rule out the possibility of a global flood because of all the animals which would have to be housed on the ark. To drive their point home, they suggest that even fifty Arks could not accommodate all the species that would need to be preserved if the waters really did cover the whole earth (Goodspeed & Welton, 1909:88). Therefore, they conclude that it is only from Noah’s limited perspective that the deluge is thought to be universal in scope (Goodspeed & Welton, 1909:90). But Darwin’s evolutionary hypothesis is rejected: man is definitely not an “improved ape” (Goodspeed & Welton, 1909:58).

6.4.22 Hinckley Gilbert Mitchell (1846-1920)

Hinckley Mitchell reinforces the mythologisation of Genesis. Following Bacon, Mitchell (1901:1-70; 1909:4-25) attributes the origin of Genesis to the documentary hypothesis. He asserts that the first eleven chapters incorporate Assyro-Babylonian legends and myths,⁷⁵ contain copyist errors and misconceptions, presenting an account that is “greatly confused” in several places (Mitchell, 1909:47, 52, 77). None of Genesis 1-11 should be viewed as history. Instead it should be seen as a fallible, but decent, attempt to “explain the origin of the visible world” (Mitchell, 1909:29, 38). Having dismissed these chapters as uninspired and ahistorical, he points out that the author or compiler intended to convey a literal six-day creation along with a universal flood (Mitchell, 1909:38, 75).

6.4.23 John Skinner (1851-1925)

Finally, we come to the last commentary of this era. In 1910, John Skinner was commissioned to write a commentary on Genesis for the highly acclaimed *International Critical Commentary* (ICC) series, edited by Samuel Driver, Alfred Plummer (1841-1926) and Charles Briggs (1841-1913).

Building upon the work of Gunkel and Driver, Skinner’s (1910:VII-VIII) approach to the Mosaic record exemplifies the mythologising trend that pervades this age. To explain the genesis of Genesis, he appeals to the documentary hypothesis and various Babylonian, Assyrian, Phoenician, Indian, Persian, Arabian,

⁷⁴ Goodspeed and Welton (1909:39) acknowledge the commonality between Genesis 1-11 and the Assyro-Babylonian myths but are more inclined to view the Mosaic account as the original inspired source behind these other “corrupted traditions.”

⁷⁵ Informed by “modern science”, Mitchell (1909:38, 46-47, 66) refuses to believe that the first woman was made from a rib; that a serpent once spoke; or that there were men who once lived for hundreds of years.

Egyptian and pagan mythologies (Skinner, 1910:xvi, xxx-xxxi, xxxiv-lxvii, 2, 22, 31, 56, 92-93). The first eleven chapters of the Bible end up as an inextricable mixture of legends, myths and oral traditions, fabricated from “pure imagination”, filled with inconsistencies, factual errors and exaggerations (Skinner, 1910:v-vi, 2, 5, 51, 59, 129). Skinner (1910:v, 62, 128, 165, 228) does not hesitate to assert that the scientific errors expressed in the narrative faithfully represent the genuinely-held opinions of the “primitive” Hebrews.

To his modern audience, Skinner (1910:vi-vii, 5) states that “no person of educated intelligence” would accept the creation narrative as literal history or scientifically credible. Indeed, so incredible are the stories related in Genesis 1-11, he cannot conceive of how any “appeal to miracle” would be able to justify them (Skinner, 1910:vi). The idea that Genesis might retain some historical value is considered a “suicidal error in exegesis” (Skinner, 1910:viii). Instead, the only kernel of truth to be found in these chapters is restricted to its “religious content” (Skinner, 1910:229).

Skinner’s work, although published in 1910, is rated today amongst the top fifty commentaries written on Genesis (Dyer, 2023). Longman III (2013:24) claims that Skinner’s treatment “represents the best of the turn-of-the-century critical thought.” Gordon Wenham (1987:xix, 12, 16, 27, 33, 56, 75, 80, 83, 95, 97, 104, 113, 141, 143, 154, 179, 181, 189, 190, 202, 203, 222, 228, 250, 266, 277, 285, 286, 289, 297, 326), whose two volume set is still regarded as the best commentary on Genesis to date, cites Skinner repeatedly throughout his exposition of the first fifteen chapters of Genesis (Dyer, 2023).

6.4.24 Summary

From 1887 to 1910 there are no commentaries that accept Genesis 1-11 as literal history (see table 6.6). Instead, of the twenty-three commentaries reviewed, fifteen treat these chapters as either myth or legend. Most commentators reject Adam and Eve as the first parents of the human race. Only one commentator in this list continues to maintain the historicity of a global flood. In most cases, these conclusions can be attributed to a naturalistic bias, the adoption of the documentary hypothesis and the belief that Genesis 1-11 must be explained in light of traditions recovered from the ancient Near East.

Table 6.6 – The mythologisation of Genesis 1-11 from 1887 to 1910

Publication Date	Author	Title	Interpretation
1887	Franz Delitzsch (1813-1890)	Neuer Commentar Ueber die Genesis	legend, day-age theory, partial flood, ANE (naturalistic)
1888	Edward Huntingford (1820-1905)	Popular misconceptions about the first eleven chapters of Genesis	legend, drama, day-age theory, partial flood, ANE (naturalistic)
1891	Benjamin W. Bacon (1860-1932)	The Genesis of Genesis: a study of the documentary sources of the first book of Moses in accordance with the results of critical science illustrating the presence of bibles within the Bible	myth, ANE
1892	Edgar I. Fripp (1861-1931)	The composition of the book of Genesis	myth, ANE
1892	Herbert E. Ryle (1856-1925)	The early narratives of Genesis: a brief introduction to the study of Genesis I-XI	myth/legend, partial flood, ANE (naturalistic)
1892	John Doughty (1825-1893)	The parable of creation: being a presentation of the spiritual sense of the Mosaic narrative as contained in the first chapter of Genesis	parable, allegorical (naturalistic)

Table 6.6 (continued)

Publication Date	Author	Title	Interpretation
1893	Peter E. Kipp (1847-1900)	Is Moses scientific? First chapter of Genesis tested by latest discoveries of science	nebular hypothesis, day-age theory, evolutionary (naturalistic)
1894	John D. Davis (1854-1926)	Genesis and semitic tradition	legend, symbolic, day-age theory, partial flood, ANE
1894	Charles W. E. Body (1851-1912)	The permanent value of the book of Genesis: as an integral part of the Christian revelation	legend, allegorical, evolutionary, ANE (naturalistic)
1896	George W. Wade (1858-1941)	The book of Genesis: edited with introduction, critical analysis and notes	myth, nebular hypothesis, day-age theory, evolutionary, partial flood, ANE (naturalistic)
1897	Warren R. Perce (1843-1914)	Genesis and modern science	nebular hypothesis, day-age theory, ANE (naturalistic)
1897	John C. Jones (1841-1930)	Primeval revelation: studies in Genesis I-VIII	poetic, day-age theory, evolutionary, nebular hypothesis, partial flood, ANE (naturalistic)
1900	Fred W. Grant (1834-1902)	Genesis in the light of the New Testament	typological, gap theory (naturalistic)
1901	Elwood Worcester (1862-1940)	The book of Genesis in the light of modern knowledge	myth, nebular hypothesis, partial flood, ANE (naturalistic)
1901	Henry B. Pratt (1832-1912)	Estudios sobre el Libro del Genesis	gap theory, vision-day theory, nebular hypothesis, partial flood (naturalistic)
1901-1910	Hermann Gunkel (1862-1932)	Die sagen der Genesis	myth/legend, poetry, ANE (naturalistic)
1904	Samuel R. Driver (1846-1914)	The book of Genesis: with introduction and notes	myth/legend, moralistic, nebular hypothesis, evolutionary, partial flood, ANE (naturalistic)
1904	William H. Bennett (1855-1920)	Genesis: introduction; revised version with notes, giving an analysis showing from which of the original documents each portion of the text is taken; index and map	myth/legend, symbolic, ANE
1907	Ellen M. Knox (1858-1924)	Bible lessons for schools: Genesis	spiritual, vision-day theory, ANE
1907	Alex R. Gordon (1872-1930)	The early traditions of Genesis	myth/legend, anthropomorphic, ANE
1909	Calvin Goodspeed (1842-1912) Daniel M. Welton (1831-1904)	The book of Genesis	apocalyptic, nebular hypothesis, day-age theory, partial flood, ANE (naturalistic)
1909	Hinckley G. Mitchell (1846-1920)	Genesis	myth/legend, ANE (naturalistic)
1910	John Skinner (1851-1925)	A critical and exegetical commentary on Genesis	myth/legend, religious, ANE (naturalistic)

By the time the International Critical Commentary series publishes their volume on Genesis, the mythologisation of the first eleven chapters is a *fait accompli*. Genesis 1-11 is no longer perceived to have either historical or scientific value.

6.5 Conclusion

Where the first four chapters of this dissertation looked outside of Genesis 1-11 to ascertain how the text was reinterpreted by the historical sciences, chapters five and six have looked within the commentaries themselves to explore the story from the inside looking out. Looking at a representative selection of commentaries from 1830 to 1910, only six commentaries retain the literal historicity of Genesis. Put differently, the eighty-one commentaries reviewed in this chapter reveal an eighty-year revolution in hermeneutics, from taking Genesis as history to Genesis as myth.

In the first phase, 1830 to 1859, the literal interpretation is finally surpassed by various non-literal approaches including, most notably, the gap theory, in order to satisfy the demands of historical science. In the second phase, 1859 to 1886, at least eight commentators either reject or question the historicity of Adam and Eve as Darwinian thinking begins to infiltrate the corpus. A few commentators begin to propound the idea of Genesis being legendary or mythological as ANE research stimulates comparisons with other ancient records. In the last phase, 1877 to 1910, there are no longer any commentators who retain the literal interpretation of Genesis 1-11. Genesis history becomes Genesis mythology. The historical sciences are finally left to their own, as Genesis becomes an irrelevant text. In the next chapter, a rationale will be proposed for this epistemic conflict between historical science and the historic interpretation of Genesis 1-11.

Chapter 7. Deriving a rationale for the epistemic conflict between historical science and the historic interpretation of Genesis 1-11

7.1 Introduction

The fact that Genesis 1-11 was reinterpreted according to the demands of various historical sciences from 1650 to 1910 is undeniable. It is also unsurprising that this revolution in hermeneutics took place in light of the larger ongoing intellectual revolution which spans that time frame. No commentator approaches the text from an epistemic vacuum. For this reason, three chapters of this dissertation were dedicated to exploring some of the seminal historical, philosophical, scientific and theological factors that were at play during those centuries.

Adding to this layer of analysis, which focussed on the world external to the commentaries, an internal investigation of the commentaries themselves was conducted to ascertain to what extent the commentators engaged explicitly or implicitly with their *Sitz im Leben*. By looking at the story from the inside looking out, it was evident that the Enlightenment trajectory could be measured from the commentaries themselves. As mentioned earlier in this dissertation, Genesis provides a useful metric when it comes to measuring Enlightenment. This is because most Enlightenment thinkers had strong opinions about the first eleven chapters of the Bible and made them known. In a profound way, Genesis 1-11 lies at the heart of the Enlightenment struggle.

But to more fully ascertain how and why the Mosaic account was accommodated to the historical sciences, it will now be necessary to take the commentary data and scrutinise it collectively. To state the obvious, each commentary exists in connection to other commentaries that both precede it and proceed from it. These connections may be stated or unstated by the commentators themselves, but their existence cannot be denied. Every citation testifies to the influence of another scholar, theologian, philosopher or scientist upon the commentator. This means that every citation can be treated as a link within a vast network of links spanning centuries. These commentaries can then be grouped and graphed according to the various interpretive metrics utilised by the commentators to parse aspects of Genesis 1-11. Once these networks are drawn, a fascinating picture emerges which will finally suggest an answer to the central question of this dissertation: how and why has historical science shaped the interpretation of Genesis 1-11 during the period 1650 to 1910?

7.2 Measuring the deviation from a literal-historical interpretation

To measure the deviation of commentaries from a literal-historical interpretation, it is first necessary to ascertain where commentators depart from the literal sense in the text. Taking an aggregate of the seventy

commentaries from Philo to Ussher,¹ spanning the first sixteen centuries, twenty-nine propositions can be derived from Genesis 1-11 where the literal sense is upheld (see table 7.1).

Genesis Reference	Proposition	Opponents
1:1	The universe was created	De Maillet, Laplace, Geddes, Hutton, Jervis
	<i>Creatio ex nihilo</i>	Meyer, Burnet, Jennings, Geddes, Bohlen, Kurtz, Jervis, Bennett, Mitchell
	The creation account pertains to the whole universe, not just the earth or solar system	Patrick, Whiston, Stackhouse, Jennings, Dodd, Geddes, Clarke, Bellamy, Bush, Pye-Smith, Kurtz, Cumming, Gibson, Mitchell
1:3, 14-19	God created light before he created the sun, moon and stars	Origen, Didymus, d'Holbach, Paine, Palmer, Whiston, Stackhouse, Jennings, Rosenmüller, Geddes, Paine, Priestley, Bohlen, Bush, Hitchcock, Pye-Smith,
	For the first three days, there was no sun, moon or stars	Turner, Kurtz, Wight, Rendell, Cumming, MacDonald, Davies, Kalisch, Joare, Williams, Groves, Colenso, Jamieson, Murphy, Jacobus, Lange, Kitto, Bonar,
	God created the sun, moon and stars in a single day	Thompson, Warrington, Browne, Warring, Dillmann, Nisbet, Whitelaw, Hirschfelder, Exell, Burgon, Bacon, Fripp, Ryle, Kipp, Perce, Jones, Worcester, Pratt, Gunkel, Driver, Goodspeed, Skinner
1:26-27	God made man in his image	Philo, Ibn Ezra, d'Holbach, Hume, Kant, Buffon, Erasmus, Chambers
1:30	No animals ate meat before the fall	Abelard, Scott, Kirwan, Priestley, Hamilton, Jervis, MacDonald, Jamieson,
	No animals died before the fall	Jacobus, Warring, Nisbet, Dillmann, Kipp
1:1-2:3	God created the world in six days	Philo, Didymus, Augustine, Newton, Burnet, de Maillet, Buffon, Priestley, Rendell, Hamilton, Cumming, Dods, MacDonald, Miller, Hoare, Lange, Warring, Gibson, Nisbet, Exell, Huntingford, Kipp, Perce, Jones, Pratt, Goodspeed
2:7	God created Adam from the dust	<i>De tribus impostoribus</i> , d'Holbach
	Adam was the first human being	La Peyrère, Burnet, Geddes, Priestley, Bellamy, Bohlen, Kurtz, Rendell, Dods, Kalisch, Colenso, Quarry, Dillmann, Bacon, Fripp, Ryle, Doughty, Davis, Wade, Worcester, Gunkel, Driver, Bennett, Mitchell, Skinner
2:8-17; 3:22-24	God planted a garden in Eden with four rivers, the tree of life and the tree of the knowledge of good and evil	Origen, Meslier, Newton, Burnet, Bolingbroke, Geddes, Priestley, Bohlen, Kurtz, Rendell, Dods, Kalisch, Colenso, Quarry, Alford, Dillmann, Gibson, Delitzsch, Bacon, Fripp, Ryle, Davis, Wade, Jones, Worcester, Gunkel, Driver, Bennett, Gordon, Skinner
2:19-20	Adam named all the animals in one day	Burnet, Le Clerc
2:21-22	God created Eve from Adam's rib	Philo, Burnet, d'Holbach, Bolingbroke, Darwin, Bellamy, Rendell, Warring
3:1-5	The serpent spoke to Eve	Burnet, Le Clerc, Newton, Meslier, Voltaire, Bolingbroke, Paine, J. Scott, Geddes, Priestley, Clarke, Bellamy, Bohlen, Rendell, Dods, Jukes, Kalisch, Colenso, Lange, Quarry, Alford, Dillmann, Robertson, Delitzsch, Bacon, Fripp, Ryle, Davis, Body, Wade, Worcester, Gunkel, Driver, Bennet, Mitchell, Skinner
3:14	The serpent has not always gone on its belly	Simon, Le Clerc
3:1-24	The fall of mankind is a result of Adam and Eve eating from the forbidden tree	<i>De tribus impostoribus</i> , Diderot, Paine, Bellamy
3:7	Adam and Eve sewed their own clothes	Burnet, Bellamy
3:7-8	Adam and Eve felt shame after the fall	Le Clerc
3:21	God made clothes for Adam and Eve	Voltaire
3:8	God walked in the garden	Philo, Origen, Didymus, Chrysostom, Ibn Ezra, Spinoza, Bolingbroke, Voltaire
3:24	Cherubim guarded the way to the tree of life	Newton, Burnet, Bellamy, Lane
4:17	Cain married his sister/relative	Bohlen, Rendell, Lane, Colenso, Fripp, Ryle, Wade, Worcester, Gunkel, Driver, Bennet, Gordon, Goodspeed, Mitchell, Skinner
5:1-32	The pre-diluvian patriarchs lived for hundreds of years	<i>De tribus impostoribus</i> , Geddes, Hume, Paine, Bohlen, Rendell, Lane, Jukes, Kalisch, Colenso, Thompson, Alford, Browne, Dillmann, Gibson, Nisbet, Huntingford, Bacon, Fripp, Ryle, Wade, Worcester, Gunkel, Driver, Bennet, Goodspeed, Mitchell, Skinner
6:14-7:10	Noah built an ark to house every kind of animal and bird during the flood	<i>De tribus impostoribus</i> , Paine, Geddes, Kirwan, Bohlen, Rendell, Jukes, Kalisch, Colenso, Dillmann, Delitzsch, Huntingford, Bacon, Fripp, Ryle, Davis, Body, Wade, Worcester, Gunkel, Driver, Bennett, Gordon, Mitchell, Skinner
	Noah's family and the animals lived for a whole year in the ark	
7:18-20	The flood covered the whole world	La Peyrère, Le Clerc, Vossius, Stillingfleet, Fontanelle, Meslier, de Maillet, Voltaire, Hume, Geddes, Bohlen, Hitchcock, Pye-Smith, Kurtz, Rendell, Jervis, Dods, Lane, Jukes, Miller, Davies, Kalisch, Hoare, Colenso, Jamieson, Murphy, Lange, Quarry, Conant, Browne, Dillmann, Whitelaw, Hirschfelder, Delitzsch, Huntingford, Bacon, Fripp, Ryle, Davis, Jones, Worcester, Pratt, Gunkel, Driver, Bennett, Gordon, Goodspeed, Mitchell, Skinner
11:1-9	God disperses the nations from Babel by confusing the language of all the earth	<i>De tribus impostoribus</i> , Meslier, Simon, Le Clerc, Bellamy, Bohlen, Rendell, Lane, Jukes, Kalisch, Colenso, Quarry, Dillmann, Delitzsch, Huntingford, Bacon, Fripp, Ryle, Davis, Worcester, Gunkel, Bennett, Gordon, Mitchell, Skinner

Table 7.1 – Showing where the literal sense of Genesis 1-11 has been rejected

¹ See appendix A.

All the commentators who deviate from the literal sense of text (by opposing these propositions) can then be identified and the deviation measured more precisely. These criteria can be generalised and reduced to thirteen essential elements (see table 7.2). The resulting table provides a normalised pre-1650 commentary depicting a typical literal interpretation of Genesis 1-11 from the first sixteen centuries.

Reference	Concept	Interpretation
Genesis 1:1-2:3	Extent of creation	Universe
Genesis 1:1	Creation of matter	Ex nihilo
Genesis 1:1-3	Period before light	Within the duration of the first day
Genesis 1:5	Definition of “day”	24 hours
Genesis 1:14-19	Creation of sun, moon and stars	Created <i>de novo</i> on day four
Genesis 2:8-9	Garden of Eden and the two trees	Literal place with real trees
Genesis 2:7, 18-22	Adam and Eve	First humans
Genesis 3:1-4	Literality of the serpent	Talking serpent
Genesis 5:3-32	Longevity of patriarchs	Hundreds of years
Genesis 6:14-22	Historicity of the ark	Literal vessel
Genesis 7:1-8:19	Universality of the flood	Universal deluge
Genesis 11:1-9	Confusion of languages	Supernatural phenomenon
Genesis 1-11	Age of the earth	Less than six thousand years

Table 7.2 – The essential elements of a normalised commentary pre-1650

Using these thirteen criteria as a framework, it is now possible to distinguish a typical literal interpretation of Genesis, representing all the commentaries written before 1650, from various nonliteral interpretations that arise after 1650. With that said, it may be observed that the last row of this table includes a criterion which is not an exegetical feature of the text itself.² But it is also the case that of the 193 commentaries reviewed in this research, only 80 commentators refrain from stating their views about the age of the earth in their exposition of Genesis 1-11.³ Therefore, it makes sense to include this criterion as a useful test to identify commentaries that only superficially adhere to a literal-historical reading from those that genuinely follow the literal-historical tradition.

From this framework, the deviations from a literal-historical approach can be enumerated per criterion in all commentaries from 1650 to 1910. The resulting pie chart shows the distribution of deviations per criterion (see figure 7.1). From this distribution, it is evident that some elements of Genesis 1-11 are much more susceptible to a non-literal interpretation than others. In particular, it can be seen that the tendency to interpret the fourth day of creation in a non-literal manner (Gen 1:14-19) is much more common than instances of commentators who deny the universal scope of the creation narrative (Gen 1:1-2:3). The credibility of the literal sense evidently varies throughout the narrative depending on what the text purportedly asserts about the history of the world.

² Contrary to Darwin’s (1903b:31) allegation, Moses does not specify the age of the earth in Genesis 1-11.

³ This is not surprising given that, under the literal interpretation, a reasonable age of the earth can be inferred from the chronological data provided in Genesis 1-11.

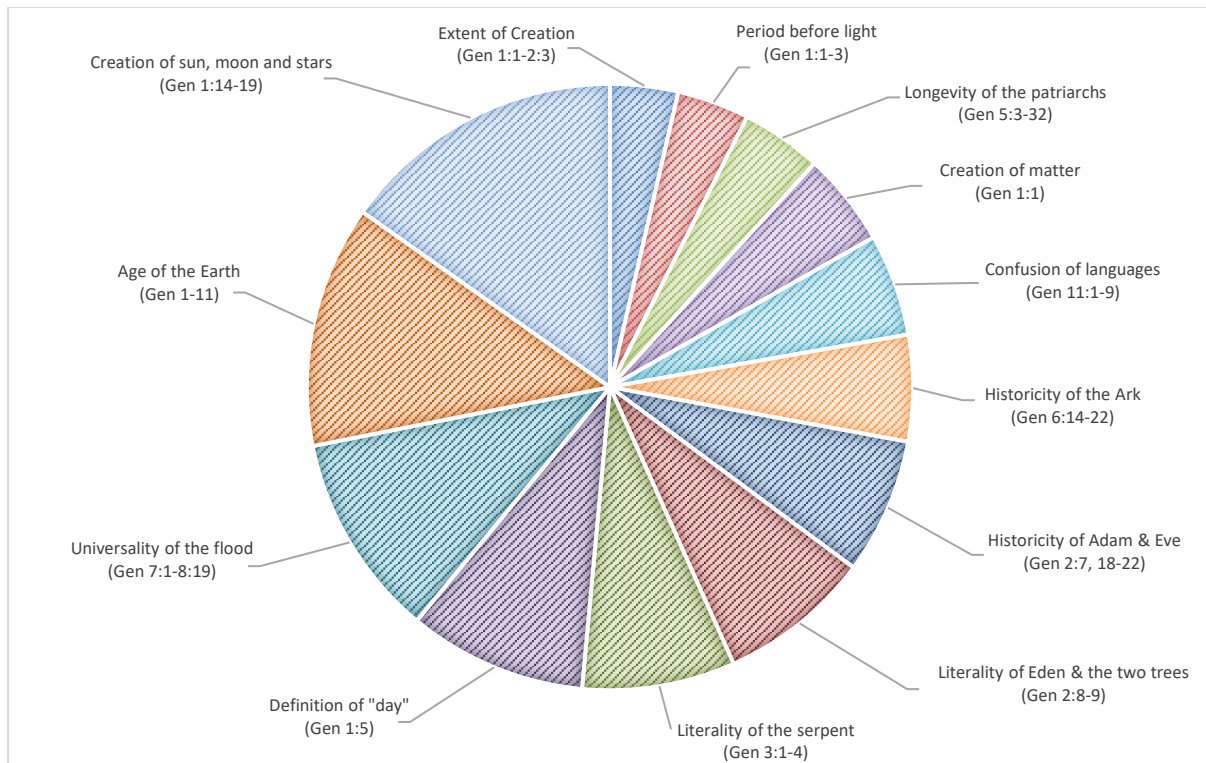


Figure 7.1 – Distribution of deviations per criterion in commentaries post-1650

To highlight the biggest contrast, the idea that God created the sun, moon and stars only on the fourth day of creation is substantially less believable than the notion that the hexaemeron describes the creation of the whole universe (as opposed to merely a region of the solar system). This scepticism of the literal sense of Genesis 1:14-19 is expressed by commentators as early as Origen (1936:288-289), but it remains a rare feature until Burnet's exposition of Genesis 1 in 1692. After 1692, more than sixty commentators reject the literal interpretation at this point in the narrative. I attribute this phenomenon to developments in astronomy and geology which can be traced in the commentaries themselves and depicted with various network diagrams (see Appendix H). From Jervis in 1852, the nebular hypothesis is mentioned explicitly in sixteen commentaries. Of these, eleven deny that God created the celestial bodies on the fourth day. The other five commentators who subscribe to the nebular hypothesis consider Genesis 1:14-19 to be entirely irrelevant to the subject. Kalisch (1858:14-18) treats these verses as the "conjectures of imaginative minds"; Wade (1896:27) states that they are "in no sense scientific"; Worcester (1901:14, 80) calls the whole narrative "a mere mass of mythology"; Driver (1904:6) finds his preferred account of cosmogony in the "commonly accepted theory" of Laplace; and Jervis (1852:7-15) in *Bereshit: Genesis elucidated* does not elucidate these verses at all but elucidates instead about how the earth arose from "nebulous matter". Colman is the only commentator who questions the literal creation of the sun, moon and stars *without* explicit reference to astronomy or geology. But it is also the case that Colman (1735:2) has a high regard for Burnet's writings which could indirectly account for why he prefers not to adopt the literal sense of Genesis 1:14-19.

The same kind of general result can be obtained from an analysis of the very popular day-age and gap theories which are also strongly influenced by the historical sciences. Of the thirty-six commentators who affirm the gap theory, only Patrick, Horsley, Sibthorp and Jukes do so without providing a rationale from the historical sciences.⁴ And of the thirty-one commentators who treat the days of creation in a nonliteral manner, only Knox and Davis do so without any attribution to astronomy, geology or palaeontology.⁵

Adding support to this trend, most commentators who deny the universality of the flood or the historicity of Eden interpret the text to cohere with palaeontology, astronomy, geology and evolution. In terms of the flood story, only two commentators, Poole and Davis, refrain from offering scientific reasons for restricting its scope to a region on earth.⁶

The inclination to reject the literal-historical account of Eden, however, is less tightly correlated to any of the historical sciences. Of the thirty-seven commentators who adopt this stance, seven do so without providing any scientific justification for their interpretation.⁷

Of the thirty-three commentators who deny or question the historicity of Adam, eight of them see no need to justify their stance from any historical science. In every case it is because they are already convinced that the Genesis story is either a myth or completely antithetical to science (Bacon, 1892:335-350; Bennett, 1904:9-48, 67-71, 95, 137, 168; Burnet, 1736:11, 29, 51; Davis, 1894:50-53; Fripp, 1892:1-21, 23-41; Geddes, 1792: vi, xi; Gunkel, 1901:4-23, 69, 80, 90, 119-160; Mitchell, 1909:47, 52, 77). For the rest, palaeontology, geology and evolution exert a palpable influence upon the bias of the commentator.

As the pie chart in figure 7.1 suggests, there is a prominent criterion that permeates most commentaries after 1650. This is the conviction of deep time: a concept embraced by most commentators who end up abandoning the literal historicity of Genesis 1-11. Of the 90 commentators who advocate various non-literal interpretations, there are 59 who presuppose that the earth or universe has existed for vast ages.⁸ And, for this reason, the concept of deep time serves as a useful criterion to unify the nonliteral interpretations that gain popularity from 1650 to 1910. In other words, most commentators who deviate

⁴ That said, Patrick (1695:4) may well be compelled by some astronomical convictions because he also restricts the Creation account to “this planetary world”, excluding the rest of the universe. Horsley (1820:2), Sibthorp (1835:1) and Jukes (1858:5) allow for an indeterminant gap within the first two verses of Genesis but make no effort to accommodate millions of years by it.

⁵ It is worth noting that Knox’s (1907:7-8) commentary, being very concise, does not leave room to elaborate on why she treats the Creation week as a vision. Davis (1894:18), on the other hand, finds support from the Babylonian account to take the six days as indefinite periods of time.

⁶ In the case of Poole (1853:21), his conclusion is tentative and he chastises anyone who questions the historicity of Genesis 6-8. Davis (1894:120, 123) adopts a more radical stance, attributing the textual tradition to a legend contrived from actual events. And although this precludes him from any meaningful discussion concerning the historicity of the account, he still considers the universality of the deluge inconceivable because he cannot understand how “unknown animals” in “unexplored regions of the earth” would ever end up on Noah’s ark (Davis, 1894:131). In other words, his rationale assumes a scientific perception of what the world was like back then, and therefore does not materially challenge the trend established by the other twenty-nine commentators who affirm a partial flood for various scientific reasons not found in the text.

⁷ Five of these commentators, however, write their commentaries during the era of mythologisation, by which time Genesis 1-11 is relegated to the realm of myth which makes any comparison between the text and science nonsensical: Bacon (1892:335-350), Fripp (1892:1-41), Bennett (1904:72, 95, 103), Davis (1894:9-10, 21, 40, 50-53) and Gunkel (1901:4-23, 69, 80, 90, 119-160). The other two are Bellamy and Jukes. Bellamy may not cite any historical sciences in his rejection of a literal Eden, but his naturalistic bias is undisguised. We are told that Adam was not capable of making his own clothes or tools; and he denies the possibility of a world without thorns and thistles (Bellamy, 1818:17, 19). Jukes (1858:v-vi, xi, xv-xvi, 4) does not deny the historicity of Genesis 1-11, but following Origen, Augustine and Ambrose, he prefers the allegorical interpretation to its literal counterpart.

⁸ The interpretation tables for this data are included in appendix A and C.

from the framework proposed in table 7.2 do so because of an *a priori* commitment to deep time.⁹ After 1650, the conviction that the universe is millions or billions of years old gradually became an unquestionable maxim in the historical sciences. This, in turn, precipitated a vast array of nonliteral interpretations of Genesis 1-11, contrived and sustained in order to accommodate these aeons.

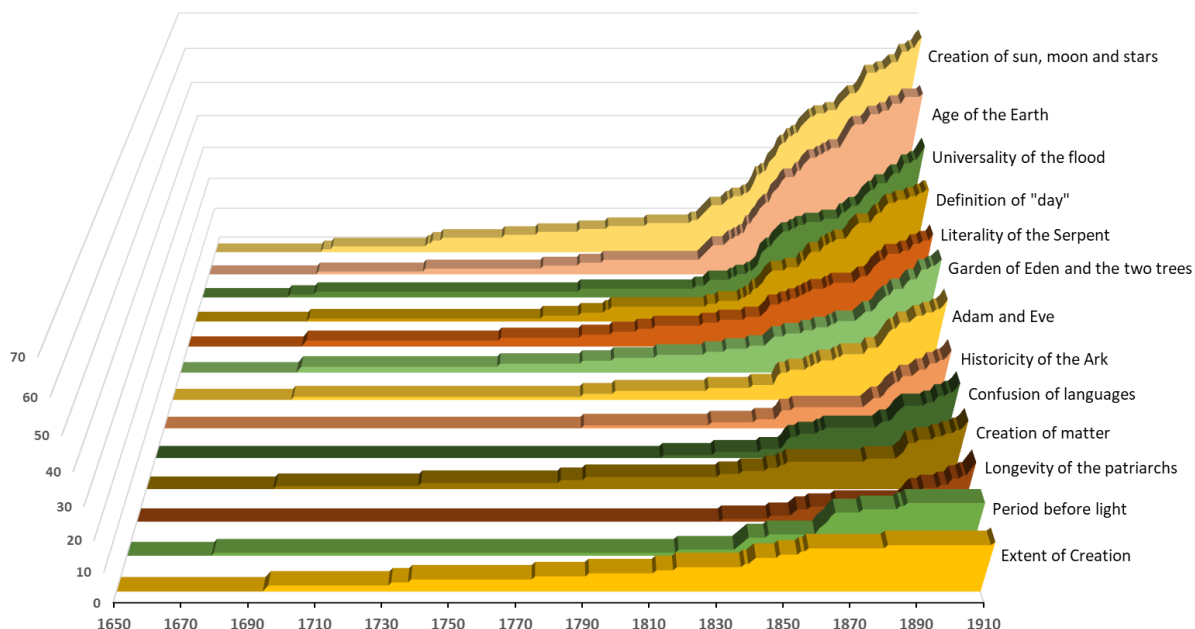


Figure 7.2 – Exponential growth of non-literal interpretations of Genesis 1-11 from 1650 to 1910

To describe more precisely how this happened, consider figure 7.2. Before 1830, most commentators maintained a literal approach to Genesis. No commentators questioned the longevity of the patriarchs. Very few advocated anything other than the literal historicity of the Ark, the flood and the confusion of languages at Babel. But after 1830, all thirteen criteria exhibit a dramatic shift in interpretation with non-literal interpretations growing exponentially.¹⁰ In other words, from 1830, the hermeneutical revolution in the interpretation of Genesis 1-11 is a *fait accompli*.

But to fully appreciate the nature of this turning point in history, it needs to be seen on a larger scale, tracing the story of interpretation from Philo to Skinner. It is against the backdrop of this broader context, that the critical period (1650-1910) stands forth as an era devoted to the radical reinterpretation of Genesis 1-11.

7.3 The evolution of interpretation from Philo to Skinner

An initial approach to tracking the literality of commentaries from Philo to Skinner is to calculate an average literality score for each commentary based on the thirteen criteria listed in table 7.2. To do this, one of three possible values is assigned to each criterion to indicate the stance taken by the commentator according to the following rubric:

⁹ This integrated relationship is shown by a composite adjacency graph in appendix D.

¹⁰ The two foremost criteria pertaining to the “Period before light” and the “Extent of Creation” increase in a sigmoidal fashion.

- If the commentator affirms the literal sense, the criterion is scored with a +1.
- If the commentator denies or opposes the literal sense, the criterion is scored with a -1.
- And if the commentator neither affirms nor denies the literal interpretation, the criterion is scored with a 0.

In cases where the criterion is not explicitly addressed, the criterion is ignored. The average literality is then calculated for each commentary. To illustrate the method, consider how the score is calculated for Priestley's exposition of Genesis (see table 7.3).¹¹

Reference	Criteria	Interpretation	Literality score
Genesis 1:1-2:3	Extent of creation		
Genesis 1:1	Creation of matter	ex nihilo or pre-existing matter	-1
Genesis 1:1-3	Period before light	fable, day-age theory (naturalistic)	-1
Genesis 1:5	Definition of "day"	indefinite period	-1
Genesis 1:14-19	Creation of sun, moon and stars	appeared	-1
Genesis 2:8-9	Garden of Eden and the two trees	fable	-1
Genesis 2:7, 18-22	Adam and Eve	figurative & literal	0
Genesis 3:1-4	Literality of the serpent	fable	-1
Genesis 5:3-32	Longevity of patriarchs	possibly literal	0
Genesis 6:14-22	Historicity of the ark	literal	1
Genesis 7:1-8:19	Universality of the flood	possibly global	0
Genesis 11:1-9	Confusion of languages	literal	1
Genesis 1-11	Age of the earth		
Average			-0.36

Table 7.3 – Calculating the average literality for Priestley's commentary (1803)

Priestley deviates from the literal historical interpretation of Genesis 1-11 in six of the thirteen criteria. For two criteria, the historicity of the ark and the events at Babel, he affirms the literal sense. For three criteria, his stance is neither overtly for nor against the literal sense, hence the zero score. His position on the extent of creation and the age of the earth are not easy to ascertain from his writings and are therefore ignored. Overall, Priestley's average literality score is calculated to be -0.36.

For an example of a commentator who achieves a positive score, consider table 7.4 which evaluates Bunyan's approach to Genesis 1-11. Whilst Bunyan affirms the literal sense, it is also the case that he strongly favours allegorical and typological interpretations. For this reason, six of the thirteen criteria result in a zero score, counting as neither evidence for nor against the literal historical interpretation. Bunyan's average literality rating is 0.5 (see table 7.4).

With these average literality scores for each commentary, a cumulative literality index can be calculated that tracks the changes in literality from Philo to Skinner.¹² The resulting graph is shown in figure 7.3. The plot obtained suggests that the literal interpretation of Genesis 1-11 was relatively stable for the first

¹¹ See section 3.21 for the qualitative analysis of Priestley's thoughts on Genesis 1-11.

¹² See appendix A for the complete table.

eighteen centuries,¹³ reaching its apparent zenith shortly after Kurtz, around the 1850 mark. From this point forwards the literality steadily drops indicating the overwhelming rejection of Genesis as literal history from the mid to late 1800s.

Reference	Criteria	Interpretation	Literality score
Genesis 1:1-2:3	Extent of creation		
Genesis 1:1	Creation of matter	ex nihilo	1
Genesis 1:1-3	Period before light	literal & allegorical	0
Genesis 1:5	Definition of “day”	24hr	1
Genesis 1:14-19	Creation of sun, moon and stars	literal & allegorical	0
Genesis 2:8-9	Garden of Eden and the two trees	literal & typological	0
Genesis 2:7, 18-22	Adam and Eve	literal & typological	0
Genesis 3:1-4	Literality of the serpent	literal & allegorical	0
Genesis 5:3-32	Longevity of patriarchs	literal	1
Genesis 6:14-22	Historicity of the ark	literal & allegorical	0
Genesis 7:1-8:19	Universality of the flood	global	1
Genesis 11:1-9	Confusion of languages	literal	1
Genesis 1-11	Age of the earth	< 6000 yrs	1
Average			0.5

Table 7.4 – Calculating the average literality for Bunyan’s commentary (1692)

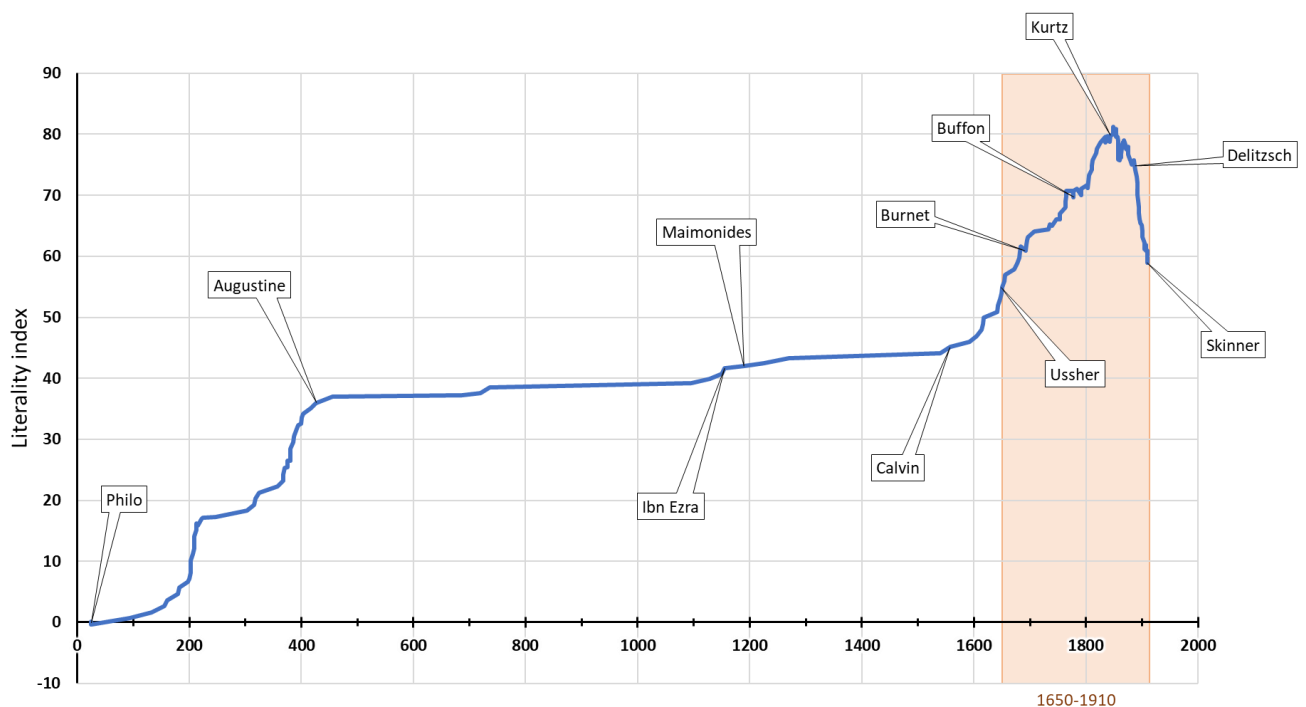


Figure 7.3 – Mapping the literality of Genesis 1-11 from Philo to Skinner by average literality¹⁴

¹³ The flatness of this graph from 500 to 1517 should not be attributed merely to the literality of these commentaries but also to the fact that there are only eleven commentaries representing the Middle Ages in this literature review. The paucity of commentaries from the medieval era has been addressed in section 5.4.

¹⁴ Figures 7.3-7.6 have been enlarged and enhanced with more detail in appendix B.

The surprising feature of this plot is the fact that the commentaries continue to maintain a positive literality from 1650 to 1850. It would seem that the onset of enlightenment had little impact on the interpretation of Genesis until the mid-nineteenth century. But this is where it also becomes apparent that the measurement of literality used in these plots is slightly misleading. When an average score for a commentary is calculated from thirteen criteria, it is possible to have a commentator obtain a positive literality for a commentary that would ordinarily be categorised as a nonliteral interpretation of Genesis 1-11. For example, consider the case of Whitelaw (1881:1, 5, 100) who denies the historicity of hexaemeron, casts doubt on the universality of the flood, and embraces the nebular hypothesis and millions of years as a framework through which to explain the origin of the universe (see table 7.5). In this case, an average literality score suggests that his commentary should be categorized as belonging, albeit tenuously, to the literal historical school of interpretation which is not the case at all.

Reference	Criteria	Interpretation	Literality score
Genesis 1:1-2:3	Extent of creation	universe	1
Genesis 1:1	Creation of matter	nebular hypothesis	-1
Genesis 1:1-3	Period before light		
Genesis 1:5	Definition of “day”	indefinite period	-1
Genesis 1:14-19	Creation of sun, moon and stars	pre-existing	-1
Genesis 2:8-9	Garden of Eden and the two trees	literal	1
Genesis 2:7, 18-22	Adam and Eve	first humans	1
Genesis 3:1-4	Literality of the serpent	literal	1
Genesis 5:3-32	Longevity of patriarchs	literal	1
Genesis 6:14-22	Historicity of the ark	literal	1
Genesis 7:1-8:19	Universality of the flood	local	-1
Genesis 11:1-9	Confusion of languages	literal	1
Genesis 1-11	Age of the earth	millions of years	-1
Average			0.17

Table 7.5 – Calculating the average literality for Whitelaw’s commentary (1881)

In practice, therefore, it makes better sense to classify commentaries according to a stricter metric and not merely on the basis of an average score. The revised measurement model works as follows:

- If the commentator espouses a literal-historical rendering of the text in all thirteen criteria, the commentary is given a value of +1.
- But for each commentary that departs from the literal sense of any of the categories listed in table 7.2, it is assigned a value of -1.
- Where commentators do not deny the literal sense but advocate a nonliteral interpretation as an additional layer of meaning – as in the case of Philo, Origen and Ambrose – the value assigned is 0.

A literality index is then derived from these commentaries cumulatively,¹⁵ as in the previous model. The resulting graph is shown in figure 7.4.

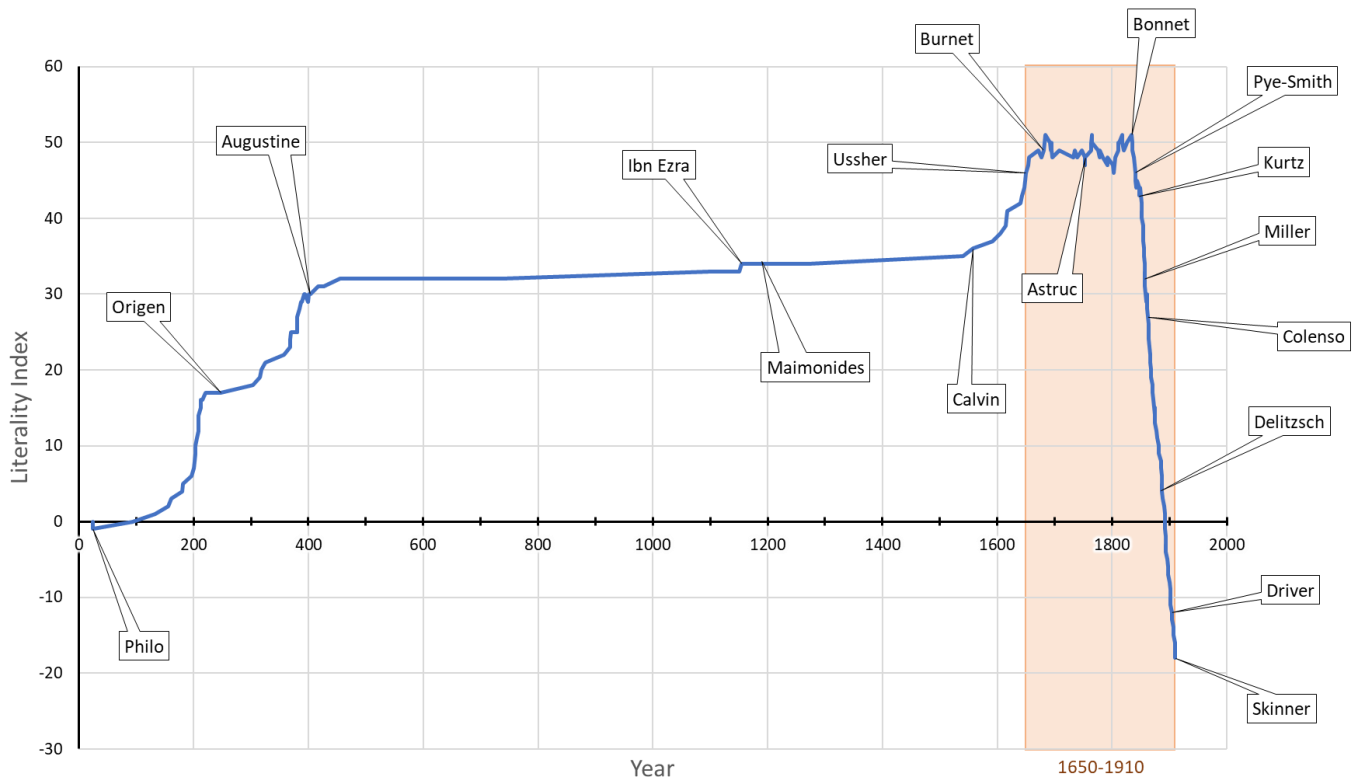


Figure 7.4 – Mapping the literality of Genesis 1-11 from Philo to Skinner by stricter metric

As before, the overall upward trajectory of this graph testifies to the historic stability of the literal interpretation of Genesis 1-11 prior to the Enlightenment. But by using a stricter measure of literality in figure 7.4, it is now evident that the period of instability begins as early as 1650, following Ussher's *Annales*, after which commentators began to explore new ways of reading Genesis. Thus, from 1650 to 1830 the literality of Genesis 1-11 is increasingly challenged, as indicated by the jagged portion of the line. After 1830, the onset of the hermeneutical revolution is undeniable. From Bonnet to Skinner the line rapidly plummets indicating the largescale rejection of the literal interpretation by commentators. This progression corroborates the trend observed in figure 7.2 where we see a wholesale departure from our normalised commentary across all thirteen criteria after 1830.

The next stage in our analysis is to examine the critical period of instability and revolution from 1650 to 1910 (see highlighted region on figure 7.4). As discussed in chapters 2, 3 and 4, this period saw many influential works published, mostly by atheistic and deistic intellectuals, that directly undermine or oppose the literal interpretation of Genesis 1-11 (see table 7.6).

¹⁵ See appendix A for the full table.

Date	Name	Publication
1651	Thomas Hobbes	Leviathan
1655	Isaac La Peyrère	Praeadamitae
1659	Isaac Vossius	Dissertatio de vera aetate mundi
1662	Edward Stillingfleet	Origines sacrae
1666	Lodewijk Meyer	Philosophia s. scripturae interpres
1670	Baruch Spinoza	Tractatus theologico-politicus
1678	Richard Simon	Histoire critique du Vieux Testament
1685	Isaac Newton	Treatise on Revelation
1686	Bernard Le Bovier de Fontenelle	Entretiens sur la pluralité des mondes
1689	John Locke	An essay concerning human understanding
1693	Charles Blount	The oracles of reason
1729	Jean Meslier	Le Testament
1748	Benoît de Maillet	Telliamed
1748	David Hume	An enquiry concerning human understanding
1754	Denis Diderot	Pensées sur l'interprétation de la nature
1755	Immanuel Kant	Allgemeine naturgeschichte und theorie des himmels
1767	François Marie Arouet/Voltaire	L'examen important de Milord Bolingbroke
1770	Paul-Henri Thiry (Baron) d'Holbach	Système de la nature
1783	Johann Eichhorn	Einleitung in das Alte Testament
1783	Johann Gottfried von Herder	Vom geist der Ebräischen poesie
1788	James Hutton	Theory of the earth
1794	Erasmus Darwin	Zoonomia
1794	Thomas Paine	The age of reason
1794	Pierre-Simon Laplace	Traité de mécanique céleste
1809	Jean-André Deluc	Traité élémentaire de géologie
1809	Jean-Baptiste Lamarck	Philosophie zoologique
1812	Georges Cuvier	Discours préliminaire
1814	Thomas Chalmers	Remarks on Cuvier's theory of the earth
1819	Comte de Volney	Recherches nouvelles sur l'histoire ancienne
1819	William Buckland	Vindiciae geologicae; or the connexion of geology with religion
1830-1833	Charles Lyell	Principles of geology
1833	John Herschel	A treatise on astronomy
1844	Robert Chambers	Vestiges of the natural history of creation
1859	Charles Darwin	On the origin of species by means of natural selection
1865	Archibald Sayce	Fresh light from ancient monuments
1876	George Smith	The Chaldean account of Genesis
1878	Julius Wellhausen	Prolegomena zur Geschichte Israels

Table 7.6 – Publications from 1650 to 1910 that undermine the literal interpretation of Genesis 1-11

If the plot in figure 7.4 is then redrawn to focus on the critical period (1650-1910), with the works in table 7.6 overlaid according to their publication dates, an important result is obtained (see figure 7.5).

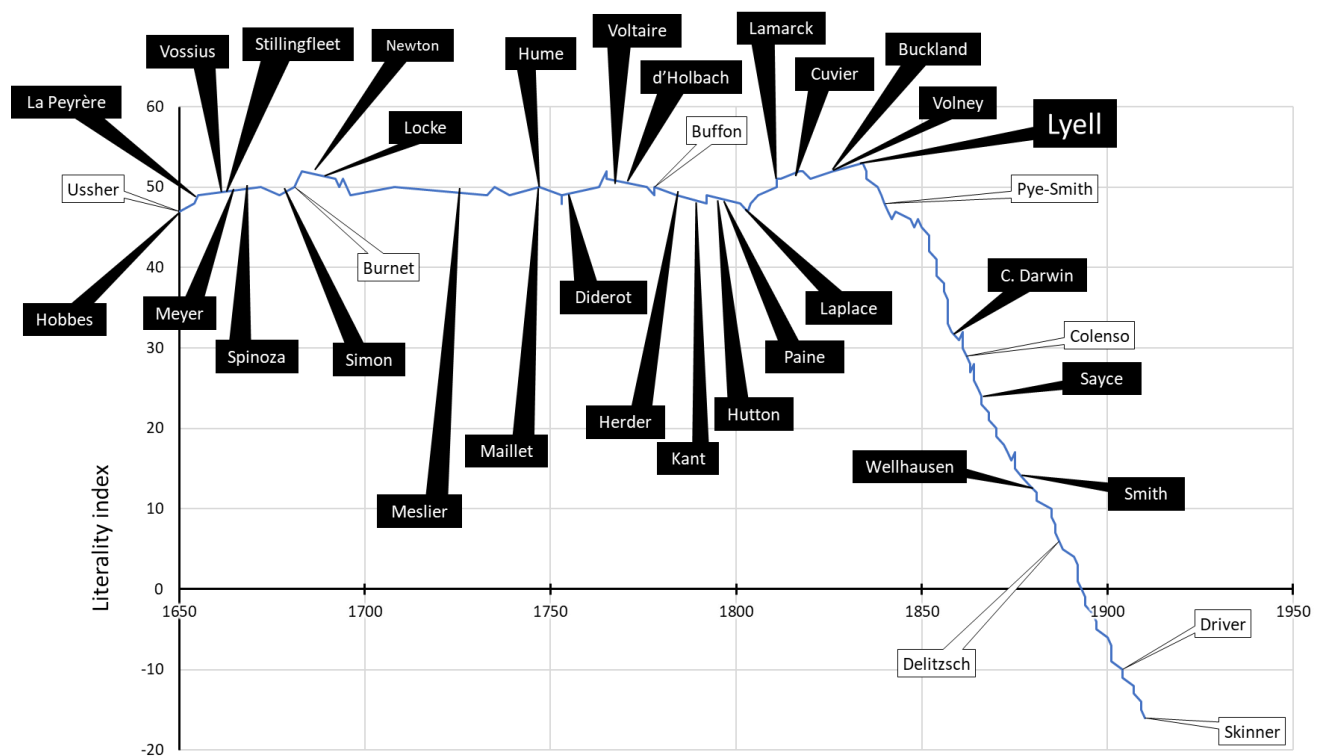


Figure 7.5 – The literality of Genesis 1-11 from 1650 to 1910 in relation to influential publications

In figure 7.5, we see a strong correlation between the rise of prominent naturalistic philosophers, scientists and theologians, and the rejection of the literal interpretation of Genesis 1-11. It is also evident that the sudden downward trajectory coincides with the publication of *Principles of geology* in 1830. As indicated earlier by figure 7.2, the year 1830 is marks a critical turning point in the interpretation of Genesis 1-11. It was in 1830 that Diderot's (2018:37-38; 1831:282-283) *Promenade du sceptique* was finally published in which he states that the creation story is not history but an oral legend (Durant, 1965:626). Also in 1830, Herschel completed the first modern exposition on the philosophy of science (Case, 2018:7). Darwin (1991:371) considered this book to be so magisterial that he said of it, "Scarcely anything in my life made so deep an impression on me". In *A preliminary discourse on the study of natural philosophy* (1830), Herschel (1830:14, 146-147) describes the universe as millions of years old, endorsing the recently published theories of the Charles Lyell. Lyell's first volume of *Principles of geology* which was also published in 1830. All three volumes were finished by 1833. *Principles of geology* directly challenged the literal interpretation of Genesis 1-11. In it, Lyell (1830:76) complains that Scriptural geology has hampered the progress of science by distracting men with "fabulous tales". It did not take long for Lyell's ideas to gain traction. By 1831, Sedgwick (1834:313) issued a public recantation to the Geological Society of London, calling any geological interest in Noah's flood a "philosophic heresy". That same year, John MacCulloch (1773-1835) (1831:216, 226, 310, 455, 490) finished his own work on geology¹⁶ which also discouraged any scientific dependence upon the Genesis flood, assigning vast geological ages to Genesis 1:5. 1831 was also the year that Darwin, Lyell's first disciple, set out from Plymouth on the *H.M.S. Beagle* to begin his

¹⁶ i.e. *A system of geology, with a theory of the earth and an examination of its connection with the sacred records* (1831)

five year voyage on a journey that would inspire the *Origin of species* (Browne, 1995:190). During this voyage, it was none other than *Principles of geology* that consumed Darwin's interest (Browne, 1995:189-190). Reflecting back on this, Darwin (1903b:117) admits that Lyell's book reshaped the way in which he viewed the world.¹⁷

In 1831, the geological attack on Genesis in England was bolstered by a similar assault from cosmology. Thanks to Somerville's efforts, Laplace's *Mécanique celeste* became available to an English readership in 1831 in the publication of *Mechanism of the heavens* (Patterson, 1969:319). In fact, this book went on to become the standard undergraduate textbook at the University of Cambridge for the next 50 years (Baraniuk, 2017:40-41). The British Association for the Advancement of Science was also founded in 1831 (Mortenson, 2004:39). Like the Geological Society, the BAAS was antagonistic towards the historical and scientific value of Genesis 1-11 (Mortenson, 2004:39; Orange, 1975:287; Bowden, 1839:42).

From 1833 to 1836, eight Bridgewater treatises were published. The treatises written by Chalmers, Whewell and Buckland all dismiss literal historicity of Genesis 1-11 due to the historical sciences. Alongside these, in 1833, Herschel (1833:379) finished a new treatise on astronomy in which which he postulates that light has taken at least two million years to reach earth. Auguste Comte's *The course of positive philosophy* (1830-1842) also coincides with the 1830 hermeneutical turning point shown in figure 7.5. Comte's novel ideas on positivism helped persuade Darwin that God was an unnecessary hypothesis which he could ignore in his philosophy of nature (Herbert, 2009:61).

Another way of exploring what led to the hermeneutical instability of Genesis 1-11 from 1650 to 1830 is to plot where the earliest known occurrences of new interpretations originate. This list, along with the publications associated to them, is presented in table 7.7.

Table 7.7 – Estimated origins of various nonliteral interpretations of Genesis 1-11 (1650-1910)

Date	Author	Publication	Interpretative innovation
1655	La Peyrère	Praeadamitae	pre-Adamites
			partial flood theory
			eternality of the universe
1677	Hale	The primitive origination of mankind	gap theory
c. 1685	Newton	Treatise on Revelation	day-age theory
1692	Burnet	Archaeologiae philosophicae sive doctrina antiqua de rerum originibus	parable
			ahistorical Adam
1695	Patrick	A commentary upon the first book of Moses called Genesis	hexaemeron restricted to the solar system
1696	Whiston	A new theory of the earth	hexaemeron restricted to the earth
			sun, moon & stars exist before light
1729	Meslier	Le testament	fable
1748	de Maillet	Telliamed	evolution
			deep time/vast ages

¹⁷ This does not mean that the timing of the sudden decline in figure 7.5 is mostly due to Lyell. But, with the citation analysis that follows, it is striking how prominently Lyell features in the commentaries written after 1830.

Table 7.7 (continued)

Date	Author	Publication	Interpretative innovation
1753	Astruc	Conjectures sur les memoires originaux dont il paroît que Moyse s'est servi pour composer le livre de la Genese	documentary hypothesis
1755	Kant	Allgemeine naturgeschichte und theorie des himmels	nebular hypothesis
1778	Buffon	Les époques de la nature	placid flood theory
1779	Eichhorn	Urgeschichte	myth/legend
1783	Herder	Vom geist der Ebräischen poesie	mythological poetry
1788	Hutton	Theory of the earth	flood denial
1792	Geddes	The Holy Bible, or the books accounted sacred by Jews and Christians	fragmentary hypothesis
1840	Pye-Smith	On the relation between the Holy Scriptures and some parts of geological science	hexaemeron restricted to a region on earth
1842	Kurtz	Die astronomie und die Bibel	vision-day theory

This data can be overlaid on our graph in a similar manner to that shown in figure 7.6. In this case, the resulting graph demonstrates that by 1830 almost all the variant nonliteral deviations which commentators adopt from 1830 to 1910 were invented (or discovered) within the 1650 to 1830 window (see figure 7.6).

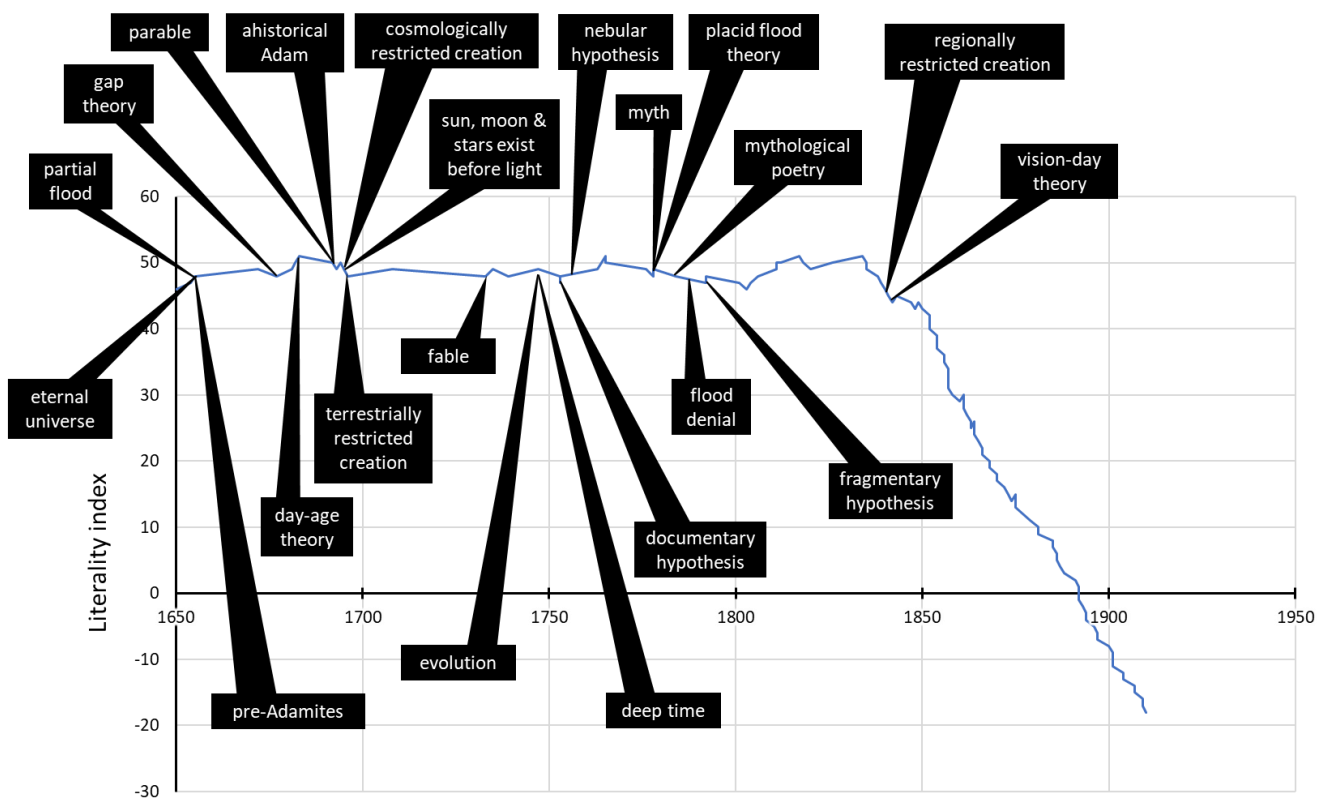


Figure 7.6 – Introduction of nonliteral interpretations of Genesis 1-11 in relation to literality

If the two graphs in figures 7.5 and 7.6 are compared, a striking correlation is observed between the promulgation of naturalistic ideologies and the introduction of new ways of reading Genesis 1-11. The result suggests that the revolution in hermeneutics with regards to Genesis 1-11 from 1650 to 1910 is

driven by a naturalistic agenda. But to what extent can this correlation be construed as causation? With citation analysis, the plausibility of this inference can be tested.

7.4 Citation analysis

Citations in the commentaries and in scientific works testify to meaningful relationships between commentators, theologians, historians, scientists and philosophers. These relationships may be adversarial or sympathetic; but either way, they provide a metric of influence from one writer to another. For example, although Faber (1823:147-156, 161-164) draws great support from Cuvier in his rejection of the literal days of Genesis 1, Faber (1823:135-136) also disagrees strongly with Cuvier when it comes to his diluvian theory. What cannot be denied is that Cuvier's work was deemed meaningful enough to be referenced by Faber. Thus, the existence of a citation can be treated as evidence of influence, whether or not this influence is positive or negative.

In the citation analysis that follows, a commentator is said to have cited an authority if that authority is mentioned many times or just once. There will always be some authorities who are cited more frequently than others within a single commentary, but I have decided to treat multiple citations of the same author in the same way that I treat a single citation. The goal is not to weigh the influence of each authority cited within a commentary on the basis of how many times they are cited or how these citations might determine various exegetical outcomes. There may be some merit in doing this, depending on how these citations are assessed, but this would require more interpretation at a qualitative level which, in turn, would make the inferences convoluted, or worse: allow an unacceptable level of subjectivity to bear upon this analysis. Therefore, I have not differentiated between authorities that are cited multiple times in a commentary and authorities that are only cited once.

By following this approach, each commentary can be tabulated along with all the people cited in it. Then, from this table, a web of influence can be constructed to ascertain which writers are referred to most frequently. Within this connected network, it is then possible to explore how ideas might be propagated. Further analysis can also be made by categorising citations as theological/exegetical, scientific/philosophical or both. The resulting table is presented in appendix E. From this data, any number of adjacency matrices can be created to numerically represent these connections from which, and for each, a corresponding network diagram may be graphed.¹⁸

7.4.1 Establishing the most influential exegetical authorities from 1650 to 1910

To ascertain which scientists, theologians and commentators were most responsible for this critical period of instability and revolution, the data has been aggregated into two categories: exegetical citations and scientific citations.

The most frequently cited exegetical authorities are graphed in figure 7.7.

¹⁸ I used a graphing editor called yEd (of yWorks GmbH) to create these network diagrams. See appendix F.

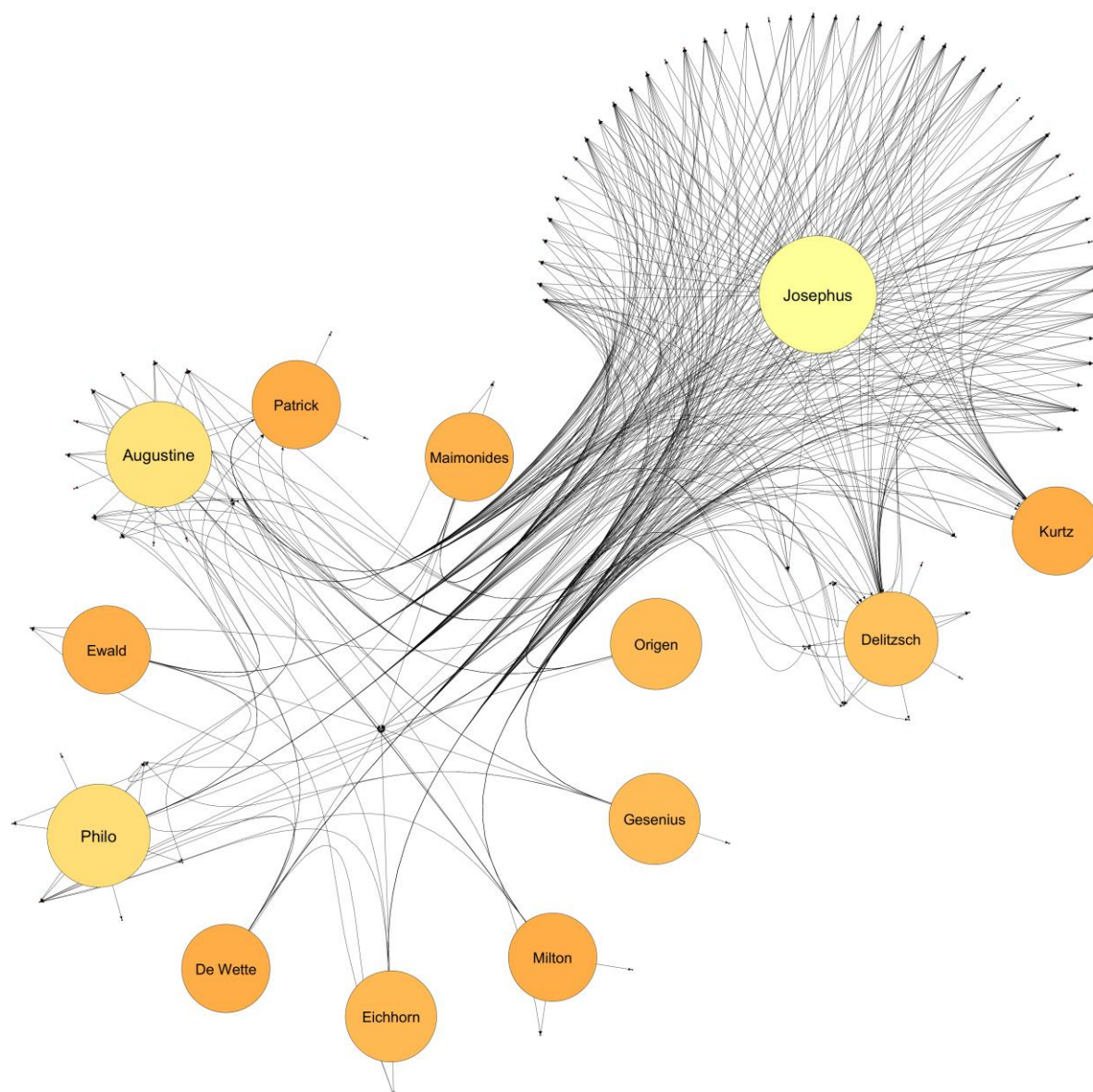


Figure 7.7 – Most cited exegetical authorities from 1650 to 1910 ¹⁹

Here it is evident that Philo, Josephus, Augustine and Origen feature prominently in these commentaries, and indeed, more so than many other commentators from 1650 to 1910. Of these early commentators, only Josephus avoids a non-literal interpretation of Genesis 1-11. For similar reasons, Maimonides also stands out in this group, having written his commentary more than four hundred years before the Enlightenment. Yet, in other ways, his contribution resonates with the sentiment of this era, providing an exposition of Genesis 1-11 that promotes an allegorical approach to accommodate Moses with the science and philosophy of his day (Maimonides, 1951:5, 10, 158, 162). Patrick (1695:4, 11), following Maimonides, advances one of the earliest versions of the gap theory and argues that the six days of creation pertain only to “this planetary world”, not the rest of the universe. De Wette (1867:434) views

¹⁹ Each of the nodes in this plot represent commentators. The larger nodes depict the most cited commentators and are scaled in proportion to their frequency in the commentaries. The small nodes around the periphery are homogenous in size because this plot has been simplified to highlight the influence of the top thirteen commentators from 1650 to 1910. If the full network was depicted here, these nodes would also be scaled according their frequency in the data set.

Genesis 1-11 as a “mythical history”. Eichhorn treats the Genesis story as historically spurious, having evolved from older myths.²⁰ Heinrich Ewald (1803-1875), who succeeded Eichhorn at Göttingen, takes the Mosaic account as a legendary tale derived from multiple sources²¹ (Smith, 1903:407; Cave, 1888:40; Rainy, 1878:213). Milton is cited mainly for illustrative purposes²² and for the poetic poignancy with which he embellishes the Edenic story in *Paradise lost* (1667). Kurtz (1857:110-113, 118) advances a naturalistic reading of Genesis 1-11, appealing to the gap theory and advancing a novel interpretation of the six days as a series of prophetic visions.

In the case of Wilhelm Gesenius (1786-1842), further investigation within the commentaries shows that he is cited copiously because of his seminal work in modern Hebrew lexicography, proving himself valuable to many commentators mostly for his philological and linguistic expertise rather than his exegetical insights (Miller, 2009:11, 17; *Brown et al.*, 2000:vii).²³ That said, his lectures on Genesis at Göttingen and Halle were enjoyed by prominent German theologians and scholars like Peter von Bohlen (1796-1840), Carl Gramberg (1797-1830), Andreas Hoffmann (1796-1864), Hermann Hupfeld (1796-1866), Johann Tuch (1806-1867) and Johann Vatke (1806-1882) (Miller, 2009:14-15). That these lectures would not have encouraged the literal interpretation of Genesis 1-11 is evident from the fact that Gesenius was a liberal theologian²⁴ who, in addition to denying the inspiration and infallibility of Scripture, also rejected the Mosaic authorship of the Pentateuch (Gesenius *et al.*, 1893:13; Chisolm, 1910d:909; Miller, 2009:18-19; Robinson, 1843:374-375). His first Hebrew grammar, *Hebräisches Lesebuch* (1814), was published less than two decades before the hermeneutical revolution in Genesis commentaries reached its zenith in the 1830s. Then, in 1836, Edward Robinson (1794-1863) introduced Gesenius to an even broader readership by translating and publishing this lexicon in Great Britain and America (Miller, 2009:95). Thus, the popularity of Gesenius in the commentaries offers some explanatory value as to what happened to the interpretation of Genesis 1-11 during the early nineteenth century.

The popularity of Delitzsch in the commentaries is instructive for slightly different reasons. Delitzsch’s first exposition of Genesis is published in 1852,²⁵ at least two decades after most commentators had decided to abandon the literal interpretation of the Mosaic record in favour of the historical sciences. In

²⁰ See section 3.12 for the discussion on Eichhorn.

²¹ At the beginning of his career, in *Die Composition der Genesis kritisch untersucht* (1823), Ewald initially argued for the authorial unity of Genesis as a document derived from an earlier Elohist source, but he eventually abandoned this view (Smith, 1903:407; Cheyne, 1893:74).

²² Paine claimed that his heterodox interpretation of the Old Testament could be attributed, in part, to Milton (Adams, 1850:508). As Jamieson (1871:54) observes, Milton’s poetry had “deeply infected” the “popular theology” of how many people understood Genesis (e.g. Hamilton, 1812:126; Ryle, 1912:55). But most citations favour Milton merely for his poetic expressions, like Stackhouse (1733:10, 24, 26, 28), Kennicott (1747:40, 43, 44, 48), Shuckford (1753:xxxi, 52, 62), Gill (1810:4), Hewlett (1812:127, 137), Bonnet (1839:268), Rendell (1852:65, 123), Groves (1861:18), Jamieson (1871:47, 51), Jacobus (1867:73, 109), Bonar (1875:11, 18, 32, 83), Nisbet (1881:43), Whitelaw (1881:xv, 15, 28, 47), Exell and Leale (1885:31, 37, 53), Perce (1897:39), Jones (1897:65, 188), Bennett (1875:104), Goodspeed and Welton (1909:42, 45, 49), and Skinner (1910:19).

²³ For examples of this type of usage, see Keil and Delitzsch (1885:56, 67, 78), Dillmann (1897:55, 56, 71, 75), MacDonald (1856:30, 62, 98), Browne (1873:33, 35, 41, 44), Delitzsch (1852:410), Bush (1838:31, 61, 165), Warrington (1870:14), Alford (1872:12, 29, 65, 78), Pratt (1906: 56, 82, 86, 157), Groves (1861:xxxiv, 18, 22, 36, 40), Bonar (1875:69-70, 188), Goodspeed (1909:84, 96, 101), Hirschfelder (1885:15, 44, 64), Lange (1869:11, 110, 112, 154), Jones (1897: 111-112), Jervis (1852:72, 78, 103, 153), Kitto (1855:52, 94), Exell and Leale (1885:53, 78, 105), Jacobus (1867:60, 61, 64), Bohlen (1855:25, 46, 73), Jamieson (1871:6, 7, 28, 50), Turner (1846:132, 179, 197), Whitelaw (1881:2-4, 11, 15) and Perce (1897:37, 39, 155).

²⁴ Robinson (1843:375) even calls him a deist.

²⁵ See sections 6.2.15, 6.3.3 and 6.4.1 for discussion on Delitzsch’s commentaries.

this case, his commentary proves to be an important measure of what most commentators were doing with Genesis after 1830. Delitzsch (1888:84, 243, 270, 248, 262) rejects most of Genesis 1-11 as literal history, ceding epistemic authority to geology, palaeontology and astronomy. Thus, although Delitzsch's contribution does not, like others, precipitate the hermeneutical revolution, his commentary sustains this overwhelming trend.

In summary, the most cited exegetical authorities from 1650 to 1910 testify to a new attitude towards Genesis 1-11. The prevailing sentiment is that the text must be interpreted according to the dictates of historical science.

7.4.2 Establishing the most influential scientific authorities from 1650 to 1910

The second category of citations reinforces this conclusion by focussing on all the scientific authorities cited by commentators during the critical period. In figure 7.8, the fifteen most frequently cited scientists from 1650 to 1910 are depicted in a network diagram.

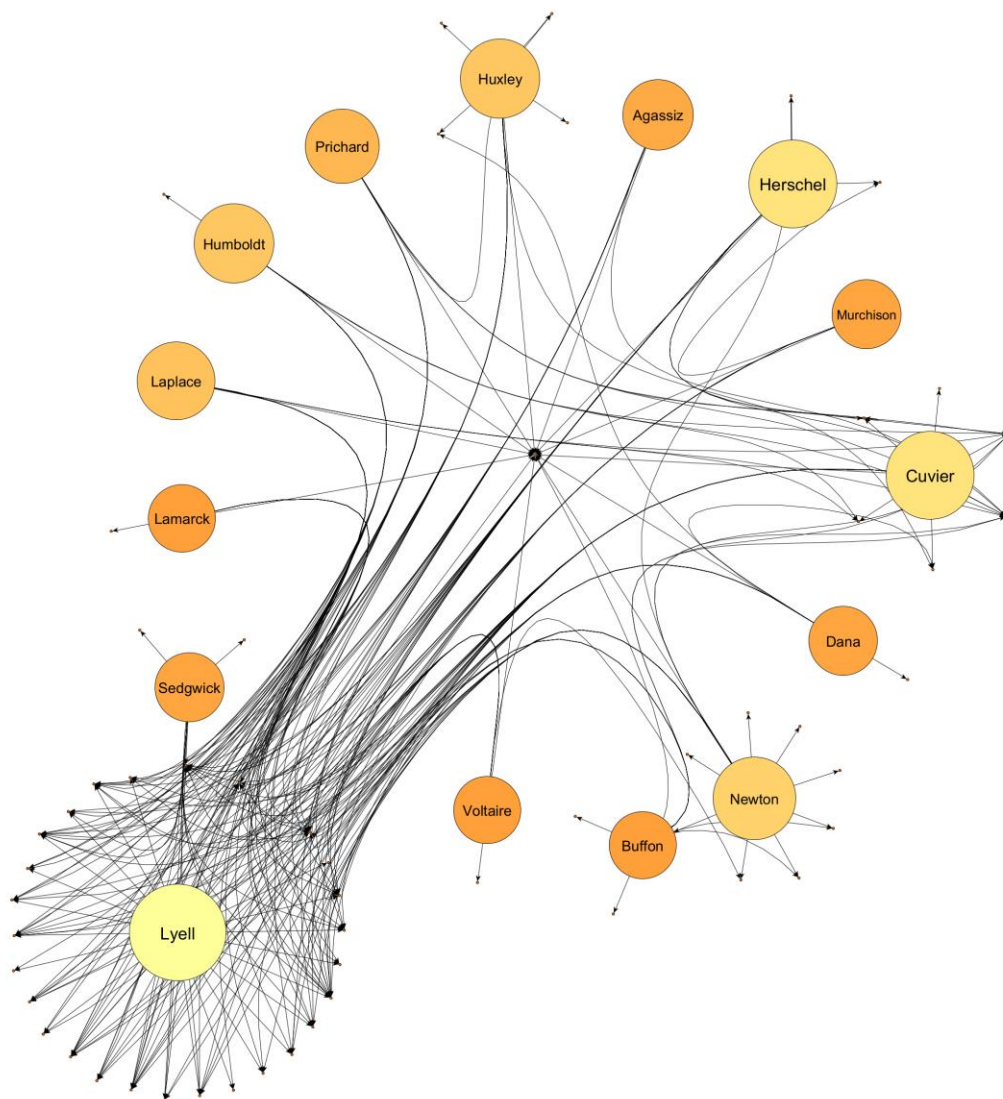


Figure 7.8 – Most cited scientists from 1650 to 1910

Of these scientists, all of them deny, either partially or completely, the literal historicity of Genesis 1-11 and almost all affirm their belief in an earth considerably older than six thousand years.²⁶ With the exception of Newton, the most popular scientific authorities from 1650 to 1910 all derive their history of the universe primarily from astronomy, geology and palaeontology. In fact, most of these men are categorically opposed to the Bible having any influence in the sciences. Herschel (*in* Cannon, 1961:307) calls the influence of Genesis on the sciences an “indolent weakness of *a priori* dogmatism”. Cuvier (1997d:239) asserts that the Bible is a fallible book filled with scientific errors. Huxley (1896:52-53) refers to Genesis 1 as the “cosmogony of the semi-barbarous Hebrew”. Humboldt’s magnum opus, *Kosmos: entwurf einer physischen weltbeschreibung*²⁷ (1845-1862), does not mention the word “God” once (Wulf, 2015:246). Shortly following its publication, it was called a “blasphemous book”, and one German church even claimed that he had made a “pact with the devil” (Wulf, 2015:246). Wulf (2015:217-234, 305) argues that Humboldt’s *Kosmos* directly paved the way for Darwin’s *Origin*. Laplace (1995:97-98) also has no regard for Genesis or *creatio ex nihilo* (which he calls as a “facile metaphysic” based on “puerile prejudices”) because he is convinced that the history of the earth is ultimately unknowable. Voltaire (1819:8, 12) states that the Pentateuch is a “stupid falsehood” and “an absurd fable” that was “written by fools”. Dana (1890:14-15, 66; 1856:108) affirms the Mosaic record as a “divine record”, but he is quick to add that science is “equally divine”, and therefore a “liberal rendering” of the text is required in order to satisfy the demands of geology. In the same way, although Agassiz (1850:111-112) claims that there is no contradiction between science and Genesis, he also maintains that Genesis is historically and scientifically irrelevant, suggesting that other races of men may have populated the earth apart from Adam. Both Murchison (1834:3-4) and Sedgwick (1835:148-149) state that the Mosaic record has nothing to say about the history of the world. Buffon (1797:5) insists that the true origin of the universe is not decided by written records or revelation but only by empirical deduction. And finally, Lyell (1830:30, 72, 302; 1833:97) believed that Genesis had “impeded the progress of geology” and actively sort to rid geology of Moses. This is significant because Lyell is the most frequently cited scientist from 1650 to 1910, with his name appearing in 27 commentaries even though he only enters the Genesis corpus in 1835 with Bohlen’s commentary, just five years after *Principles of geology* went to press. It also helps to explain why Lyell’s magnum opus coincides with the rapid decline in literality from 1830 onwards, as captured in

²⁶ Laplace (1830a:30; 1830b:86; 1834:xiii), Huxley (1897:244; 1894:159, 321, 335-336), Murchison (1839:11) and Sedgwick (1835:30) affirm the earth to have existed for “untold ages”. According to Mayr (1982:336), Buffon “more than anyone else, was responsible for a new chronology of the earth, that is, for the acceptance of a vast time scale.” Lyell (1830:76) believes that former geologists were delusional for not believing the world to be millions of years old. Herschel (*in* Cannon, 1961:308) and Dana (1856:108-112; 1875:237-239) insist that Genesis must be reinterpreted to accommodate vast ages. Voltaire (1901b:62-63; 1901c:283) also allows for the earth to be billions of years old. Cuvier (1997d:185, 193) has no regard for Scripture, deriving his chronology entirely from the rocks and fossils. Following Cuvier, Agassiz (1896:102, 270) asserts geological ages before Adam. Agassiz’s mentor, von Humboldt (1866a:108, 154; 1866b:14), cites Herschel in his assertion that light must take millions of years to reach the earth. Prichard does not comment on the age of the earth. But his anthropology ignores Genesis 1-11, suggesting instead that “the original stock of men were black” “or very similar to Negroes”, being closest to “the primitive state of mankind” and “nearest upon the tribe of monkies”, who subsequently evolved into the “more cultivated” European race (Prichard, 1813:233, 235-236, 254, 275). Newton (2002c:f39r-f39v) also rejected the literal historicity of Genesis 1-11, proposing – to my knowledge – the earliest version of the day-age theory.

²⁷ i.e. “Cosmos: a sketch of a physical description of the universe” – Rudwick (2008:37) claims that Humboldt’s book was “one of the most important geological works of its time.”

figure 7.5. But the more important result obtained from figure 7.8 is that, of the fifteen most popular scientists from this period, none of them viewed Genesis 1-11 as literal history.

Another way of showing this result is to take the most cited commentators from 1650 to 1910 and analyse, in turn, which scientific authorities they cite most (see figure 7.9). Unlike before, as in figure 7.7, this plot ignores all commentators before 1650.²⁸ It also ignores all scientific citations from less influential commentators and excludes commentators who do not cite any scientists.²⁹ The resulting diagram shows seventeen prominent commentators who are connected to the twenty most-influential scientists from this period. The commentators are ordered from top to bottom in relation to how frequently they are cited during this period. The scientists are ranked by scale in proportion to the number of times they are cited by these seventeen commentators.

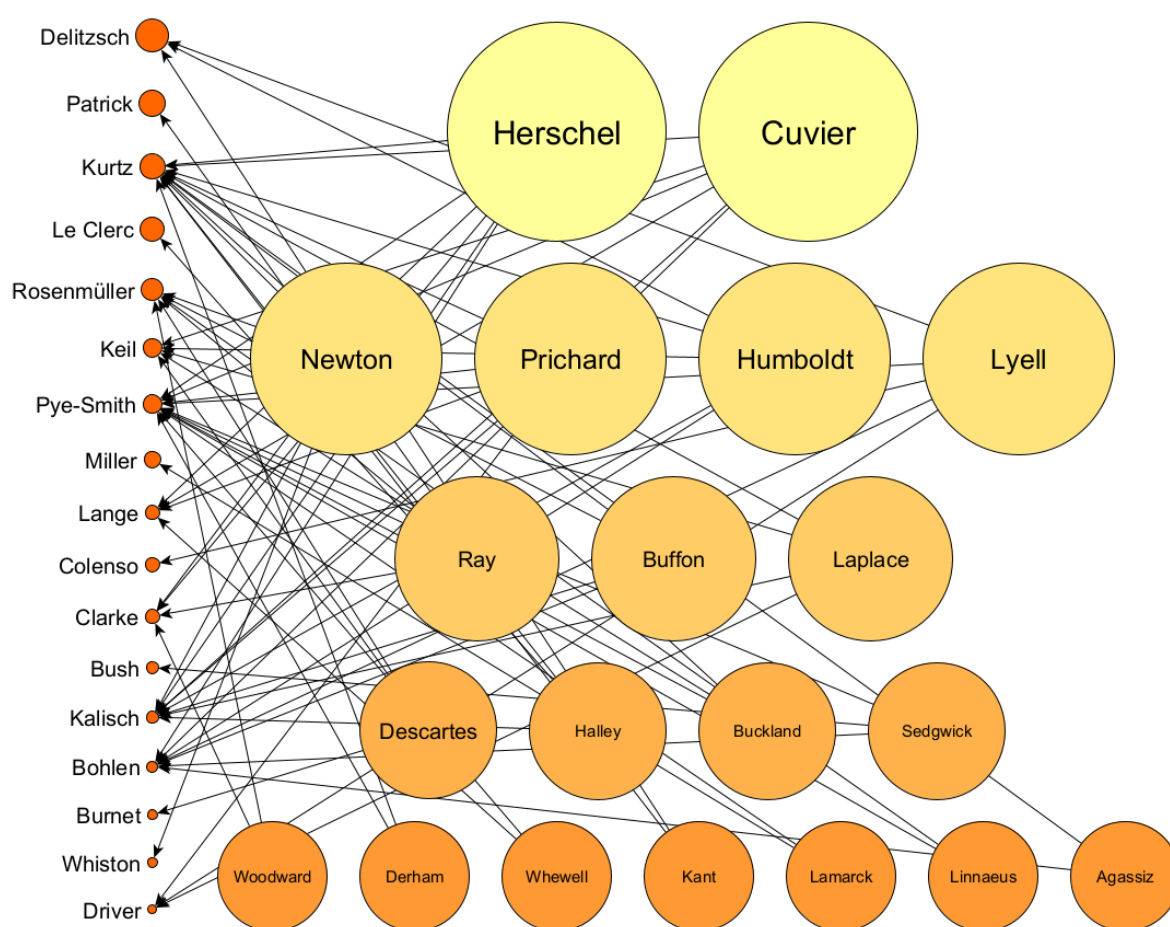


Figure 7.9 – Scientists cited by most influential commentators from 1650 to 1910

In figure 7.9, Herschel and Cuvier establish themselves as the most cited scientific authorities (each being cited by six of the commentators), closely followed by Newton, Prichard, Humboldt and Lyell (who are

²⁸ i.e. Philo, Josephus, Augustine, Origen and Maimonides.

²⁹ Thus, commentators like Ussher, Dillmann, Poole, Geddes and Kennicott – who would otherwise make this list – are excluded because they do not cite any of these scientists. Astruc cites Voltaire, Hobbes and Spinoza – but since no other commentator in this list cites these authorities, he is also excluded from this graph.

each cited by five commentators). All these men made significant contributions in the historical sciences.³⁰ Within the larger group there are seven geologists, six astronomers, three cosmologists, an anthropologist, a palaeontologist and an evolutionary biologist.³¹ With the exception of Ray (1713:5, 399-400), Woodward (1695:248-266), and Derham (1723:178, 266-267, 435-444), all of these scientists dismiss the literal historicity of Genesis 1-11.³² Consequently, of the seventeen commentators shown, only two, Clarke³³ and Keil, adhere to the literal historical interpretation of Genesis 1-11.

Therefore figure 7.9 yields an important result. It shows how the historical sciences, through the influence of key people, formed the heart of the hermeneutical revolution in Genesis 1-11. But it would be incorrect to infer from this chart that these were the only influential people driving the reinterpretation of Genesis. Influential commentators who only cite other commentators, with no reference to the scientists depicted in figure 7.9 must also be factored into this analysis. One way of doing this through citation analysis is to structure the network hierarchically, thereby tracing how ideas meld together within this web of influence.

7.4.3 Hierarchical analysis

If citations provide notional connections between prominent thinkers, then citation analysis can also help us ascertain, to some extent, how ideas travel through the literature over a given period. For example, Vossius is cited by Patrick (1695:13, 18, 21, 106, 166) in his commentary on Genesis. Patrick, in turn, is cited by Chalmers (1836a:253), Pye-Smith (1855:165) and Whiston (1737:96). Whiston is then cited by other authorities including Buffon (1797:3, 114-128). This allows us to create a small web of influence around Patrick and Whiston showing how the ideas of Vossius may have reached Buffon (see figure 7.10). Of course, this does not prove that Vossius had an influence on Buffon, but merely suggests how he may have if he did. In other words, just because Buffon does not cite Vossius, it would be hasty to conclude that Vossius' insights could never reach him via influential intermediaries. The plausibility of this promulgation of ideas increases as other channels are discovered within the citation network to allow Vossius to reach Buffon (see figure 7.11).

³⁰ Put differently, this group comprises two geologists (Humboldt and Lyell), two astronomers (Newton and Herschel), one palaeontologist (Cuvier) and one anthropologist (Prichard). And this does not discount the fact that Newton was also a mathematician and physicist; Cuvier, a zoologist and geologist, Humboldt, a naturalist and geographer; Herschel, a mathematician and chemist; and Prichard, a physician and psychiatrist. For a comprehensive breakdown, see appendix G.

³¹ I have counted Carl Linnaeus (1707-1778) as a geologist – not negating the fact that he is the father of modern taxonomy – because he also makes several geological observations in *Systema naturae* (1735) (Merriam, 1992:211-223).

³² Linnaeus' position in relation to Genesis 1-11 is not that obvious. He acknowledges the "testimony of Moses" but also claims not to have found any compelling geological evidence of Noah's flood, remarking that the earth has existed for "a long and gradual lapse of ages" (Linné, 1806:3). He was also the first to classify human beings within the same genus as monkeys and apes thereby ignoring the ontological distinctives belonging to the *imago Dei* portrayed in Genesis 1-2 (Linné, 1802:7, 9; Sibley, 2019:68-69). Therefore, Linnaeus' treatment of Genesis 1-11 does not typify the literal historical approach upheld by most commentators before 1650.

³³ It should be noted that Clarke's commentary, although ostensibly following the literal sense, is by no means conservative. Clarke (1843:46-47) argues that the creature used by Satan to tempt Eve in Genesis 3 was either an ape or an orangutan. His exposition is also proliferated with references to scientists like Herschel, Lalande, Ray, Newton, Priestley, Woodward, Kirwan, and Tournefort.

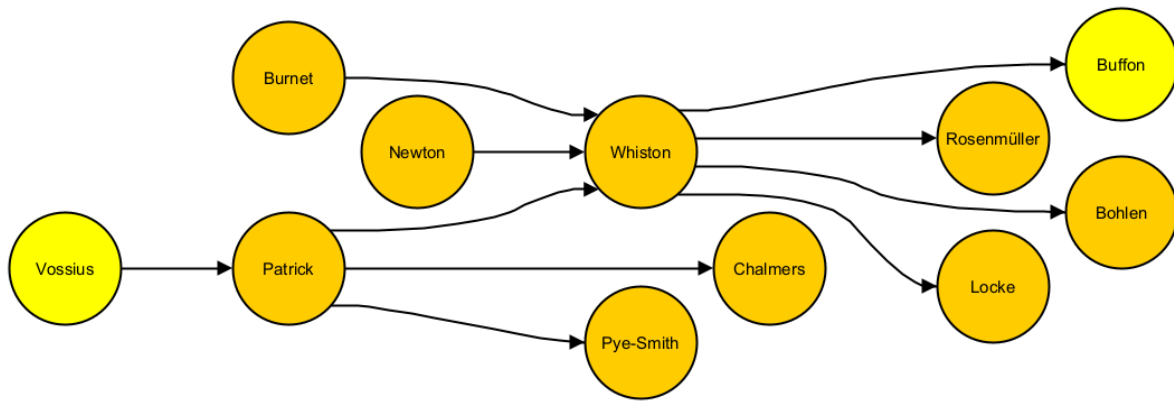


Figure 7.10 – Hierarchical analysis of citations centred on Patrick and Whiston

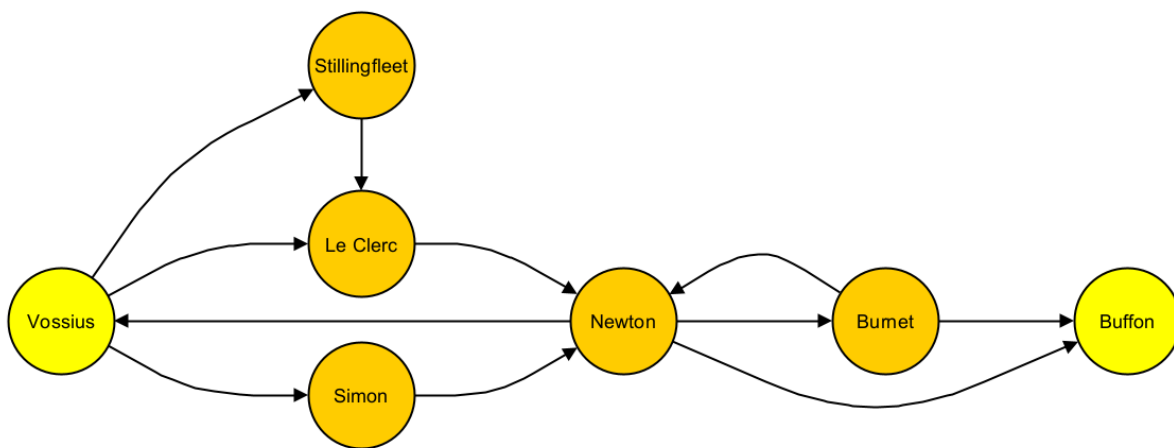


Figure 7.11 – Alternative citation channels connecting Vossius to Buffon

Thus, it may also be possible for Vossius to influence Buffon, not only through Patrick and Whiston, but also via Stillingfleet, Le Clerc, Simon, Newton and Burnet. As more nodes and edges are added to these clusters, a larger web of influence unfolds, spanning centuries. The complete citation network comprises 199 nodes and 1439 edges. But by restricting this network to the critical period, it is possible to explore in greater detail what happened to the interpretation of Genesis from 1650 to 1910. Here we see, that of the 151 authorities cited,³⁴ only 20 maintain that the Mosaic account should be read as literal history. This forms a stark contrast to the first sixteen centuries, where only 3 of the 47 commentators contend for the exclusive³⁵ allegorical interpretation of Genesis 1-11.

Central to this dissertation is the question as to how the historical sciences motivated and directed this reinterpretation of Genesis. One way to approach the problem at this stage is to distil from the large network all the most frequently cited authorities that form the heart of the structure and explore their relationship to one another and to the sciences. The resulting plot is shown in figure 7.12. I have

³⁴ Seven commentators are excluded from network because they end up as disconnected nodes: Richardson, Close, Doughty; along with Needler, Kipp, Burgon, and Jukes who cite authorities from before 1651.

³⁵ Most early commentators who explore the allegorical sense of these chapters do so whilst assuming the literal historical sense as a *prima facie* given. Even Philo, Origen and Augustine did not completely jettison the literal interpretation of Genesis 1-11 (see sections 5.2.1, 5.2.9 and 5.3.7).

indicated on the diagram every person with credible scientific expertise.³⁶ Of the 68 nodes, it can be seen that 33 were scientifically proficient.

Because of the designed focus of this network, what unites most of these scientists, of course, is not merely their scientific inclination or expertise, but rather their resolve to reinterpret Genesis 1-11 according to various historical sciences (see table 7.8). From Descartes to Lyell, not only was there a concerted effort in the historical sciences to construct a natural history of the world, but also to challenge Genesis 1-11 in the process.

Some commentators, like Mackintosh (1857), Williams (1861) and Candlish (1865), following the example of Galileo and Bacon, tried to keep science and Scripture separate. Others, like MacDonald (1856), Jamieson (1863), Murphy (1863), Jacobus (1864), Warrington (1870), Hirschfelder (1874), Warring (1875) and Gibson (1875) used science as a guide to reinterpret Genesis. Whilst Dods (1854), Colenso (1862), Quarry (1866), Alford (1872), Pritchard (1886), and Driver (1904) denied the possibility of any reconciliation with science. What they did not question, however, was the fact that Genesis 1-11 could no longer be treated as literal history.

Driving this revolution were at least 33 scientists, as shown in figure 7.12 and table 7.8, that together form a tightly-knit sub-network. But to appreciate the factors that united them, the network in figure 7.12 needs to be viewed through another lens. There is, in fact, at the core of this structure a closely tied web of atheists and deists, spanning more than two centuries, who share a common hostility towards Genesis 1-11 (see figure 7.13).³⁷ From the father of deism, Edward Herbert (1705:268), to the devil's chaplain, Charles Darwin (1903a:321; 1903b:94; 1887b:331), the general sentiment embraced by these men is that science is entirely sufficient to determine the true history of the universe and theology of nature without any recourse to a divinely-inspired book purporting to record the creation of the world.

³⁶ For a full breakdown of what sciences each person had expertise in, see appendix F.

³⁷ As discussed at length in chapters 2, 3 and 4.

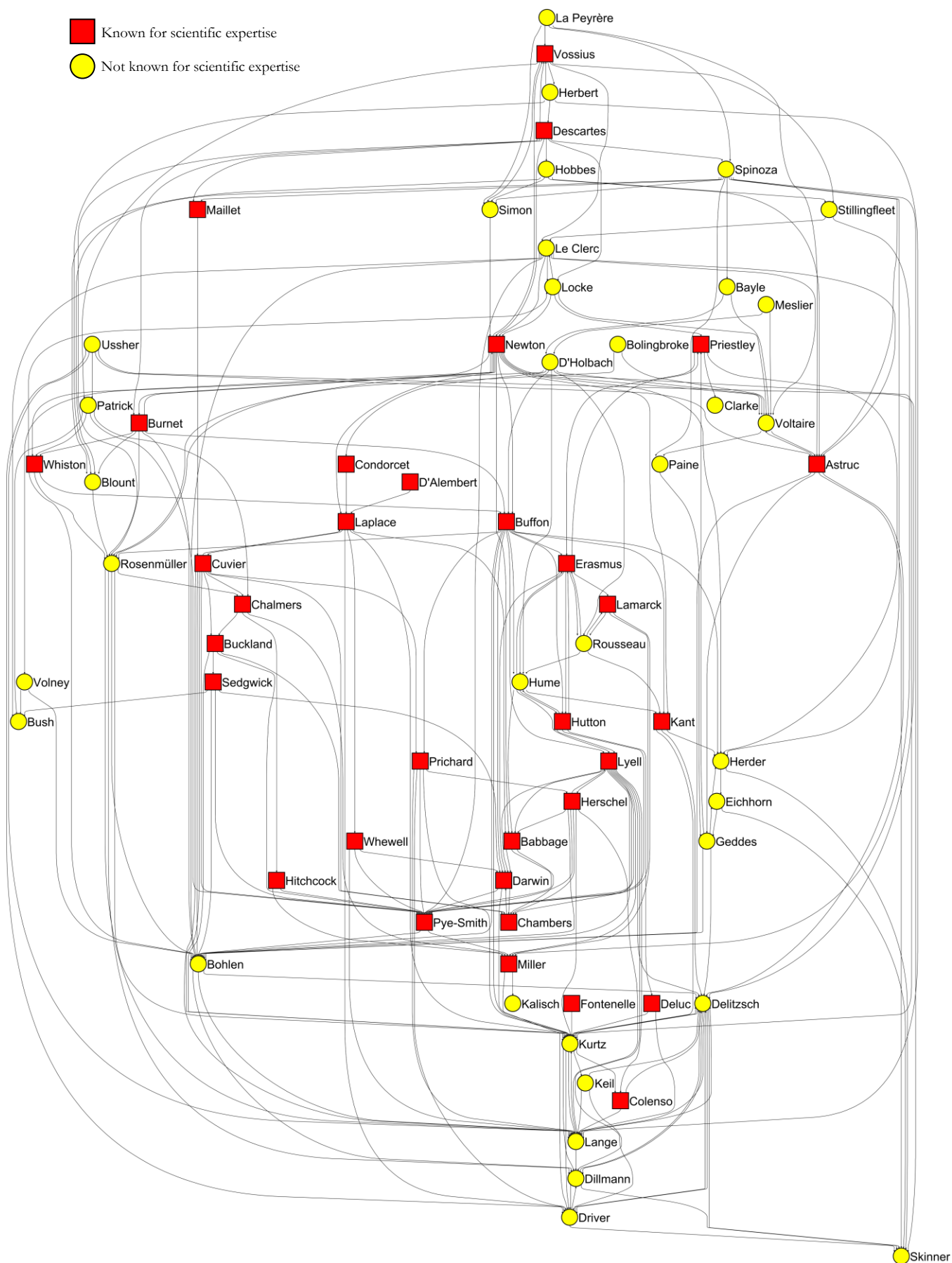


Figure 7.12 – The influence of science upon non-literal interpretations of Genesis 1-11

Date	Author	Publication
1632	Descartes	Le monde ou le traité de la lumière
1681	Burnet	Telluris theoria sacra
1686	de Fontenelle	Entretiens sur la pluralité des mondes
1692	Burnet	Archaeologiae philosophicae sive doctrina antiqua de rerum originibus
1696	Whiston	A new theory of the earth from its original to the consummation of all things
1748	de Maillet	Telliamed
1749-1804	Buffon	Histoire naturelle
1754	D'Alembert	Recherches sur differens points importants du systeme du monde
1755	Kant	Allgemeine naturgeschichte und theorie des himmels
1778	Buffon	Les époques de la nature
1786	Kant	Mutmaßlicher anfang der menschengeschichte
1788	Hutton	Theory of the earth; or an investigation of the laws observable in the composition, dissolution, and restoration of land upon the globe
1791	Darwin, E.	The botanic garden
1794	Darwin, E.	Zoonomia; or, the laws of organic life
1798	Deluc	Lettres sur l'histoire physique de la terre
1799-1805	Laplace	Traité de mécanique céleste
1803	Darwin, E.	The temple of nature; or, the origin of society
1809	Deluc	Traité élémentaire de géologie
1809	Lamarck	Philosophie zoologique, ou exposition des considérations relatives à l'histoire naturelle des animaux
1812	Cuvier	Recherches sur les ossemens fossiles de quadrupèdes, où l'on rétablit les caractères de plusieurs espèces d'animaux que les révolutions du globe paroissent avoir détruites
1813	Prichard	Researches into the physical history of man
1817	Chalmers	Discourses on the Christian revelation, viewed in connection with the modern astronomy
1819	Buckland	Vindiciae geologicae; or the connexion of geology with religion
1821	Cuvier	Théorie de la terre
1821	Sedgwick	A syllabus of a course of lectures on geology
1828	Buckland	Reliquiae diluvianæ; or observations on the organic remains contained in caves, fissures, and diluvial gravel, and on other geological phenomena attesting the action of an universal deluge.
1830-1833	Lyell	Principles of geology
1833	Herschel	A treatise on astronomy
1833	Whewell	Astronomy and general physics considered with reference to natural theology
1838	Babbage	The ninth Bridgewater treatise
1840	Hitchcock	Elementary geology
1840	Pye-Smith	On the relation between the Holy Scriptures and some parts of geological science
1844	Chambers	Vestiges of the natural history of creation
1850	Miller	Footprints of the Creator
1851	Hitchcock	The religion of geology and Its connected sciences
1857	Miller	Testimony of the rocks
1859	Darwin, C.	On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life
1859	Herschel	Physical geography of the globe
1863	Lyell	Geological evidences of the antiquity of man
1871	Darwin, C.	The descent of man, and selection in relation to sex

Table 7.8 – Publications in the historical sciences

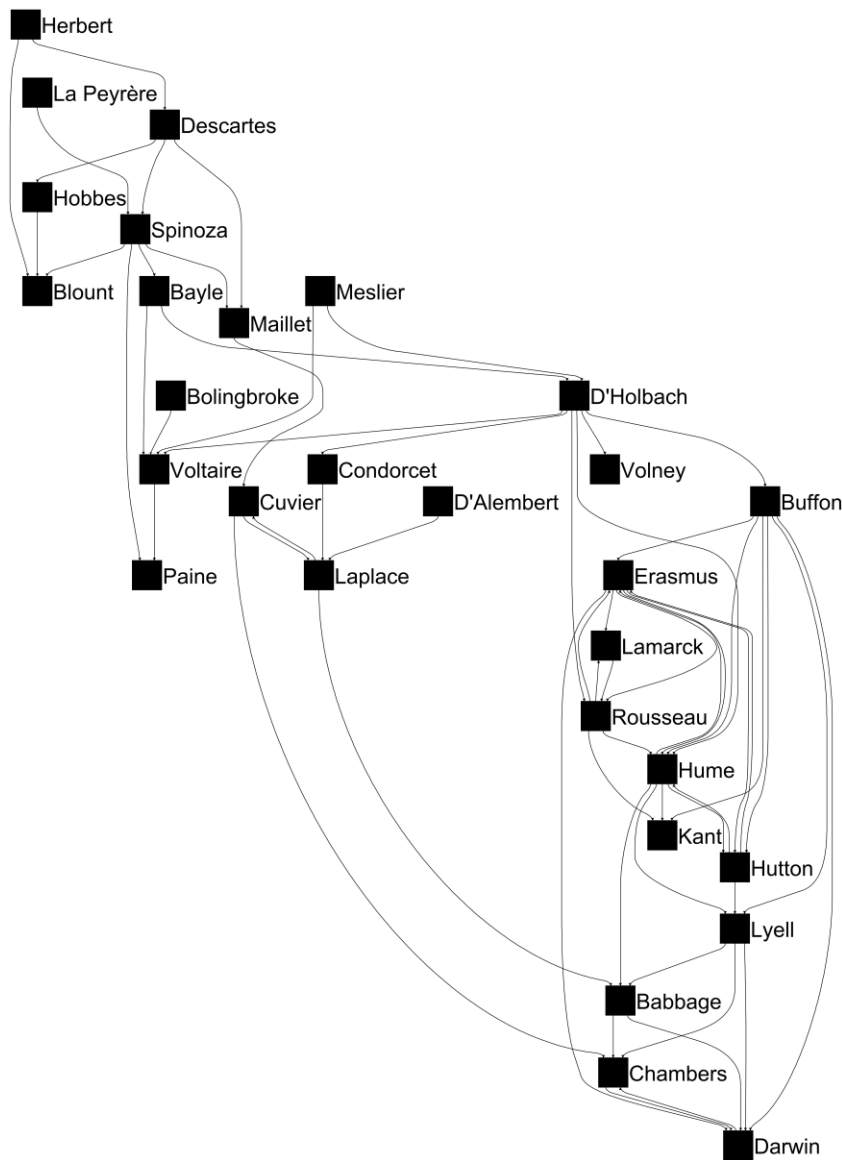


Figure 7.13 – Atheistic and deistic interpretations of Genesis 1-11 from Herbert to Darwin

The sub-network presented in figure 7.13 can be attested to on the following grounds.³⁸ Herbert's radical aspirations evidently carry over to Descartes because Descartes (1991:140) expresses the hope that Herbert's ideas would "be approved by orthodox theology." In turn, both Spinoza and Hobbes are "wonderfully pleased" with Descartes' system of philosophy (Bayle, 1826:282; cf. Frame, 2015:182; Pogson Smith, 1929:xix). Although Bayle (1826:288) rejects the "absurdities of Spinoza's system", his "barely restrained admiration" for the Dutch heretic is evident from the fact that the longest article in *Dictionnaire Historique et Critique* is devoted to "Spinoza" (Brykman, 1987-1988:259). Both Voltaire (1912:261) and d'Holbach (1868:313) praise Bayle (2005:75) for replacing Christianity with the "infallible rule" of reason. D'Holbach, credited for the "emergence of modern atheism", was close friends of Condorcet, Rousseau, Hume, Diderot, d'Alembert, and finally, Buffon (Kors, 1976:9-40, 105-106; Buckley, 1987:34; Durant, 1965:699-700). Buffon's influence extends to Hume, Hutton, Humboldt, Lyell,

³⁸ For the full account, refer to chapters 2, 3 and 4.

Lamarck, and eventually, Charles Darwin, to whom Buffon has been called an ideological grandfather (Hume, 1932d:205; 1932e:82; Zalasiewicz *et al.*, 2018:xvii; Jacob, 1973:12; Persell, 1991:16, 20; Packard, 1901:18; Gillispie, 1968:279). Kant (2008:65; 2007:326) also shows his respect for Buffon in at least two places referring to him as “that justly celebrated philosopher” and “great author”. Erasmus embraces Buffon’s evolutionism, suggesting that “mankind arose from one family of monkeys on the banks of the Mediterranean” as they “acquired clear ideas, and gradually became men” (Darwin, 1803a:54). Erasmus exchanged letters with Rousseau and Hutton, and even extended hospitality to Hume (King-Hele, 1968:17; 1988:61-62; Krause, 1879:33). Likewise, Lamarck’s *Philosophie Zoologique* (1809) was inspired by Erasmus’ *Zoonomia* (King-Hele, 1977:317). Both Hume and Hutton, being mutual friends of Erasmus, were equally close in acquaintance (McIntyre, 1999:2). Hutton is admired by Lyell (1830:4, 60-62). And Lyell leaves such an impression on Darwin (1903a:117) that he confesses, “I always feel as if my books came half out of Lyell’s brain”. Therefore, there is sufficient evidence to suggest that the twenty-eight men presented in figure 7.13 belong to a closely-tied web of atheists and deists who completely reject Genesis.

Connected to this network are sixteen men who do not reject the Mosaic record; yet they contend that Genesis 1-11 is either fallible or from the realm of mythology (see figure 7.14). Here it is evident that Descartes’ philosophy left its mark on both Burnet and Locke (Mandelbrote, 2004:930; Thilly, 1900:597-612; Ware, 1950:210-230). Astruc (1753:9, 17-18, 453-454) derives his two-source documentary hypothesis in response to La Peyrère, Hobbes and Spinoza. Following Hobbes, Spinoza and La Peyrère – Richard Simon, the so-called “Father of Higher Criticism”, becomes one of the first Bible scholars to reject the Mosaic authorship of Genesis (Popkin, 1987:87; Morrow, 2011:34; Levitin, 2012:1119). Geddes (1796:6, 15) openly admires Paine (Goldie, 2010:81). Herder (1893:2, 64, 68, 108, 127, 289, 293, 463) reserves high praise for Kant and relies heavily upon Buffon’s *Histoire naturelle* in his discussion of the animal kingdom. Geddes, in turn, is regarded by Eichhorn as “almost the only person” who held his respect as a fellow Bible critic (Cheyne, 1893:6). Lyell is able to convince Colenso (1862:vii-viii) to reject the historicity of Noah’s flood in its entirety. Whewell (1845:16-21) accepts Laplace’s nebular hypothesis and uses it as a guide to reinterpret Genesis 1:3. Although Delitzsch (1888:v, 57-58, 80, 248-249) rejects Darwinism and seems initially dismissive of “Lyellism”, he goes on to reject the universality of the flood on the basis of Eduard Suess’s (1831-1914) *Das antlitz der Erde* (1885–1909).³⁹ In this book, Suess (1904:17) credits Lyell for showing him “more clearly than any previous writer how Nature may attain great results by trifling means.” In other words, via Suess, Lyell’s geological views find their way into Delitzsch’s exposition of Genesis 6-8.

³⁹ i.e. “The face of the earth”

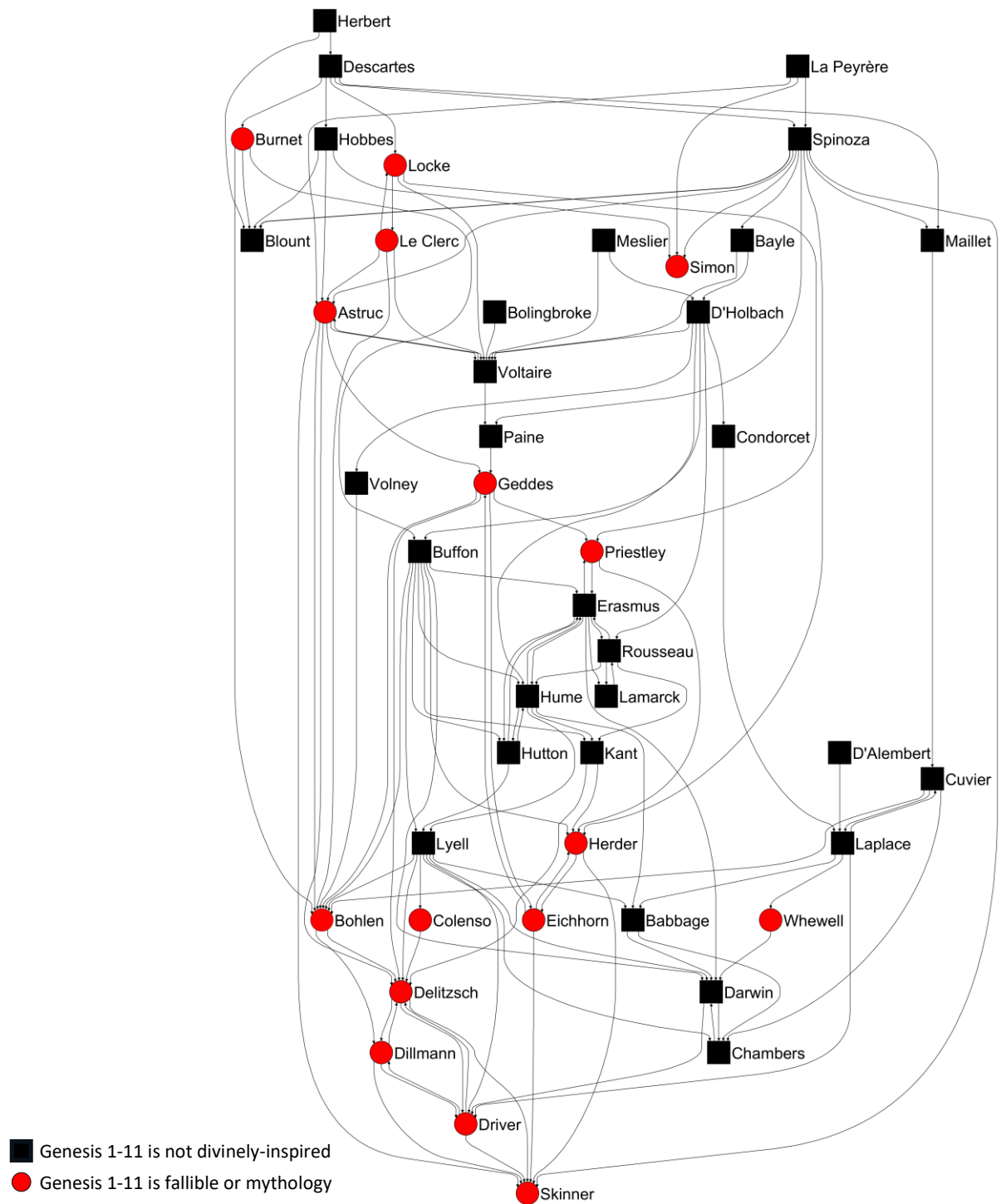


Figure 7.14 – Atheistic and deistic influence upon the mythologisation of Genesis 1-11

Bohlen (1862b:5, 8, 151, 190, 227) cites Burnet, Buffon and Volney in his commentary; and Dillmann (1897:23, 49, 54, 109, 121, 157, 185, 191, 195, 278, 289, 294) repeatedly cites Bohlen. In Driver's (1904:xxxvi, xl, 19-20, 25, 32, 36) exposition of Genesis, he draws insight from Lyell, Laplace and Darwin, concluding that the earth is immensely old and that humanity likely evolved from some "anthropoid ancestors" in a state of "savagery". And Skinner's (1910:VII-VIII, xxxiv) commentary pays its dues to

Eichhorn, and Driver who edited the whole series. In summary, it is evident that these sixteen commentators are profoundly influenced by the network of atheists and deists depicted in figure 7.13.

To complete the picture, this web of influence can be enlarged by one more tier to include the remaining eighteen other prominent commentators and scientists from this period.⁴⁰ The resulting network diagram is shown in figure 7.15. The hierarchical structure of this partial network is significant. To begin with, towards the centre of the plot, there is a conspicuous atheistic/deistic spine that forms the heart of the structure. All nodes in this diagram form branches that are rigorously connected to this radical core showing how the reinterpretation of Genesis 1-11 from 1650 to 1910 is inextricably rooted in the naturalistic agenda perpetuated by atheists and deists.

As before, these connections can be attested to on the following grounds. La Peyrère's radical reinterpretation of Genesis might have been rejected by most contemporaries, but Vossius (1659:48-60) was at least persuaded by La Peyrère (1655:239-244) to restrict Noah's flood to Palestine (Hale, 1677:184-186; McKee, 1944:470). And from his position in this plot, Vossius proves to be a very influential commentator. As Katz (1993:142) and Israel (2001:604) relate, "Vossius did more than most to undermine the sufficiency of the biblical text" and was known to "believe anything, if only it were not in the Bible." Like Vossius, whilst Stillingfleet (1709:334-337, 340-341) rejects La Peyrère's pre-Adamite theory as "undoubtedly false", he agrees with La Peyrère and Vossius that the flood might not have deluged the whole earth. Patrick (1695:13, 18, 21, 106, 166, 186, 278, 414) also cites Vossius repeatedly although he affirms that the flood was global.

Newton, along with Locke, was a champion of the "moderate mainstream" European Enlightenment (Israel, 2001:11). Israel (2001:515) claims that when Voltaire merely introduced Newton and Locke's writings to the continent he achieved as much for his legacy as he did from his own writings. Newton (1858:217) and Locke were close confidants. When Newton (1858:217) wanted help translating and publishing a heterodox theological treatise, he asked Locke (King, 1858:231; Westfall, 2010:490-491). The treatise was entitled *An historical account of two notable corruptions of Scripture* and was addressed to Le Clerc, another good acquaintance. Newton (1831:4-5) was also familiar with Simon's (1682:book I:37) critical commentary on the Old Testament and appeals to his line of reasoning to dismiss the Mosaic authorship of certain sections of Genesis.

Inspired by Newton, Burnet became one of the first to attempt an explanation of Genesis 1-11 in terms of Newtonian physics. Not satisfied with the manner in which Burnet so easily dismissed the "natural sense of Scripture", Newton's protégé, Whiston (1737:27, 77-78, 95), developed his own new theory of the earth. To reconcile science with the text, he restricts the creation account to merely the earth (Whiston, 1737:4).

⁴⁰ See figure 7.16.

The influence of Cuvier within this network is profound. Chalmers (1836c:349; cf. 1836a:233, 240-241, 251-253; 1836b:309-310; 1836c:369-370) is convinced by Cuvier's natural history and adopts the gap theory advanced Rosenmüller and Patrick to accommodate Cuvier's scheme in his exposition of Genesis (Cannon, 1961:16). Buckland (1820:5-6) praises Cuvier as "one of the most enlightened philosophers, and the greatest anatomist of this or any other age" for employing geology to unveil "the history of thousands of ages which preceded the existence of his race". Lange (1869:74, 186-187) cites Cuvier as the "most celebrated naturalist" in his exposition of the "six days" of creation. Prichard (1813:46, 52, 64-65, 94, 97, 104, 106-115, 118-120, 124-126, 128, 130, 143, 145) frequently cites the "justly celebrated comparative anatomist", Cuvier. Drawing upon Cuvier's racist views, along with that of Buffon, Prichard (1813:233-239, 254, 275, 327-329) departs from Genesis, suggesting instead that "the original stock of men were black" "or very similar to Negroes", being closest to "the primitive state of mankind" and "nearest upon the tribe of monkeys", who subsequently evolved into the "more cultivated" European race. And following "geological facts", Prichard (1836:101) asserts that there was a "partial creation" after Noah's flood.

Prichard's anthropology is highly regarded by Herschel (1867:393) and Kurtz (1870:76-77). Kurtz (1870:102-103) is even convinced to abandon the idea of a universal flood due to the biogeographical problems presented by Prichard. Kurtz (1857:343-344, 438) is also connected to Laplace because he accepts the nebular hypothesis and tries to show how it may be harmonised with the first chapter of Genesis.

Pye-Smith (1855:28-31, 47, 61, 77, 101-104, 153) forms his geological opinions from the writings of Hutton, Fleming, Buckland, Cuvier, Darwin, Powell and Sedgwick. Sedgwick is also instrumental in providing Bush (1838:25, 29) with the "incontrovertible evidence" he needs to warrant the gap theory. Deluc (1809, 77, 79-82) prefers to develop his own geological ideas from Hutton. Miller (1849:183-184, 196, 214, 229; 1857:87, 147, 313, 353, 355, 421-422, 460, 485, 496, 498) follows Lyell. He also encourages his readers not to view the evolutionary theories of de Maillet and Lamarck as inherently atheistic or opposed to the doctrine of creation (Miller, 1849:13-14).⁴¹

In a similar vein, and despite distancing himself from Herbert, Buffon and Darwin, Lange (1869:183, 295) admits in his commentary that Darwinism "does nevertheless contain an indication of the truth". Therefore, within this plot, only three commentators accept the literal historical interpretation of Genesis 1-11.⁴² Every other commentator, scientist and philosopher in this plot rejects Genesis as literal history. What this citational analysis suggests is that, for the period 1650 to 1910, all non-literal interpretations of Genesis 1-11 arise because of atheistic and deistic attitudes towards that text. In other words, all the

⁴¹ The reason why Miller rejects evolution in the end is epistemologically insightful. He regards it as a "misreading of the geologic record" (Miller, 1849:313).

⁴² i.e. Ussher, Keil and Clarke – although Clarke's (1843:46-47) commentary, as mentioned earlier, is by no means conservative.

hermeneutical innovations contrived to deal with Genesis (see table 7.7 and figure 7.16) originate because of the united resolve of men committed to destroying traditional Christianity (Gliozzo, 1971:283).

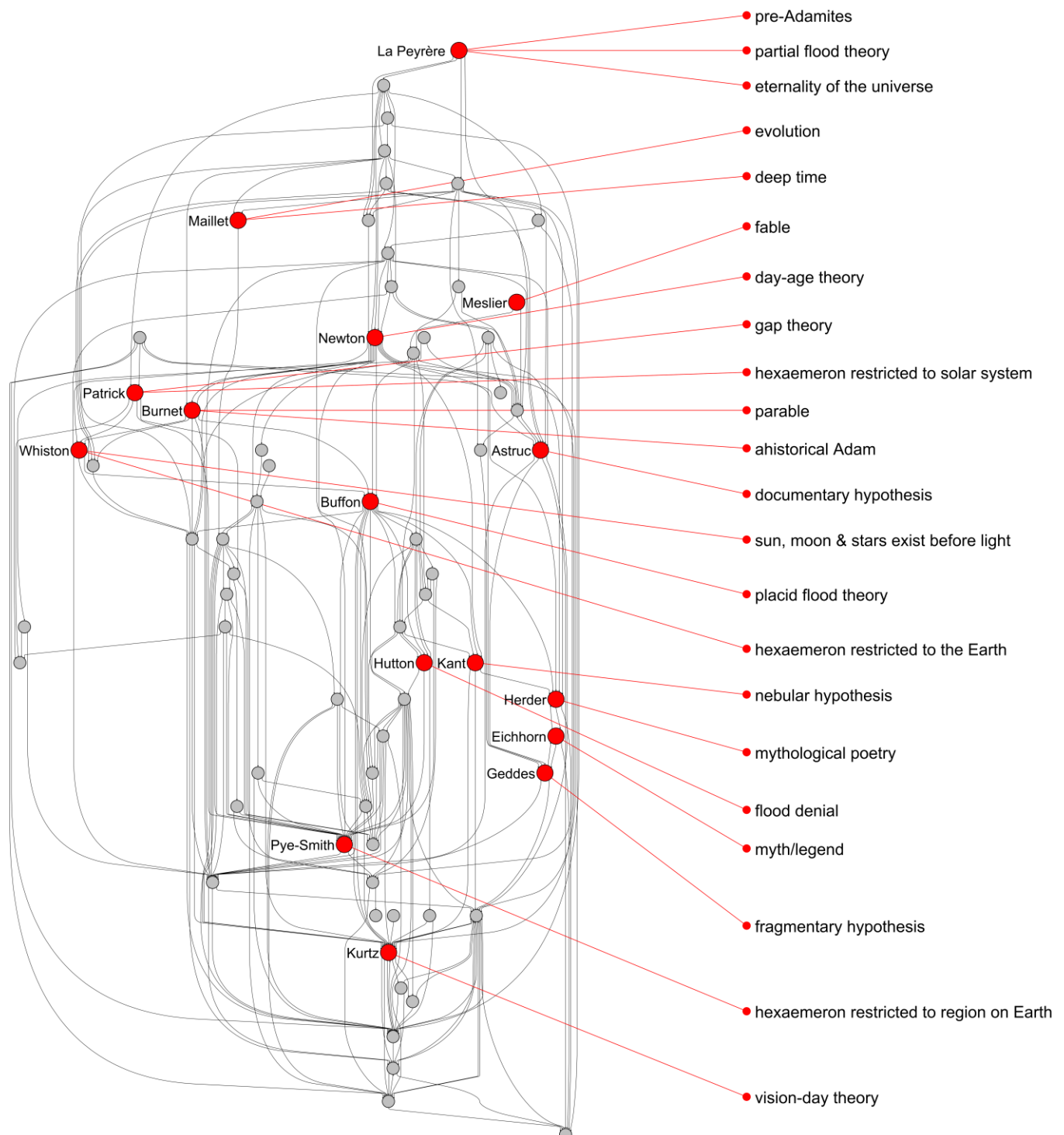


Figure 7.16 – Approximate origins of various non-literal interpretations of Genesis 1-11⁴³

⁴³ In this plot have ascribed the gap theory to Patrick even though Hale proposes the idea almost twenty years earlier because, unlike Patrick, Hale is ignored by all other prominent commentators and scientists from this period (see table 7.7 and appendix D).

7.5 Summary

Before the nineteenth century, most commentators maintained a literal approach to Genesis. But from as early as 1650, the text began to be subjected to various nonliteral innovations which gradually grew in popularity until 1830 at which point the hermeneutical revolution reaches a turning point. From this moment in history, the literal approach to Genesis 1-11 becomes a minority viewpoint against the backdrop of many non-literal interpretations that continue to grow exponentially in the commentaries. This radical reinterpretation of Genesis was largely indicative of developments in the historical sciences including, but not limited to, Laplace's nebular hypothesis, Cuvier's catastrophism and Lyell's uniformitarianism. But the most important scientific criterion underpinning these naturalistic frameworks is the conviction of deep time. Almost all commentaries that abandon the literal sense during the critical period do so to accommodate the axiom of vast ages.

There is, however, a deeper epistemic conflict underlying even the presupposition of vast ages. At the root of the revolution lies a conspicuous anti-Christian sentiment, promulgated by a closely-tied network of atheists and deists united by their hostility towards Scripture. Every nonliteral theory of interpretation, as catalogued in table 7.7, can be traced back to this root within the period 1650 to 1910. This is why there is no obvious *exegetical* rationale to determine whether a text in Genesis 1-11 has a high susceptibility to the influence of historical science. The determining factors are entirely *eisegetical* and, if not conceived by naturalistic intent, at least sustained by naturalistic intent. This is the unifying principle that unites most astronomers, geologists, palaeontologists and anthropologists in their approach to Genesis 1-11 from 1650 to 1910. Commentators, who follow this lead, do so because of their high regard for these scientists. And in doing so – whether wittingly or unwittingly – they perpetuate the anti-Christian sentiment at the heart of the Enlightenment. For this reason, as stated before, Genesis provides a useful metric when it comes to measuring Enlightenment. Inescapably, this biblical book lies at the heart of the Enlightenment struggle.

Chapter 8. Conclusion

This study has shown that, in the sixteenth and seventeenth centuries, science and Scripture enjoyed a harmonious, integrated relationship. The writings of prominent scientists from this era reveal a profound respect for the word of God directly stimulating the systematic investigation of the world of God. In other words, there was an inextricable epistemological relationship between robust theological convictions and the creative explosion of discoveries in biology, astronomy, cosmology, cartography, economics, pure and applied mathematics, pneumatics, chemistry, geology, electricity and electrostatics, zoology, botany, microscopy and microbiology. In particular, almost all the founding fathers of our modern scientific disciplines from these two centuries leave behind enough evidence to show that they viewed Genesis 1-11 as literal history.

This is corroborated by a literature review of 193 commentaries representing 177 commentators from 20 centuries. From the days of Christ till the mid-seventeenth century, Genesis 1-11 was unambiguously received as literal history by almost every commentator from Josephus through to James Ussher. But shortly after Ussher's famous *Annales veteris testamenti* went to press, a new philosophy of science and a new era of biblical interpretation emerged in Europe, propelled by the rise of a Radical Enlightenment. The principal proponents of this revolution were largely atheists and deists: men like Spinoza, Hobbes and Herbert who were opposed to the central tenets of Christianity. But their secular worldview could not exist without a secular story of origins. And thus, Genesis 1-11 became increasingly problematic. For this reason, as this research has shown, almost all the major Enlightenment thinkers engage directly or indirectly with the opening chapters of the Bible.

Following Descartes, La Peyrère and Bayle, the primary onslaught came from France, led by men like de Fontenelle, Meslier, de Maillet, Diderot, d'Holbach, Voltaire, Buffon, Laplace and Lamarck. Joining their ranks, in England and Scotland there was Bolingbroke, Hume, Hutton, Geddes, Priestley and Erasmus Darwin. Meanwhile in Germany, Eichhorn and Herder imposed their historical-critical theories upon the text, whilst Kant supplied the epistemological framework necessary for enlightenment. Even in America, Paine crafted his own diatribe against Genesis. Citational analysis also shows that these men did not act independently of one another but belonged to an intricate, integrated network of likeminded thinkers spanning several centuries. The kindred spirit uniting this multinational, multigenerational network nurtured an uncompromising antagonism towards Christianity. The network was further mobilised through the influence of important scientific societies like the Royal Society of London, the Lunar Society of Birmingham, the French Academy, the Lyceum of Natural History, the Geological Society of London, the Cambridge Philosophical Society and the British Association for the Advancement of Science. Indeed, from their very inception, most of these societies, being populated by members who did not subscribe to the divine inspiration of Scripture, were decidedly against the history delineated by Genesis 1-11.

The impetus to establish an alternative history for the universe upon naturalistic foundations made the historical sciences increasingly important for secular scientists. Astronomers, geologists and palaeontologists, captured by the zeitgeist of the Enlightenment, began to postulate various naturalistic explanations for phenomena. Of the fifteen most frequently cited scientists from 1650 to 1910, all of them deny, either partially or completely, the literal historicity of Genesis 1-11 and almost all believe the earth to be considerably older than six thousand years. The principal scientists dictating these developments include Vossius, Newton, Burnet and Whiston in the seventeenth century; followed later by de Maillet, Kant, Buffon, Laplace, Hutton and Lamarck in the eighteenth century; and finally, Chalmers, Whewell, Buckland, Herschel, Prichard, Lyell and Darwin in the nineteenth century.

But the way in which their influence reaches most Genesis commentators is via critical intermediaries who act as the hermeneutical brokers in this network. These are the key commentators behind the revolution. They include men like Delitzsch, Patrick, Kurtz, Le Clerc, Rosenmüller, Keil, Pye-Smith, Miller, Lange, Colenso, Bush, Kalisch, Bohlen and Driver. All these commentators defer to the aforementioned scientists to advocate non-literal interpretations of Genesis. And, as shown from the frequency of citations to these authorities in the corpus, it is evident that they were able to successfully promulgate and popularise their less-than-literal expositions to many other commentators who did not directly engage with either the historical sciences or the scientists. Where scientists once read the book of nature through the lens of Scripture, now commentators were reading the book of Scripture through the lens of science.

During the critical period in question, 1650 to 1910, various new ways of interpreting Genesis 1-11 arose to satisfy the parameters of “natural history” established by the historical sciences. The three elements of Genesis most susceptible to this scientific hermeneutic were the creation of the sun, moon and stars in Genesis 1:14-19, the nature of the flood in Genesis 7:1-8:19 and the interpretation of the six days in Genesis 1. All these texts faced extensive reinterpretation in order to accommodate the nebular hypothesis and various geological and palaeontological phenomena. Even the documentary and fragmentary hypotheses gained traction because of the demands of these historical sciences. But the most important scientific criterion discouraging the literal interpretation of the text in these pericopes is the conviction of deep time. The secular story of origins required eons of time. Therefore, almost all commentaries that abandon the literal sense during the critical period do so to accommodate the axiom of vast ages. Of the 193 commentaries reviewed from 177 commentators in this research, only 80 commentators refrain from stating their views about the age of the earth in their exposition of Genesis 1-11. In fact, most of the interpretive innovations conceived by commentators from 1650 to 1910 are motivated by a concern to accommodate vast ages with Genesis. The postulation of pre-Adamites, partial and placid flood theories, the gap theory, day-age theory, vision-day theory; even efforts to re-generate Genesis as allegorical, apocalyptic, anthropomorphic, poetic, parabolic or mythical were largely motivated by this prior commitment to deep time.

As I have shown from the commentaries themselves, from 1650 to 1750, Genesis 1-11 was perceived as mostly historical and scientifically relevant but needed to be reconciled with the emerging sciences. From 1750 to 1830, Genesis continued to be received as mostly historical, but no longer scientifically relevant. The year 1830, as suspected in my preliminary review, proved to be a critical turning point in this hermeneutical revolution. After 1830, the Mosaic record is treated by most commentators as having very little to no historical or scientific value. This is particularly evident in the Bridgewater treatises which were published a few years later, from 1833 to 1836. The apologetic methodology adopted by Chalmers, Whewell, Buckland and Babbage treated Genesis 1-11 as historically and scientifically inconsequential. At the same time, a pivotal moment in geology had been reached. Both the catastrophism of Cuvier and the uniformitarianism of Lyell, despite their significant geological differences, persuaded most geologists to dismiss the universal deluge as irrelevant. By 1859, a fully-fledged naturalistic story of origins was finally contrived. Darwin's ingenious synthesis provided the most rigorous and comprehensive alternative to Genesis 1-11 yet. Very few commentators embraced his evolutionism at the time, but the naturalistic framework for history gained significant epistemic authority. From 1859 to 1910, only three out of fifty-five commentaries present Genesis 1-11 as literal history. In fact, after 1887, most commentators treat the text as a useful myth or a spiritual parable.

So how did the historical sciences influence the interpretation of Genesis 1-11 from 1650 to 1910? Put succinctly, the Enlightenment sought a new view of morality, history, humanity and nature, unhampered by the strictures of Christianity. To satisfy these ends, the historical sciences were redefined and recast within a naturalistic mould. The historical sciences then bound the minds of men in an epistemic stranglehold and compelled them on these grounds to reject or reinterpret the biblical text to corroborate preconceived conclusions. And in this way, the testimony of sixteen centuries to the literal interpretation of Genesis 1-11 was finally abandoned. Genesis history eventually became Genesis myth. In other words, the Enlightenment tells the story of how the world lost Genesis.

Appendix A: Genesis commentaries from Philo to Skinner

Table A.1 – Genesis commentaries with literality index

Date	Author	Title	Interpretation	Literality index	
				x	Σx
1-50	Philo	Quaestiones et solutiones in Genesim et Exodum/Ζητηματα και λυσεις	literal & allegorical	0	0
		De opificio mundi/Περί της Μωυσεως κοσμοποιουας	literal & allegorical	0	0
		Legum allegoria/Νόμων ιερών αλληγορίας των μετά την εξαήμερον το πρώτον	allegorical	-1	-1
93-94	Josephus	Ιουδαϊκή αρχαιολογία	literal	1	0
132-135	Justin	Τοῦ ἁγίου Ἰουστίνου πρὸς Τρύφωνα Ἰουδαῖον Διάλογος	literal	1	1
155-157		Τοῦ ἁγίου Ἰουστίνου Ἀπολογία ὑπὲρ Χριστιανῶν πρὸς Ἀντωνῖνον τὸν Εὐσεβῆ	literal	1	2
?		Λόγος παραινέτικος πρὸς Ἑλλήνας ¹	literal	1	3
c. 180	Irenaeus	Adversus haereses	literal	1	4
180-185	Theophilus	Apologia ad Autolyicum/Θεοφίλου πρὸς Αυτόλυκον	literal	1	5
c. 197	Tertullian	Apologeticus	mostly literal	1	6
198-203	Clement	Στρώματα	mostly literal	1	7
198-207	Tertullian	Adversus Hermogenem	literal	1	8
200-206		Adversus Juadaeos	literal	1	9
200-206		De cultu feminarum	literal	1	10
202-211	Hippolytus	Περὶ ὁράσεως τοῦ προφῆτου Δανιὴλ	literal	1	11
208-211	Tertullian	Adversus Marcionem	literal	1	12
208-211		De anima	literal	1	13
c. 209		De pallio	literal	1	14
c. 213		De monogamia	literal	1	15
c. 213		Adversus Praxean	literal	1	16
c. 215	Origen	Homiliae in Genesim; In Exodum homiliae	literal & allegorical	0	16
c. 221	Africanus	Chronographiai	literal	1	17
219-230	Origen	Περὶ Ἀρχῶν/De principiis	literal & allegorical	0	17
246-248		Κατὰ Κέλσου/Contra Celsum	literal & allegorical	0	17
c. 303	Victorinus	De fabrica mundi	literal	1	18
310-320	Lactantius	Divinae institutiones	literal	1	19
c. 318	Athanasius	Contra gentes	literal	1	20
325	Eusebius	Chronicon	literal	1	21
357-359	Athanasius	Λόγοι κατὰ Ἀρειανῶν/Contra Arianos	literal	1	22
363-373	Ephrem	Hymni de Paradiso	literal	1	23
363-373		Sancti Ephraem Syri in Genesim et in Exodum commentarii	literal	1	24
c. 370	Basil	Hexaemeron	literal	1	25
c. 375	Ambrose	De Paradiso	literal & allegorical	0	25
c. 375		De Cain et Abel	literal & allegorical	0	25
c. 380	Didymus	Εἰς τὴν Γενεσιν	literal (philosophical/scientific) & allegorical	0	25

¹ This work is commonly attributed to Pseudo-Justin from the early fourth century (Buitenwerf, 2003:78-79). Either way, it advocates a literal interpretation of Genesis 1-11 from the period of the early church fathers.

Table A.1 (continued)

Date	Author	Title	Interpretation	Literality index	
				x	$\sum x$
380-381	Gregory	Hexaemeron	literal (philosophical/scientific)	1	26
380-381	Gregory	Τῆς τοῦ ἀνθρώπου γενέσεως	literal (philosophical/scientific)	1	27
c. 385	Chrysostom	Ομιλῖαι εἰς τὴν Γένεσιν	literal	1	28
387-389	Ambrose	Hexameron	literal	1	29
388-389	Augustine	De Genesis contra Manichaeos	literal (philosophical/scientific) & allegorical	0	29
c. 392	Jerome	Quaestiones Hebraicae in Genesim	literal	1	30
393-395	Augustine	De Genesis ad litteram liber unus imperfectus	literal (philosophical/scientific) & allegorical	0	30
397-401		Augustineni Confessiones	allegorical	-1	29
401	Severian	In Cosmogoniam	literal (philosophical/scientific)	1	30
401-416	Augustine	De Genesi ad litteram	literal (philosophical/scientific) & allegorical	0	30
412-423	Cyril	Glaphyra	mostly literal	1	31
426	Augustine	De civitate Dei contra paganos	literal & allegorical	0	31
450-460	Theodoret	Quaestiones in octateuchum	literal (philosophical/scientific)	1	32
680-692	Anastasius	Hexaemeron	literal & typological	0	32
709-731	Bede	Libri quatuor in principium Genesis usque ad nativitatem Isaac et eiectionem Ismahelis adnotationum	literal & allegorical	0	32
729-743	Damascene	De fide orthodoxa	literal & allegorical (philosophical/scientific)	0	32
1094-1098	Anselm	Cur Deus homo?	literal (philosophical)	1	33
c. 1129	Abelard	Expositio in hexaemeron	literal, moral & allegorical (philosophical/scientific)	0	33
c. 1150	Lombard	Libri Quatuor Sententiarum	literal & allegorical (philosophical/scientific)	0	33
1155	Ibn Ezra	Sefer ha-Yashar	literal (philosophical/scientific/naturalistic)	1	34
c. 1190	Maimonides	Dalālat al-ḥā'irīn	literal & allegorical (naturalistic) ²	0	34
c. 1225	Grosseteste	Hexaemeron	literal & allegorical (philosophical/scientific)	0	34
1269-1272	Aquinas	Summa theologia	literal & allegorical (philosophical/scientific)	0	34
1535-1545	Luther	Genesis-Vorlesung/Enarrationes	literal	1	35
1554-1563	Calvin	Commentaires de M. Jean Calvin, sur les cinq livres de Moïse: Genèse est mis à part	literal	1	36
1592	Babington	Certaine plaine, briefe, and comfortable notes vpon euerie chapter of Genesis	literal	1	37
1605	Willet	Hexapla in Genesin	literal (scientific)	1	38
1614	Ralegh	The historie of the world	literal (scientific)	1	39
1616	Ainsworth	Annotations on the Pentateuch: the book of Genesis	literal	1	40
1617	Salkeld	A treatise of Paradise	literal	1	41
1641	Walker	The history of the creation as it is written by Moses in the first and second chapters of Genesis	literal	1	42
1643	Jackson	A help for the understanding of the Holy Scripture	literal	1	43
1647	Lightfoot	A chronicle of the times, and the order of the texts of the Old Testament	literal	1	44
1649	Trapp	A clavis to the Bible: or a new comment upon the Pentateuch: or five books of Moses	literal	1	45
1650	Ussher	Annales veteris testamenti, a prima mundi origine deducti	literal	1	46

² i.e. the interpretation of Genesis 1-11 is determined by science.

Table A.1 (continued)

Date	Author	Title	Interpretation	Literality index	
				x	Σx
1654	Needler	Expository notes, with practical observations; towards the opening of the five first chapters of the first book of Moses called Genesis	literal	1	47
1655	Richardson	Choice observations and explanations upon the Old Testament: annotations on Genesis	literal	1	48
1672	Hughes	An analytical exposition of the whole first book of Moses, called Genesis	literal	1	49
1677	Hale	The primitive origination of mankind, considered and examined according to the light of nature	gap theory (scientific)	-1	48
1681-1690	Burnet	Telluris theoria sacra	literal (naturalistic)	1	49
1682	Henry	An exposition with practical observations upon the first eleven chapters of Genesis	literal	1	50
1683	Poole	Annotations upon the Holy Bible	literal	1	51
1692	Burnet	Archaeologiae philosophicae sive doctrina antiqua de rerum originibus	parable (naturalistic)	-1	50
1692	Bunyan	An exposition on the ten first chapters of Genesis, and part of the eleventh	literal & allegorical	0	50
1693	Le Clerc	Genesis sive Mosis prophetæ liber primus	naturalistic	-1	49
1694	Kidder	A commentary on the five books of Moses	literal	1	50
1695	Patrick	A commentary upon the first book of Moses called Genesis	gap theory	-1	49
1696	Whiston	A new theory of the earth	day-age theory, terrestrial ³ (naturalistic)	-1	48
1708-1710	Henry	Exposition of the Old and New Testaments	literal	1	49
1733	Stackhouse	A new history of the Holy Bible, from the beginning of the world, to the establishment of Christianity	gap theory (scientific)	-1	48
1735	Colman	A brief dissertation on the three first chapters of Genesis	literal	1	49
1739	Jennings	An introduction to the use of globes and the orrery	terrestrial (naturalistic)	-1	48
1747	Kennicott	Two dissertations: the first on the tree of life in paradise, with some observations on the creation and fall of man; the second on the oblations of Cain and Abel	literal	1	49
1753	Astruc	Conjectures sur les memoires originaux dont il paroît que Moïse s'est servi pour composer le livre de la Genese	naturalistic	-1	48
1753	Scott	Notes and observations upon the three first chapters of Genesis	mostly allegorical	-1	47
1753	Shuckford	The creation and fall of man	literal	1	48
1763	Gill	An exposition of the Old Testament; in which are recorded the origin of mankind, of the several nations of the world	literal	1	49
1764	Purver	A new and literal translation of all the books of the Old and New Testament; with notes, critical and explanatory	literal	1	50
1765-1766	Wesley	Explanatory notes upon the Old Testament	literal	1	51
1765-1770	Dodd	A commentary on the books of the Old and New Testament	terrestrial (literal)	-1	50
1776	Rosenmüller	Antiquissima telluris historia à Mose	gap theory	-1	49
1778	Buffon	Les époques de la nature	gap theory, day-age theory (naturalistic)	-1	48
1778	Brown	The self-interpreting Bible, containing the Old and New Testaments	literal	1	49
1784	Anonymous	A key to the three first chapters of Genesis	Satan's fall	-1	48
1792	Geddes	The Holy Bible, or the books accounted sacred by Jews and Christians	uninspired myth, terrestrial (naturalistic)	-1	47
1792	Scott	The Holy Bible; containing the Old and New Testaments	literal	1	48
1803	Priestley	Notes on all the books of Scripture, for the use of the pulpit and private families	fable, day-age theory (naturalistic)	-1	47
1804	Dimock	Critical and explanatory notes on Genesis, Exodus, Isaiah, Jeremiah, Ezekiel, Daniel, and the minor prophets	literal	1	48
1806	Fuller	Expository discourses on the book of Genesis	literal	1	49

³ i.e. Genesis 1 only describes the creation of the earth, not the rest of the universe.

Table A.1 (continued)

Date	Author	Title	Interpretation	Literality index	
				x	Σx
1811	Benson	The Holy Bible, containing the Old and New Testaments	literal	1	50
1811	Clarke	The Holy Bible, containing the Old and New Testaments	literal (scientific)	1	51
1812	Hewlett	The Holy Bible, containing the Old and the New Testament, and the Apocrypha, with critical, philological and explanatory notes	literal & figurative (naturalistic)	0	51
1817	D'Oyly & Mant	The Holy Bible, according to the Authorized Version; with notes, explanatory and practical	literal	1	52
1818	Bellamy	The Holy Bible, newly translated from the original Hebrew: with notes critical and explanatory	naturalistic & allegorical	-1	51
1820	Horsley	Biblical criticism on the first fourteen historical books of the Old Testament	gap theory	-1	50
1823	Faber	A treatise on the genius and object of the patriarchal, the Levitical and the Christian dispensations	day-age theory (naturalistic)	-1	49
1826	Close	The book of Genesis considered and illustrated, in a series of historical discourses	literal	1	50
1834	Bonnet	L'homme banni d'Eden	literal	1	51
1835	Bohlen	Die Genesis historisch-kritisch erläutert	myth (naturalistic)	-1	50
1835	Sibthorp	The book of Genesis; with brief explanatory and practical observations and copious marginal references	gap theory	-1	49
1836-1855	Kitto	The pictorial Bible: being the Old and New Testaments	gap theory (naturalistic)	-1	48
1838	Bush	Notes, critical and practical on the book of Genesis	gap theory & day-age theory, terrestrial (naturalistic)	-1	47
1839	Hitchcock	Connection between geology and the Mosaic history of the creation	gap theory, partial flood (naturalistic)	-1	46
1840	Pye-Smith	On the relation between the Holy Scriptures and some parts of geological science	gap theory, regional, ⁴ partial flood (naturalistic)	-1	45
1841	Turner	A companion to the book of Genesis	gap theory, terrestrial (naturalistic)	-1	44
1842	Kurtz	Die astronomie und die Bibel	gap theory, prophetic vision (naturalistic)	-1	43
1843		Lehrbuch der heiligen Geschichte	literal	1	44
1847	Wight	The Mosaic creation, viewed in the light of modern geology	gap theory (naturalistic)	-1	43
1848	Kurtz	Geschichte des Alten Bundes	gap theory, prophetic vision, terrestrial, partial flood (naturalistic)	-1	42
1849	Gerlach	Commentary on the Pentateuch	literal	1	43
1850	Rendell	The antediluvian history, and narrative of the flood; as set forth in the early portions of the book of Genesis, critically examined and explained	allegorical (naturalistic)	-1	42
1852	Hamilton	The 'Friend of Moses;' or a defence of the Pentateuch as the production of Moses and an inspired document, against the objections of modern skepticism	gap theory, day-age theory, tranquil flood (naturalistic)	-1	41
1852	Paul	Analysis and critical interpretation of the Hebrew text of the book of Genesis	gap theory, tranquil flood (naturalistic)	-1	40
1852	Delitzsch	Die Genesis ausgelegt	day-age theory, partial flood (naturalistic)	-1	39
1852	Jervis	Bereshit: Genesis elucidated	nebular hypothesis, day-age theory, partial flood (naturalistic)	-1	38
1854	Cumming	Sabbath morning readings on the Old Testament: book of Genesis	gap theory, terrestrial (naturalistic)	-1	37
1854	Dods	The book of Genesis	moralistic, evolutionary, partial flood (naturalistic)	-1	36
1854-1860	Lane	The genesis of the earth and of man: or the history of creation and the antiquity and races of mankind	vision-day theory, figurative, polygenism, partial flood (naturalistic)	-1	35
1856	Anonymous	The creative week: being a secular exposition of the Mosaic record of creation	pictorial, terrestrial, tranquil flood (naturalistic)	-1	34
1856	MacDonald	Creation and the fall: a defence and exposition of the first three chapters of Genesis	nebular hypothesis, gap theory, day-age theory (naturalistic)	-1	33
1857	Jukes	The types of Genesis briefly considered as revealing the development of human nature in the world within, and without, and in the dispensations	allegorical, gap theory	-1	32

⁴ i.e. Genesis 1 is restricted to an isolated region on earth.

Table A.1 (continued)

Date	Author	Title	Interpretation	Literality index	
				x	Σx
1857	Mackintosh	Notes on the book of Genesis	typological (naturalistic)	-1	31
1857	Miller	The testimony of the rocks	vision-day theory, partial flood (naturalistic)	-1	30
1857	Davies	Cosmogony, or the mysteries of creation	polygenism, partial flood (naturalistic)	-1	29
1858	Kalisch	A historical and critical commentary on the Old Testament: Genesis	nebular hypothesis, myth (naturalistic)	-1	28
1860	Hoare	The veracity of the book of Genesis with the life and character of the inspired historian	gap theory, vision-day theory, polygenism, partial flood (naturalistic)	-1	27
1861	Keil ⁵	Biblischer commentar über das Alte Testament	literal	1	28
1861	Williams	The beginning of the book of Genesis, with notes and reflections	gap theory, allegorical (naturalistic)	-1	27
1861	Groves	A commentary on the book of Genesis	gap theory (naturalistic)	-1	26
1862	Colenso	The Pentateuch and book of Joshua critically examined	legend (naturalistic)	-1	25
1863	Jamieson	A commentary, critical and explanatory, on the Old and New Testaments: Genesis–Deuteronomy	nebular hypothesis, gap theory, partial flood (naturalistic)	-1	24
1863	Murphy	A critical and exegetical commentary on the book of Genesis with a new translation	gap theory, partial flood (naturalistic)	-1	23
1864	Henry	Discourses on the book of Genesis	literal (scientific)	1	24
1864	Jacobus	Notes, critical and explanatory on the book of Genesis	gap theory (naturalistic)	-1	23
1864	Lange	Die Genesis: oder das erste Buch Mose	symbolic myth/legend, day-age theory, partial flood (naturalistic)	-1	22
1865	Candlish	The book of Genesis expounded in a series of discourses	gap theory (naturalistic)	-1	21
1866	Quarry	Genesis and its authorship: two dissertations	framework hypothesis, myth/legend, poetic, partial flood (naturalistic)	-1	20
1868	Bonar	Earth's morning: or, thoughts on Genesis	gap theory (naturalistic)	-1	19
1868	Conant	The book of Genesis: the common version revised for the American Bible Union with explanatory notes	day-age theory, symbolic (naturalistic)	-1	18
1870	Thompson	Man in Genesis and in geology: or the biblical account of man's creation tested by scientific theories of his origin and antiquity	nebular hypothesis, gap theory, day-age theory, polygenism, evolutionary (naturalistic)	-1	17
1870	Warrington	The week of creation, or the cosmology of Genesis considered in its relation to modern science	anthropomorphic, evolutionary (naturalistic)	-1	16
1872	Alford	The book of Genesis, and part of the book of Exodus	anthropomorphic, parabolic, symbolic (naturalistic)	-1	15
1873	Browne	Genesis; or the first book of Moses	gap theory, vision-day theory, allegorical, partial flood (naturalistic)	-1	14
1874	Hirschfelder	The creation: being two lectures on the Mosaic account of the creation, as recorded in Genesis 1	gap theory (naturalistic)	-1	13
1875	Arnold	Genesis and science: or the first leaves of the Bible	literal (scientific)	1	14
1875	Warring	The Mosaic account of creation, the miracle of to-day; or, new witnesses to the oneness of Genesis and science	nebular hypothesis, day-age theory, evolutionary (naturalistic)	-1	13
1877	Robertson	Notes on Genesis	moralistic, symbolic (naturalistic)	-1	12
1879	Gibson	The ages before Moses	apocalyptic, symbolic, gap theory, day-age theory, partial flood (naturalistic)	-1	11
1881	Nisbet	The science of the day and Genesis	nebular hypothesis, vision-day theory (naturalistic)	-1	10
1881	Whitelaw	The pulpit commentary: Genesis	religious, nebular hypothesis, vision-day theory, partial flood, ANE (naturalistic)	-1	9
1882-1892	Dillmann	Die Genesis	myth/legend, partial flood, ANE (naturalistic)	-1	8
1885	Hirschfelder	Biblical expositor and people's commentary: historical and critical commentary on the book of Genesis	gap theory, partial flood (naturalistic)	-1	7
1885	Exell & Leale	Homiletical commentary on the book of Genesis	gap theory, day-age theory (naturalistic)	-1	6

⁵ Although Franz Delitzsch contributed to this commentary series, the exposition of Genesis 1-11 was done by Keil. See sections and 6.3.3. and 6.4.1.

Table A.1 (continued)

Date	Author	Title	Interpretation	Literality index	
				x	Σx
1886	Parke	The people's Bible: discourses upon Holy Scripture: the book of Genesis	religious, gap theory, day-age theory, evolutionary (naturalistic)	-1	5
1886	Burton	The first chapter of Genesis: a reply and a postscript	gap theory (naturalistic)	-1	4
1887	Delitzsch	Neuer Commentar Ueber die Genesis	legend, day-age theory, partial flood, ANE (naturalistic)	-1	3
1888	Huntingford	Popular misconceptions about the first eleven chapters of Genesis	legend, drama, day-age theory, partial flood, ANE (naturalistic)	-1	2
1891	Bacon	The Genesis of Genesis	myth, ANE	-1	1
1892	Fripp	The composition of the book of Genesis	myth, ANE	-1	0
1892	Ryle	The early narratives of Genesis: a brief introduction to the study of Genesis I-XI	myth/legend, partial flood, ANE (naturalistic)	-1	-1
1892	Doughty	The parable of creation: being a presentation of the spiritual sense of the Mosaic narrative as contained in the first chapter of Genesis	parable, allegorical (naturalistic)	-1	-2
1893	Kipp	Is Moses scientific? First chapter of Genesis tested by latest discoveries of science	nebular hypothesis, day-age theory, evolutionary (naturalistic)	-1	-3
1894	Davis	Genesis and semitic tradition	legend, symbolic, day-age theory, partial flood, ANE	-1	-4
1894	Body	The permanent value of the book of Genesis: as an integral part of the Christian revelation	legend, allegorical, evolutionary, ANE (naturalistic)	-1	-5
1896	Wade	The book of Genesis: edited with introduction, critical analysis and notes	myth, nebular hypothesis, day-age theory, evolutionary, partial flood, ANE (naturalistic)	-1	-6
1897	Perce	Genesis and modern science	nebular hypothesis, day-age theory, ANE (naturalistic)	-1	-7
1897	Jones	Primeval revelation: studies in Genesis I-VIII	poetic, day-age theory, evolutionary, nebular hypothesis, partial flood, ANE (naturalistic)	-1	-8
1900	Grant	Genesis in the light of the New Testament	typological, gap theory (naturalistic)	-1	-9
1901	Worcester	The book of Genesis in the light of modern knowledge	myth, nebular hypothesis, partial flood, ANE (naturalistic)	-1	-10
1901	Pratt	Estudios sobre el Libro del Genesis	gap theory, vision-day theory, nebular hypothesis, partial flood (naturalistic)	-1	-11
1901-1910	Gunkel	Die sagen der Genesis	myth/legend, poetry, ANE (naturalistic)	-1	-12
1904	Driver	The book of Genesis: with introduction and notes	myth/legend, moralistic, nebular hypothesis, evolutionary, partial flood, ANE (naturalistic)	-1	-13
1904	Bennett	Genesis: introduction; revised version with notes, giving an analysis showing from which of the original documents each portion of the text is taken; index and map	myth/legend, symbolic, ANE	-1	-14
1907	Knox	Bible lessons for schools: Genesis	spiritual, vision-day theory, ANE	-1	-15
1907	Gordon	The early traditions of Genesis	myth/legend, anthropomorphic, ANE	-1	-16
1909	Goodspeed & Welton	The book of Genesis	apocalyptic, nebular hypothesis, day-age theory, partial flood, ANE (naturalistic)	-1	-17
1909	Mitchell	Genesis	myth/legend, ANE (naturalistic)	-1	-18
1910	Skinner	A critical and exegetical commentary on Genesis	myth/legend, religious, ANE (naturalistic)	-1	-19

Key	Reference	Concept	Interpretation
A	Genesis 1:1-2:3	Extent of creation	Universe
B	Genesis 1:1	Creation of matter	Ex nihilo
C	Genesis 1:1-3	Period before light	Within the duration of the first day
D	Genesis 1:5	Definition of “day”	24 hours
E	Genesis 1:14-19	Creation of sun, moon and stars	Created <i>de novo</i> on day four
F	Genesis 2:8-9	Garden of Eden and the two trees	Literal place with real trees
G	Genesis 2:7, 18-22	Adam and Eve	First humans
H	Genesis 3:1-4	Literality of the serpent	Talking serpent
I	Genesis 5:3-32	Longevity of patriarchs	Hundreds of years
J	Genesis 6:14-22	Historicity of the ark	Literal vessel
K	Genesis 7:1-8:19	Universality of the flood	Universal deluge
L	Genesis 11:1-9	Confusion of languages	Supernatural phenomenon
M	Genesis 1-11	Age of the earth	Less than six thousand years

Table A.2 – Normalised commentary with key⁶

Table A.3 – Average literacy using key criteria

Date	Author	Interpretation Criteria (refer to key)													Average literacy	Literality index
		A	B	C	D	E	F	G	H	I	J	K	L	M	$\bar{x}$	$\sum x$
1-50	Philo						0	0	0	-1	0	0			-0.17	-0.17
			1		1	1	-1	0	0						0.33	0.17
					0		0	-1	-1						-0.50	-0.33
93-94	Josephus							1	1	1	1	1	1	1	1.00	0.67
132-135	Justin		1				1	1			1	1	1		1.00	1.67
155-157					1									1	1.00	2.67
?					1			1							1.00	3.67
c. 180	Irenaeus		1		1		1	1	1	1	1	1		1	1.00	4.67
180-185	Theophilus		1		1	1	1	1	1	1	1	1	1	1	1.00	5.67
c. 197	Tertullian										1	1			1.00	6.67
198-203	Clement				1		-1	1						1	0.50	7.17
198-207	Tertullian		1												1.00	8.17
200-206							1	1	1		1	1			1.00	9.17
200-206								1			1	1			1.00	10.17
202-211	Hippolytus				1			1		1				1	1.00	11.17
208-211	Tertullian						1	1	1		1	1			1.00	12.17
208-211								1	1		1	1			1.00	13.17
c. 209								1			1	1			1.00	14.17
c. 213								1			1	1			1.00	15.17
c. 213						1		1							1.00	16.17
c. 215						-1		0			0	0			-0.25	15.92
c. 221	Africanus							1		1	1	1		1	1.00	16.92
219-230	Origen		1		-1	-1	-1	1	1		1	1			0.25	17.17

⁶ See section 7.2 for discussion of these criteria.

Table A.3 (continued)

Date	Author	Interpretation Criteria (refer to key)													Average literality	Literality index
		A	B	C	D	E	F	G	H	I	J	K	L	M	$\bar{x}$	Σx
246-248	Origen				-1		-1	0	-1	1	1	1	0	1	0.11	17.28
c. 303	Victorinus				1	1		1	1		1	1		1	1.00	18.28
310-320	Lactantius		1		1	1	1	1		1	1	1		1	1.00	19.28
c. 318	Athanasius		1					1	1						1.00	20.28
325	Eusebius							1		1	1	1		1	1.00	21.28
357-359	Athanasius		1		1	1		1			1	1			1.00	22.28
363-373	Ephrem						1	1	1		1	1			1.00	23.28
363-373			1		1	1	1	1	1		1	1	1		1.00	24.28
c. 370	Basil		1		1	1									1.00	25.28
c. 375	Ambrose						1	0	0		0	0			0.20	25.48
c. 375								1							1.00	26.48
c. 380	Didymus		1		-1	-1		0	-1		1	1			0.00	26.48
380-381	Gregory		1		1	1									1.00	27.48
380-381							1	1	1						1.00	28.48
c. 385	Chrysostom		1		1	1	1	1	1	1	1	1	1		1.00	29.48
387-389	Ambrose		1		1	1		1			1	1			1.00	30.48
388-389	Augustine		1		0	1	-1	-1	-1	1	1	1	1		0.30	30.78
c. 392	Jerome							1		1	1	1			1.00	31.78
393-395	Augustine				0	1									0.50	32.28
397-401			1			1	-1								0.33	32.61
401	Severian		1		1	1	1	1	1						1.00	33.61
401-416	Augustine		1		-1	1	0	0	1		1	1	1		0.56	34.17
412-423	Cyril					1	1	1	1		1	1	1		1.00	35.17
426	Augustine				-1		1	1	1	1	1	1	1	1	0.78	35.94
450-460	Theodoret		1			1	1	1	1		1	1	1		1.00	36.94
680-692	Anastasius		1			0	-1	0	1		0	0		1	0.25	37.19
709-731	Bede		1		0	1	0	0	1	1	0	0	0		0.40	37.59
729-743	Damascene		1		1	1	0	1	1		1	1	1		0.89	38.48
1094-1098	Anselm		1		0		1	1							0.75	39.23
c. 1129	Abelard		1		0	0	1	0	1		1	1			0.63	39.86
c. 1150	Lombard		1		1	1	1	0	1						0.83	40.69
1155	Ibn Ezra				1	1	1	1	1	1	1	1	-1		0.78	41.47
c. 1190	Maimonides	-1	1			-1	-1	1	-1	1	1	1	1	1	0.27	41.74
c. 1225	Grosseteste		1		0	0	0	0			1	1	1		0.50	42.24
1269-1272	Aquinas		1		1	1	1	0	1		1	1			0.88	43.12
1535-1545	Luther		1		1	1	1	1	1	1	0	0	1	1	0.82	43.94
1554-1563	Calvin		1		1	1	1	1	1	1	1	1	1	1	1.00	44.94
1592	Babington		1		1		1	1	1	1	0	0	1		0.78	45.71
1605	Willet		1		1	1	1	1	1	1	1	1	1	1	1.00	46.71
1614	Ralegh		1		1	1	1	1		1	1	1	1	1	1.00	47.71
1616	Ainsworth		1		1	1	1	1	1	1	1	1	1	1	1.00	48.71
1617	Salkeld						1	1	1		1	1			1.00	49.71
1641	Walker		1		1	1	1	1	1					1	1.00	50.71

Table A.3 (continued)

Date	Author	Interpretation Criteria (refer to key)													Average literality	Literality index
		A	B	C	D	E	F	G	H	I	J	K	L	M	$\bar{x}$	Σx
1643	Jackson		1		1	1	1	1	1	1	1	1	1	1	1.00	51.71
1647	Lightfoot				1	1	1	1	1	1	1	1	1	1	1.00	52.71
1649	Trapp		1			1	1	1	1	1	1	1	1	1	1.00	53.71
1650	Ussher				1	1		1	1	1	1	1	1	1	1.00	54.71
1654	Needler				1	1	1	1	1	1	1	1		1	1.00	55.71
1655	Richardson				1		1	1		1	1	1		1	1.00	56.71
1672	Hughes		1		1	1	1	1	1	1	1	1	1	1	1.00	57.71
1677	Hale		1	-1	1	1	1	1	1	1	1	1	1	1	0.83	58.55
1681-1690	Burnet						1	1		1	1	1	1	1	1.00	59.55
1682	Henry		1		1	1	1	1	1	1	1	1	1	1	1.00	60.55
1683	Poole		1		1	1	1	1	1	1		0		1	0.89	61.44
1692	Burnet		1	-1	-1	-1	-1	-1	-1					-1	-0.75	60.69
1692	Bunyan		1	0	1	0	0	0	0	1	0	1	1	1	0.50	61.19
1693	Le Clerc						-1	1	-1	1	-1	-1	-1		-0.43	60.76
1694	Kidder		1				1	1	1	1	1	1	1	1	1.00	61.76
1695	Patrick	-1	1	-1	1	1	1	1	1	1	1	1	1	1	0.69	62.45
1696	Whiston	-1	1		-1	-1	1	1	1	1	1	1	1		0.45	62.90
1708-1710	Henry	1	1		1	1	1	1	0	1	1	1	1	1	0.92	63.82
1733	Stackhouse	-1	1	-1	1	-1	1	1	1	1	1	1	1	-1	0.38	64.20
1735	Colman		1			0	1	1	1						0.80	65.00
1739	Jennings	-1	-1		1	-1								1	-0.20	64.80
1747	Kennicott						1	1	1		1	1	1	1	1.00	65.80
1753	Astruc														0.00	65.80
1753	Scott				1	-1	-1	1	-1			1			0.00	65.80
1753	Shuckford						1	1	1	1	1	1		1	1.00	66.80
1763	Gill	1	1		1	1	1	1	1	1	1	1	1	1	1.00	67.80
1764	Purver	1			1	1	1	1	1		1	1	1		1.00	68.80
1765-1766	Wesley	1			1	1	1	1	0	1			1	1	0.89	69.69
1765-1770	Dodd	-1			1	1	1	1	1	1	1	1	1		0.80	70.49
1776	Rosenmüller			-1	1	-1		1							0.00	70.49
1778	Buffon			-1	-1									-1	-1.00	69.49
1778	Brown	1	1		1	1	1	1	1	1	1	1	1	1	1.00	70.49
1784	Anonymous		-1				1	1							0.33	70.83
1792	Geddes	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1	-1.00	69.83
1792	Scott	1	1		1	1	1	1	1	1	1	1	1	1	1.00	70.83
1803	Priestley		-1	-1	-1	-1	-1	0	-1	0	1	0	1		-0.36	70.46
1804	Dimock						1	1	1		1				1.00	71.46
1806	Fuller	1			1	1	1	1	1	1	1	1	1	1	1.00	72.46
1811	Benson	1	1		1	1	1	1	1	1	1	1	1	1	1.00	73.46
1811	Clarke	-1	1		1	1	1	1	-1	1	1	1	1	1	0.67	74.13
1812	Hewlett		1		1	1	0	1	0	1	1	1	1	1	0.82	74.95
1817	D'Oyly & Mant	1	1		1	1	1	1	1	1	1	1	1	1	1.00	75.95
1818	Bellamy	-1	1		1	-1	-1	1	-1	1	1	1	-1	1	0.17	76.12

Table A.3 (continued)

Date	Author	Interpretation Criteria (refer to key)													Average literality	Literality index
		A	B	C	D	E	F	G	H	I	J	K	L	M	$\bar{x}$	Σx
1820	Horsley	1	1	-1	1	1	1	1	1						0.75	76.87
1823	Faber		1		-1	1	1	1	1		1	1		-1	0.56	77.42
1826	Close						1	1	1	1	1	1	1		1.00	78.42
1834	Bonnet		1				1	1	1					1	1.00	79.42
1835	Bohlen		-1	-1		-1	-1	-1	-1	-1	-1	-1	-1		-1.00	78.42
1835	Sibthorp	1	1	-1		1	1	1	1	1	1	1	1	1	0.83	79.25
1836-1855	Kitto	1		-1	1	-1	1				1	1	1	-1	0.33	79.59
1838	Bush	-1	1	-1	-1	-1	1	1	1	1	1	1	1	-1	0.23	79.82
1839	Hitchcock		1	-1	1	-1						-1		-1	-0.33	79.48
1840	Pye-Smith	-1		-1	1	-1		1				-1		-1	-0.43	79.06
1841	Turner	-1		-1	1	-1	1	1	0	1	1	1	1	-1	0.25	79.31
1842	Kurtz	-1	-1	-1	-1	-1	-1	1	1	1				-1	-0.40	78.91
1843	Kurtz		1				1	1	1	1	1	1	1	1	1.00	79.91
1847	Wight	1	1	-1	1	-1		1						-1	0.14	80.05
1848	Kurtz	-1	1	-1	0	0	1	1	1	1	1	-1	1	-1	0.23	80.28
1849	Gerlach	1	1			1	1	1	1	1	1	1	1		1.00	81.28
1850	Rendell			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1.00	80.28
1852	Hamilton			-1	-1			1		1	1	1	1	-1	0.25	80.53
1852	Paul	1	1	-1	1					1		1		-1	0.43	80.96
1852	Jervis	1	-1		-1						1	-1		-1	-0.33	80.62
1854	Cumming	-1	1	-1	1	-1	1	1	1	1	1	1		-1	0.33	80.96
1854	Dods				1		-1		-1			-1		-1	-0.60	80.36
1854-1860	Lane				-1			-1		-1	1	-1	-1	-1	-0.71	79.64
1856	Anonymous	-1	-1		1	-1	1	1			1	1		-1	0.11	79.76
1856	MacDonald	1	-1	-1	-1	-1	1	1	1					-1	-0.11	79.64
1857	Jukes			-1		-1	-1	0	-1	-1	-1	-1	-1	1	-0.70	78.94
1857	Mackintosh				-1	-1		-1	-1		-1	-1	-1		-1.00	77.94
1857	Miller				-1							-1		-1	-1.00	76.94
1857	Davies	1			-1	-1	1	-1			1	-1		1	0.00	76.94
1858	Kalisch		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1.00	75.94
1860	Hoare	1	1	-1	-1	-1		0		1	1	-1		-1	-0.10	75.84
1861	Keil ⁷	1	1		1	1	1	1	1	1	1	1	1	1	1.00	76.84
1861	Williams	1	1	-1	0	-1	0	0	1					-1	0.00	76.84
1861	Groves		1	-1	1	-1	1	1	1	1	1	0	1	-1	0.42	77.26
1862	Colenso			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1.00	76.26
1863	Jamieson	1	-1	-1	1	-1	1	1	1	1	1	-1	1	-1	0.23	76.49
1863	Murphy	1	1	-1	1	-1	1	1	1	1	1	-1	1	-1	0.38	76.88
1864	Henry	1	1			1		1	1	1	1	1	1		1.00	77.88
1864	Jacobus	1	1	-1	1	-1	1	0	1	1	1	1	1	-1	0.46	78.34
1864	Lange		1	-1	-1	-1	0	0	-1	0	0	-1	0		-0.36	77.97
1865	Candlish	1	1	-1		0	1	1	1	1	1	1	1	-1	0.58	78.56

⁷ Although Franz Delitzsch contributed to this commentary series, the exposition of Genesis 1-11 was done by Keil. See sections and 6.3.3. and 6.4.1.

Table A.3 (continued)

Date	Author	Interpretation Criteria (refer to key)													Average literality	Literality index
		A	B	C	D	E	F	G	H	I	J	K	L	M	$\bar{x}$	$\sum x$
1866	Quarry	1		-1	-1	-1	-1	-1	-1	-1	1	-1	-1		-0.64	77.92
1868	Bonar	1		-1		-1	1	1	1	1	1				0.50	78.42
1868	Conant	1	1		-1	1	0	1	0	1	1	0	1	-1	0.42	78.84
1870	Thompson	1	-1	-1	-1	-1		-1		-1			-1	-1	-0.78	78.06
1870	Warington	1			-1	-1		0						-1	-0.40	77.66
1872	Alford	1	1	-1	-1	-1	-1	-1	-1	-1	1	1	1	-1	-0.23	77.43
1873	Browne	1		-1	-1	-1	0	1	0	-1	1	-1	1	-1	-0.17	77.26
1874	Hirschfelder	1	1	-1	1	-1								-1	0.00	77.26
1875	Arnold	1	1		1	-1		1		-1	1	1			0.50	77.76
1875	Warring	1	-1		-1	-1	1	-1						-1	-0.43	77.33
1877	Robertson	1			-1		-1	0	-1						-0.40	76.93
1879	Gibson	-1		-1	-1		-1	-1	0	-1	1	-1	1	-1	-0.55	76.39
1881	Nisbet		-1		-1	-1		-1		-1			1	-1	-0.71	75.67
1881	Whitelaw	1	-1		-1	-1	1	1	1	1	1	-1	1	-1	0.17	75.84
1882-1892	Dillmann	1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.83	75.01
1885	Hirschfelder	1	1	-1	1	-1	1	1	1	1	1	-1	1	-1	0.38	75.39
1885	Exell & Leale	1		-1	-1	-1	1	1	1	1	-1	1	1	-1	0.17	75.56
1886	Parke		1	-1	-1		0	1		1				-1	0.00	75.56
1886	Burgon	1		-1	1	-1		1						-1	0.00	75.56
1887	Delitzsch			-1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1.00	74.56
1888	Huntingford			-1	-1	-1	0	0	0	-1	-1	-1	-1	-1	-0.73	73.83
1891	Bacon			-1		-1	-1	-1	-1	-1	-1	-1	-1		-1.00	72.83
1892	Fripp			-1		-1	-1	-1	-1	-1	-1	-1	-1		-1.00	71.83
1892	Ryle			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1.00	70.83
1892	Doughty			-1	-1	-1		-1							-1.00	69.83
1893	Kipp		-1		-1	-1								-1	-1.00	68.83
1894	Davis			-1	-1		-1	-1	-1		-1	-1	-1		-1.00	67.83
1894	Body			-1	-1		-1	-1	-1		-1	-1			-1.00	66.83
1896	Wade		-1	-1	-1		-1	-1	-1	-1	-1	-1			-1.00	65.83
1897	Perce		-1		-1	-1		-1			1	1		-1	-0.43	65.40
1897	Jones	1	-1		-1	-1	-1	0	1	1	1	-1		-1	-0.18	65.22
1900	Grant			-1			-1	-1	1	1	-1	0		-1	-0.38	64.85
1901	Worcester		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1.00	63.85
1901	Pratt	1	-1	-1	-1	-1	1	1	1	1	1	-1	1	-1	0.08	63.92
1901-1910	Gunkel			-1		-1	-1	-1	-1	-1	-1	-1	-1		-1.00	62.92
1904	Driver		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1.00	61.92
1904	Bennett		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1.00	60.92
1907	Knox				-1		1	1		1	1	1	1		0.71	61.64
1907	Gordon			-1	-1	-1	-1	-1		-1	-1	-1	-1		-1.00	60.64
1909	Goodspeed & Welton	1	-1		-1	-1	1	1	1	-1	1	-1	1		0.09	60.73
1909	Mitchell	-1	-1	-1	-1			-1	-1	-1	-1	-1	-1	-1	-1.00	59.73
1910	Skinner			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1.00	58.73

Appendix B: Literality graphs

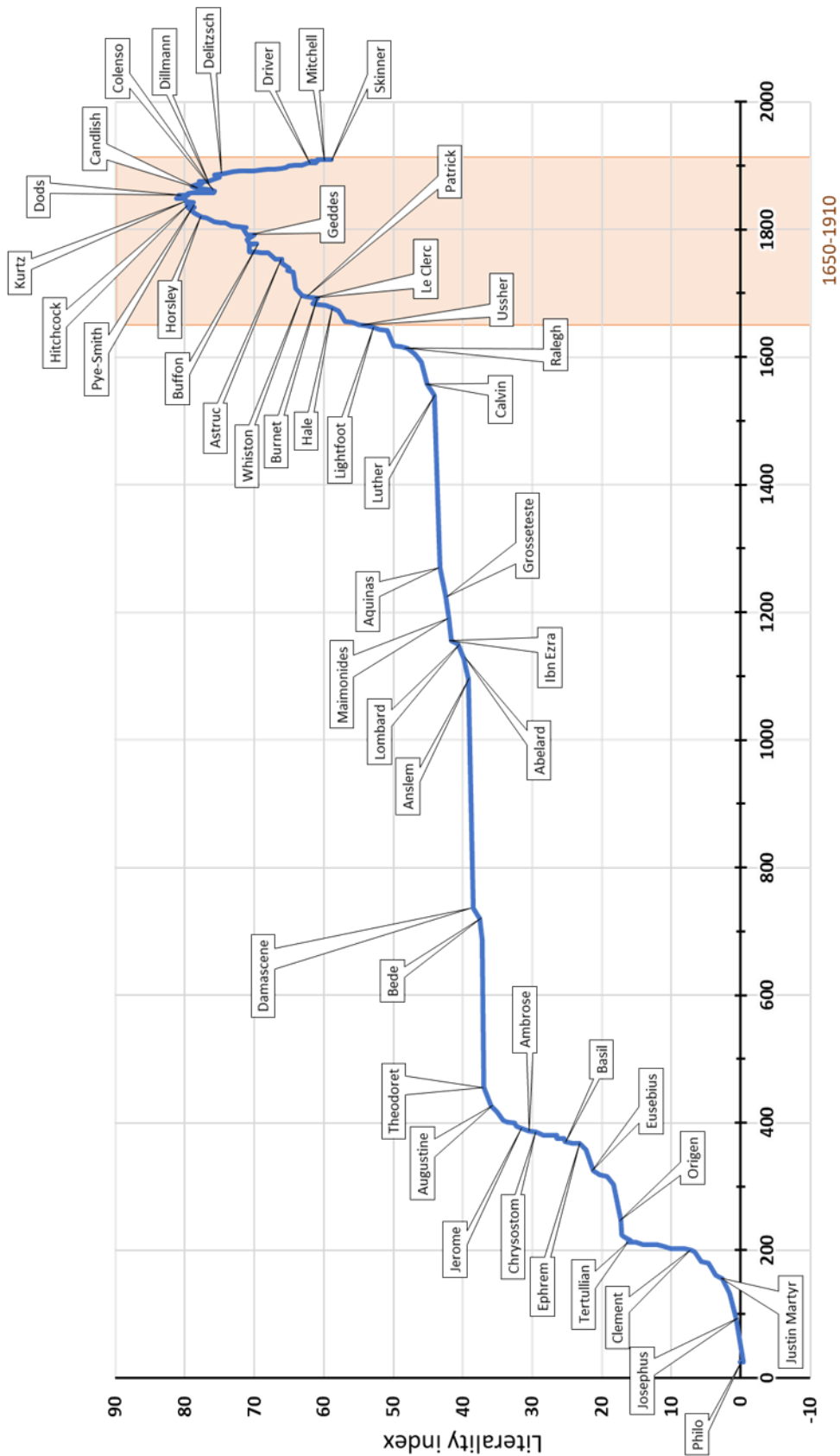


Figure B.1 – Mapping the literality of Genesis 1-11 from Philo to Skinner using average literality

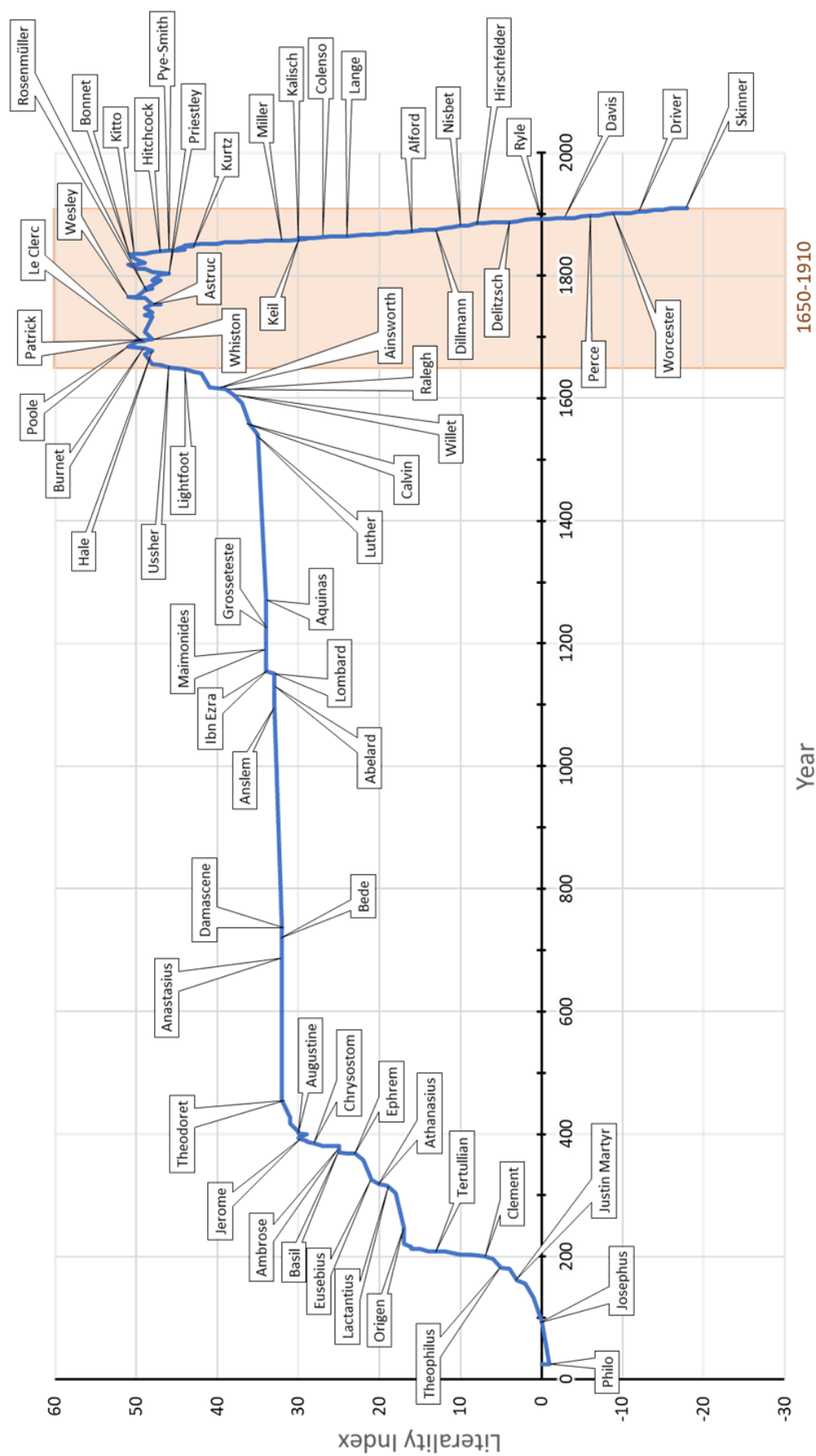


Figure B.2 – Mapping the literality of Genesis 1-11 from Philo to Skinner using stricter metric

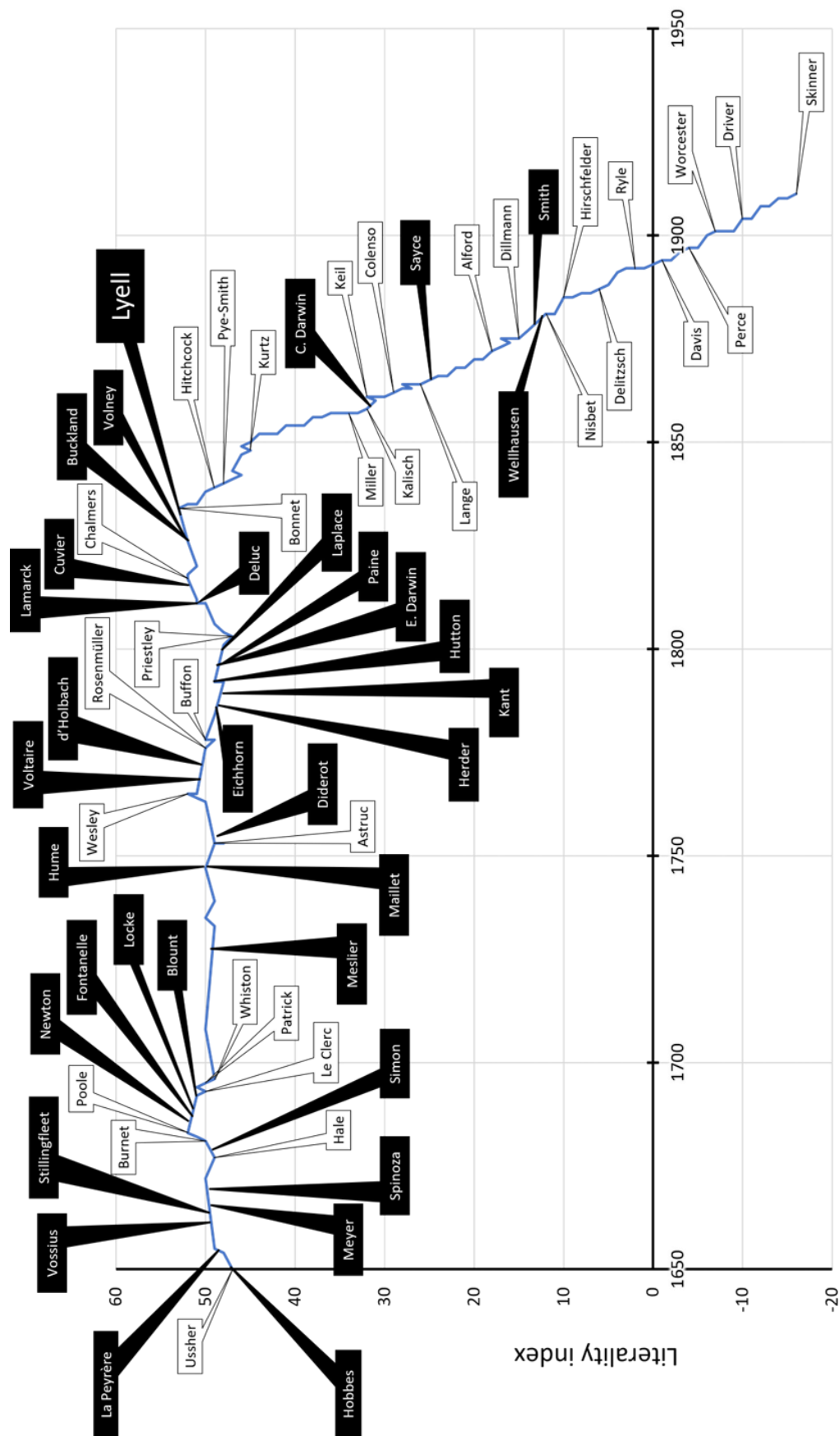


Figure B.3 – Mapping the literacy of Genesis 1-11 in relation to influential publications

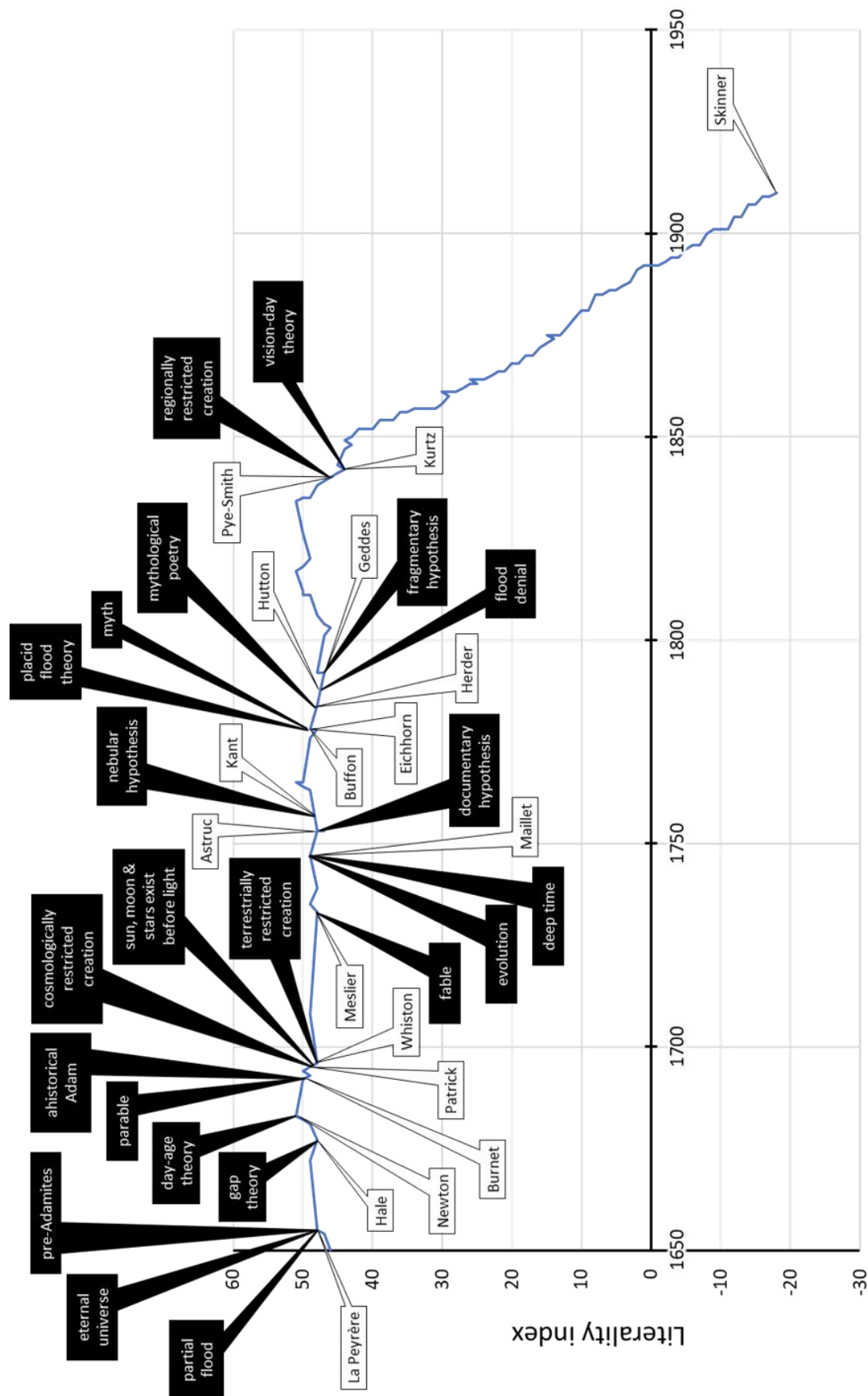


Figure B.4 – Introduction of nonliteral interpretations of Genesis 1-11 in relation to literality

Appendix C: Interpretation tables 1650 to 1910

Table C.1 – Interpretation of Genesis 1 (1650-1910)

Date	Author	Creation of matter	Extent of creation	Hexaemeron	Sun, moon & stars	Age of the earth (yrs)
1654	Needler			six days	created	< 6000
1655	Richardson			six days		< 6000
1672	Hughes	ex nihilo		six days	created	< 6000
1677	Hale	ex nihilo		six days + interval	created	~ 5600
1681-1690	Burnet					~ 6000
1682	P. Henry	ex nihilo		six days	created	< 6000
1683	Poole	ex nihilo		six days	created	< 6000
1692	Burnet	pre-existing		six days (instantaneous)	parable	> 6000
1692	Bunyan	ex nihilo		six days	literal & allegorical	< 6000
1693	Le Clerc					
1694	Kidder	ex nihilo		six days		4004 BC
1695	Patrick	ex nihilo	solar system	six days	created	< 6000
1696	Whiston	ex nihilo	earth	six years	pre-existing (appeared)	
1708-1710	M. Henry	ex nihilo	universe	six days	created	< 6000
1733	Stackhouse	ex nihilo	solar system	six days	pre-existing	vast ages
1735	Colman	ex nihilo		six days	created/appeared	
1739	Jennings	pre-existing	solar system	six days	pre-existing (appeared)	< 6000
1747	Kennicott			six days		< 6000
1753	Astruc					
1753	J. Scott			six days	pre-existing	
1753	Shuckford					< 6000
1763	Gill	ex nihilo	universe	six days	created	< 6000
1764	Purver		universe	six days	created	
1765-1766	Wesley		universe	six days	created	< 6000
1765-1770	Dodd		earth	six days	created	
1776	Rosenmüller			six days	pre-existing (appeared)	
1778	Buffon			six periods		vast ages
1778	Brown	ex nihilo	universe	six days	created	4004 BC
1784	Anonymous	Satan's kingdom		six days		
1792	Geddes	pre-existing	earth	six ages	pre-existing (appeared)	millions
1792	T. Scott	ex nihilo	universe	six days	created	4004 BC
1803	Priestley	pre-existing		six periods	pre-existing (appeared)	
1804	Dimock					
1806	Fuller		universe	six days	created	< 6000
1811	Benson	ex nihilo	universe	six days	created	4004 BC
1811	Clarke	ex nihilo	solar system	six days	created	4004 BC
1812	Hewlett	ex nihilo		six days	created	4004 BC
1817	D'Oyly	ex nihilo	universe	six days	created	4004 BC
1818	Bellamy	ex nihilo	solar system	six days	refers to the first day	< 6000
1820	Horsley	ex nihilo	universe	six days + interval	created	
1823	Faber	ex nihilo		six periods	created	vast ages

Table C.1 (continued)

Date	Author	Creation of matter	Extent of creation	Hexaemeron	Sun, moon & stars	Age of the earth (yrs)
1826	Close					
1834	Bonnet	ex nihilo				~ 6000
1835	Bohlen	myth (pre-existing)		myth (six days)	myth	
1835	Sibthorp	ex nihilo	universe	six days	created	4004 BC
1836-1855	Kitto		universe	six days + interval	pre-existing	vast ages
1838	Bush	ex nihilo	earth	six days + interval	pre-existing (appeared)	vast ages
1839	Hitchcock	ex nihilo		six days + interval	pre-existing	vast ages
1840	Pye-Smith		region on earth	six days + interval	pre-existing	millions
1841	Turner		earth	six days + interval	pre-existing (appeared)	vast ages
1842	Kurtz	pre-existing	universe	six visions	pre-existing	billions
1843	Kurtz	ex nihilo		six days		4225 BC
1847	Wight	ex nihilo	universe	six days + interval	pre-existing (appeared)	millions
1848	Kurtz	ex nihilo	earth	six days/visions	uncertain	billions
1849	Gerlach	ex nihilo	universe	six days	created	
1850	Rendell	allegorical		six days (allegorical)	allegorical	myriads
1852	Hamilton			six periods		millions
1852	Paul	ex nihilo	universe	six days		> 6000
1852	Delitzsch	ex nihilo	universe	six periods	created	millions
1852	Jervis	nebular hypothesis (eternal)	universe	six periods		millions
1854	Cumming	ex nihilo	earth	six periods	pre-existing	millions
1854	Dods			six periods		millions
1854-1860	Lane			six visions/periods		vast ages
1856	Anonymous	pre-existing	earth	six days	pre-existing	millions
1856	MacDonald	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing	millions
1857	Jukes			six days	allegorical	< 6000
1857	Mackintosh			six days (typological)	typological	
1857	Miller			six visions/periods		vast ages
1857	Davies		universe	six days	pre-existing	5860
1858	Kalisch	nebular hypothesis (ex nihilo)		six days (myth)	myth	vast ages
1860	Hoare	ex nihilo	universe	six visions/periods	pre-existing	vast ages
1861	Keil	ex nihilo	universe	six days	created	< 6000
1861	Williams	ex nihilo	universe	six days + interval	pre-existing	vast ages
1861	Groves	ex nihilo		six days + interval	pre-existing	vast ages
1862	Colenso			six days (legend)	legend	millions
1863	Jamieson	nebular hypothesis	universe	six days + interval	pre-existing	millions
1863	Murphy	ex nihilo	universe	six days + interval	pre-existing	vast ages
1864	Henry	ex nihilo	universe	six days	created	
1864	Jacobus	ex nihilo	universe	six days + interval	pre-existing (appeared)	vast ages
1864	Lange	ex nihilo		six ages	pre-existing	
1865	Candlish	ex nihilo	universe	six days + interval	created/pre-existing	vast ages
1866	Quarry		universe	six days (poetry)	poetic imagery	

Table C.1 (continued)

Date	Author	Creation of matter	Extent of creation	Hexaemeron	Sun, moon & stars	Age of the earth (yrs)
1868	Bonar		universe		pre-existing	vast ages
1868	Conant	ex nihilo	universe	six periods	created	vast ages
1870	Thompson	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing (appeared)	vast ages
1870	Warington		universe	six days (symbolic)	pre-existing (appeared)	vast ages
1872	Alford	ex nihilo	universe	six days (symbolic)	symbolic	vast ages
1873	Browne		universe	six visions/periods	pre-existing (appeared)	vast ages
1874	Hirschfelder	ex nihilo	universe	six days + interval	pre-existing (appeared)	vast ages
1875	Arnold	ex nihilo	universe	six days	pre-existing or created	
1875	Warring	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing	millions
1877	Robertson		universe	six days (symbolic)		
1879	Gibson		earth	six periods		vast ages
1881	Nisbet	nebula hypothesis		six visions/periods	pre-existing (appeared)	millions
1881	Whitelaw	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing	millions
1882-1892	Dillmann		universe	six days (myth)	myth/legend	millions
1885	Hirschfelder	ex nihilo	universe	six days + interval	pre-existing (appeared)	vast ages
1885	Exell		universe	six periods	pre-existing (appeared)	vast ages
1886	Parker	ex nihilo		six periods		vast ages
1886	Burgon		universe	six days + interval	pre-existing (appeared)	millions
1887	Delitzsch			six periods		vast ages
1888	Huntingford			six periods (drama)	drama	millions
1891	Bacon	myth			myth	
1892	Fripp	myth			myth	
1892	Ryle	legend		six days (legend)	legend	infinite ages
1892	Doughty	allegorical		six days (allegorical)	allegorical	
1893	Kipp	nebular hypothesis		vast ages	pre-existing (appeared)	vast ages
1894	Davis			six periods		vast ages
1894	Body			six days (symbolic)		
1896	Wade	nebular hypothesis		six periods		
1897	Perce	nebular hypothesis (ex nihilo)		six periods	pre-existing	vast ages
1897	Jones	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing (appeared)	millions
1900	Grant					millions
1901	Worcester	nebular hypothesis		six days (myth)	myth	
1901	Pratt	nebular hypothesis (ex nihilo)	universe	six visions/periods	pre-existing (appeared)	millions
1901-1910	Gunkel				myth/legend	
1904	Driver	nebular hypothesis		six days (myth)	myth	millions
1904	Bennett	pre-existing		six days (myth)	myth	
1907	Knox			six periods (vision)		

Table C.1 (continued)

Date	Author	Creation of matter	Extent of creation	Hexaemeron	Sun, moon & stars	Age of the earth (yrs)
1907	Gordon	myth		six days (myth)	myth	
1909	Goodspeed & Welton	nebular hypothesis (ex nihilo)	universe	six periods	pre-existing	vast ages
1909	Mitchell	pre-existing	visible world	six days (myth)		vast ages
1910	Skinner	myth		six days (myth)	myth	

Table C.2 – Interpretation of Genesis 2-11 (1650-1910)

Date	Author	Eden	Adam & Eve	Serpent	Genealogy	Flood	Babel
1654	Needler	literal	first humans	literal	literal	global	
1655	Richardson	literal	first humans		literal	global	
1672	Hughes	literal	first humans	literal	literal	global	literal
1677	Hale	literal	first humans	literal	literal	global	literal
1681	Burnet	literal	first humans		literal	global	literal
1682	P. Henry	literal	first humans	literal	literal	global	literal
1683	Poole	literal	first humans	literal	literal	local or global	
1692	Burnet	parable	parable	parable			
1692	Bunyan	literal & typological	literal & typological	literal & allegorical	literal	global	literal
1693	Le Clerc	naturalistic	first humans	fictional	literal	local	naturalistic
1694	Kidder	literal	first humans	literal	literal	global	literal
1695	Patrick	literal	first humans	literal	literal	global	literal
1696	Whiston	literal	first humans	literal	literal	global	literal
1708	M. Henry	literal	first humans	literal or in appearance	literal	global	literal
1733	Stackhouse	literal	first humans	literal	literal	global	literal
1735	Colman	literal	first humans	literal			
1739	Jennings						
1747	Kennicott	literal	first humans	literal		global	literal
1753	Astruc						
1753	J. Scott	allegorical	first humans	allegorical		global	
1753	Shuckford	literal	first humans	literal	literal	global	
1763	Gill	literal	first humans	literal	literal	global	literal
1764	Purver	literal	first humans	literal		global	literal
1765	Wesley	literal	first humans	literal or in appearance	literal		literal
1765	Dodd	literal	first humans	literal	literal	global	literal
1776	Rosenmüller		first humans				
1778	Buffon						
1778	Brown	literal	first humans	literal	literal	global	literal
1784	Anonymous	literal	first humans				
1792	Geddes	myth	myth	myth	myth	myth	
1792	T. Scott	literal	first humans	literal	literal	global	literal
1803	Priestley	fable	figurative & literal	fable	possibly literal	possibly global	literal
1804	Dimock	literal	first humans	literal			

Table C.2 (continued)

Date	Author	Eden	Adam & Eve	Serpent	Genealogy	Flood	Babel
1806	Fuller	literal	first humans	literal	literal	global	literal
1811	Benson	literal	first humans	literal	literal	global	literal
1811	Clarke	literal	first humans	ape or orangutan	literal	global	literal
1812	Hewlett	literal & metaphorical	first humans	literal or symbolic	literal	global	literal
1817	D'Oyly	literal	first humans	literal	literal	global	literal
1818	Bellamy	allegorical	first humans	allegorical	literal	global	confusion of doctrines, not languages
1820	Horsley	literal	first humans	literal			
1823	Faber	literal	first humans	literal		global	
1826	Close	literal	first humans	literal	literal	global	literal
1834	Bonnet	literal	first humans	literal			
1835	Bohlen	myth	myth (first humans)	myth	myth	myth (global)	myth
1835	Sibthorp	literal	first humans	literal	literal	global	literal
1836	Kitto	literal				global	literal
1838	Bush	literal	first humans	literal	literal	global	literal
1839	Hitchcock					local (placid)	
1840	Pye-Smith		first humans			local (placid)	
1841	Turner	literal	first humans	allegorical or literal	literal	global	literal
1842	Kurtz	mystery	first humans	literal	literal		
1843	Kurtz	literal	first humans	literal	literal	global	literal
1847	Wight		first humans				
1848	Kurtz	literal	first humans	literal	literal	local	literal
1849	Gerlach	literal	first humans	literal	literal	global	literal
1850	Rendell	allegorical	allegorical	allegorical	allegorical	allegorical	allegorical
1852	Hamilton		first humans		literal	global (placid)	literal
1852	Paul				literal	global (placid)	
1852	Jervis					local (placid)	
1852	Delitzsch	literal	first humans	literal	literal	local	literal
1854	Cumming	literal	first humans	literal	literal	global	
1854	Dods	symbolic		symbolic		local, moral	
1856	Anonymous	literal	first humans			global (placid)	
1856	MacDonald	literal	first humans	literal			
1857	Jukes	allegorical	literal & allegorical	allegorical	allegorical	allegorical	allegorical
1857	Mackintosh		typological	typological		typological	typological
1857	Miller					local	
1857	Davies	literal	polygenism			local	
1858	Kalisch	myth	myth (first humans)	myth	myth	myth	myth
1860	Lane		pre-Adamites		numbers not reliable	local (naturalistic)	naturalistic
1860	Hoare		first humans (pre-Adamites possible)		literal	local	
1861	Keil	literal	first humans	literal	literal	universal	literal
1861	Williams	literal & allegorical	literal & allegorical	literal			
1861	Groves	literal	first humans	literal	literal	local or global	literal

Table C.2 (continued)

Date	Author	Eden	Adam & Eve	Serpent	Genealogy	Flood	Babel
1862	Colenso	legend	legend	legend	legend	legend	legend
1863	Jamieson	literal	first humans	literal	literal	local	literal
1863	Murphy	literal	first humans	literal	literal	local	literal
1864	Henry		first humans	literal	literal	global	literal
1864	Jacobus	literal	first humans (pre-Adamites possible)	literal	literal	global	literal
1864	Lange	literal & symbolic	first humans (pre-Adamites possible)	symbolic	literal & symbolic	local	literal & symbolic
1865	Candlish	literal	first humans	literal	literal	global	literal
1866	Quarry	mystical	allegorical	allegorical	possibly errant	local	naturalistic
1868	Bonar	literal	first humans & typological	literal	literal		
1868	Conant	literal & symbolic	first humans	literal or psychosomatic	literal	local or global	literal
1870	Thompson		first humans or polygenism (pre-Adamites possible)		not literal		naturalistic
1870	Warrington		possibly evolved				
1872	Alford	symbolic	first humans (parable)	parable	errant	global	literal
1873	Browne	literal & allegorical	first humans	literal & allegorical	errant & incomplete	local	literal
1874	Hirschfelder						
1875	Arnold		first humans		errant & incomplete	global	
1875	Warring	literal	first humans (evolved)				
1877	Robertson	moralistic	first humans or polygenism	moralistic			
1879	Gibson	symbolic	first humans (symbolic)	real or symbolic	errant	local	literal
1881	Nisbet		first humans		errant & incomplete		literal
1881	Whitelaw	literal	first humans	literal	literal	local	literal
1882	Dillmann	legend	myth/legend	myth	legend	local (legend)	legend
1885	Hirschfelder	literal	first humans	literal	literal	local	literal
1885	Exell	literal	first humans	literal	literal	universal	literal
1886	Parker	literal or parabolic	first humans		literal		
1886	Burgon		first humans				
1887	Delitzsch	symbolic + legend	first humans (tradition)	symbolic + legend	probable	local (legend)	legend
1888	Huntingford	literal or allegory	first humans (literal or allegorical)	literal or allegory	errant	local (legend)	legend
1891	Bacon	myth	myth	myth	myth	myth	myth
1892	Fripp	myth	myth	myth	myth	myth	myth
1892	Ryle	myth	legend/myh	myth	myth	local (legend)	legend/myth
1892	Doughty		allegorical				
1893	Kipp						
1894	Davis	legend	symbolic vision	symbolic		local (legend)	legend
1894	Body	allegorical	allegorical	allegorical		legend	
1896	Wade	myth	myth (polygenism)	myth	legend	local (legend)	
1897	Perce		first humans			global	
1897	Jones	poetic	first humans (poetic)	literal	literal	local	
1900	Grant	typological	typological	literal	literal	typological & literal (global)	
1901	Worcester	myth	myth	myth	myth	myth	myth

Table C.2 (continued)

Date	Author	Eden	Adam & Eve	Serpent	Genealogy	Flood	Babel
1901	Pratt	literal	first humans	literal	literal	local	literal
1901	Gunkel	myth/legend	myth/legend	myth/legend	myth/legend	myth/legend	myth/legend
1904	Driver	symbolic (myth/legend)	symbolic polygenism (myth/legend)	symbolic (myth/legend)	myth/legend	universal (legend/myth)	myth/legend
1904	Bennett	symbolic myth	symbolic myth	symbolic myth	myth/legend	myth/legend	myth/legend
1907	Knox	literal	first humans		literal	literal	literal
1907	Gordon	myth	anthropomorphic myth		legend	anthropomorphic myth/legend	anthropomorphic myth/legend
1909	Goodspeed & Welton	literal	first humans	literal	legend/literal	local	literal
1909	Mitchell		poetic legend	legend	legend/myth	universal (myth)	legend
1910	Skinner	myth	myth	myth	legend	universal (myth/legend)	myth/legend

Table C.3 – Commentators who question or deny Mosaic authorship (1650-1910)

Date	Commentator	Mosaic authorship?	Audience	Interpretation style
1651	Hobbes	Not Moses		naturalistic
1655	La Peyrère	Not Moses		naturalistic
1670	Spinoza	Not Moses		naturalistic
1678	Simon	Not Moses		naturalistic
1693	Le Clerc	Moses+	ignorant, scientifically illiterate	naturalistic
1753	Astruc	Moses+		naturalistic
1792	Geddes	not Moses	stupid, credulous	uninspired myth, terrestrial (naturalistic)
1835	Bohlen	not Moses		myth (naturalistic)
1852	Delitzsch	Moses+		day-age theory, partial flood (naturalistic)
1858	Kalisch	not Moses		nebular hypothesis, myth (naturalistic)
1862	Colenso	Not Moses		legend (naturalistic)
1864	Lange	Moses+		symbolic myth/legend, day-age theory, partial flood (naturalistic)
1866	Quarry	not Moses		framework hypothesis, myth/legend, poetic, partial flood (naturalistic)
1870	Warington	not Moses	scientifically illiterate	anthropomorphic, evolutionary (naturalistic)
1872	Alford	not Moses		anthropomorphic, parabolic, symbolic (naturalistic)
1882	Dillmann	not Moses	naïve, childish	myth/legend, partial flood, ANE (naturalistic)
1887	Delitzsch	not Moses		legend, day-age theory, partial flood, ANE (naturalistic)
1891	Bacon	not Moses		myth, ANE
1892	Fripp	not Moses		myth, ANE
1892	Ryle	not Moses	ignorant, scientifically illiterate	myth/legend, partial flood, ANE (naturalistic)
1894	Davis	not Moses		legend, symbolic, day-age theory, partial flood, ANE
1894	Body	not Moses		legend, allegorical, evolutionary, ANE (naturalistic)
1896	Wade	not Moses		myth, nebular hypothesis, day-age theory, evolutionary, partial flood, ANE (naturalistic)
1901	Worcester	not Moses		myth, nebular hypothesis, partial flood, ANE (naturalistic)
1901	Gunkel	not Moses	ignorant, childish	myth/legend, poetry, ANE (naturalistic)
1904	Driver	not Moses	scientifically illiterate	myth/legend, moralistic, nebular hypothesis, evolutionary, partial flood, ANE (naturalistic)
1904	Bennett	not Moses	ignorant, scientifically illiterate	myth/legend, symbolic, ANE

Table C.3 (continued)

Date	Commentator	Mosaic authorship?	Audience	Interpretation style
1907	Gordon	not Moses	naïve, childish, primitive	myth/legend, anthropomorphic, ANE
1909	Mitchell	not Moses		myth/legend, ANE (naturalistic)
1910	Skinner	not Moses	primitive	myth/legend, religious, ANE (naturalistic)

Appendix D: Graphing the influence of the historical sciences on interpretive criteria

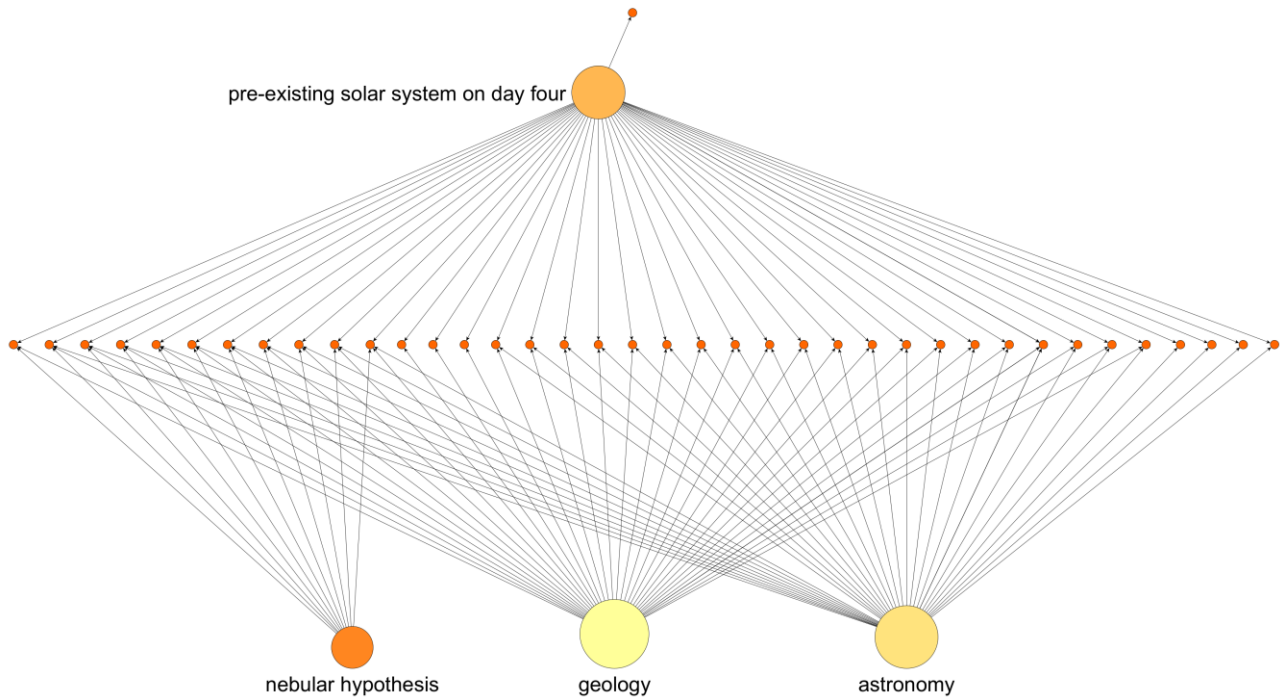


Figure D.1 – Correlation non-literal interpretations of Genesis 1:14-19 and the historical sciences¹

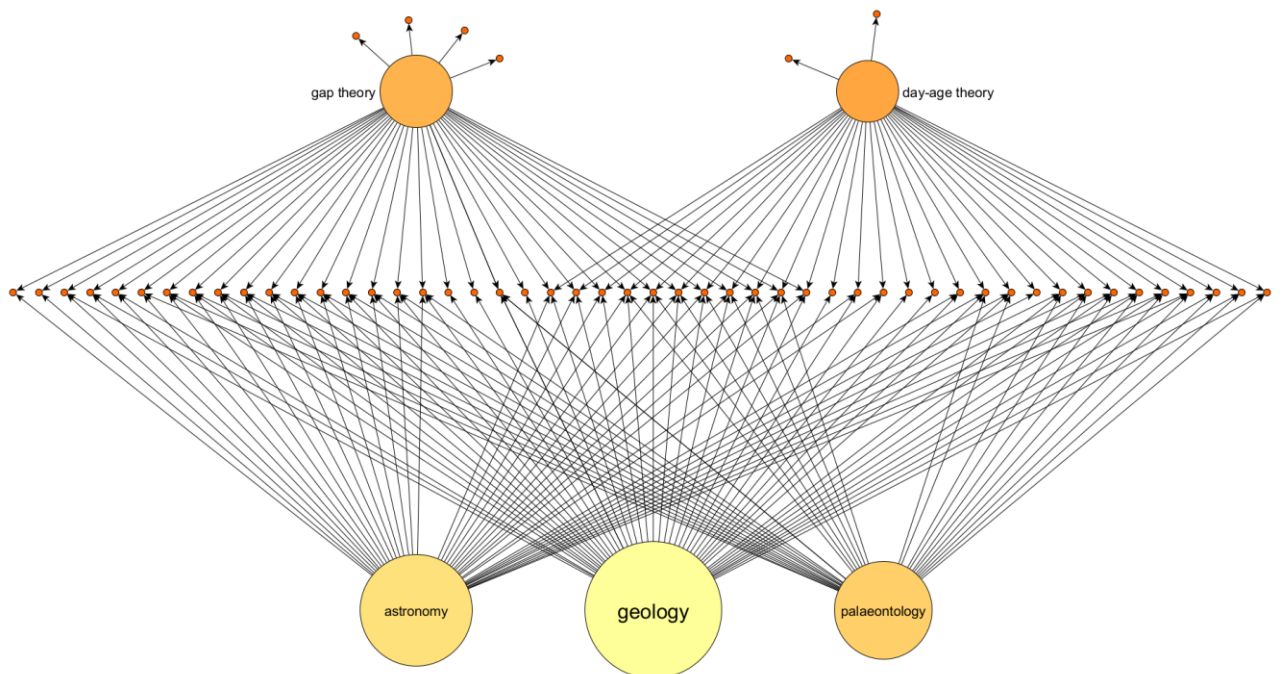


Figure D.2 – Influence of the historical sciences on the gap theory and various day-age theories

¹ The large nodes are scaled in proportion to their frequency in the commentaries. The small nodes are the commentaries themselves. The interpretation tables for this data are included in appendix C.

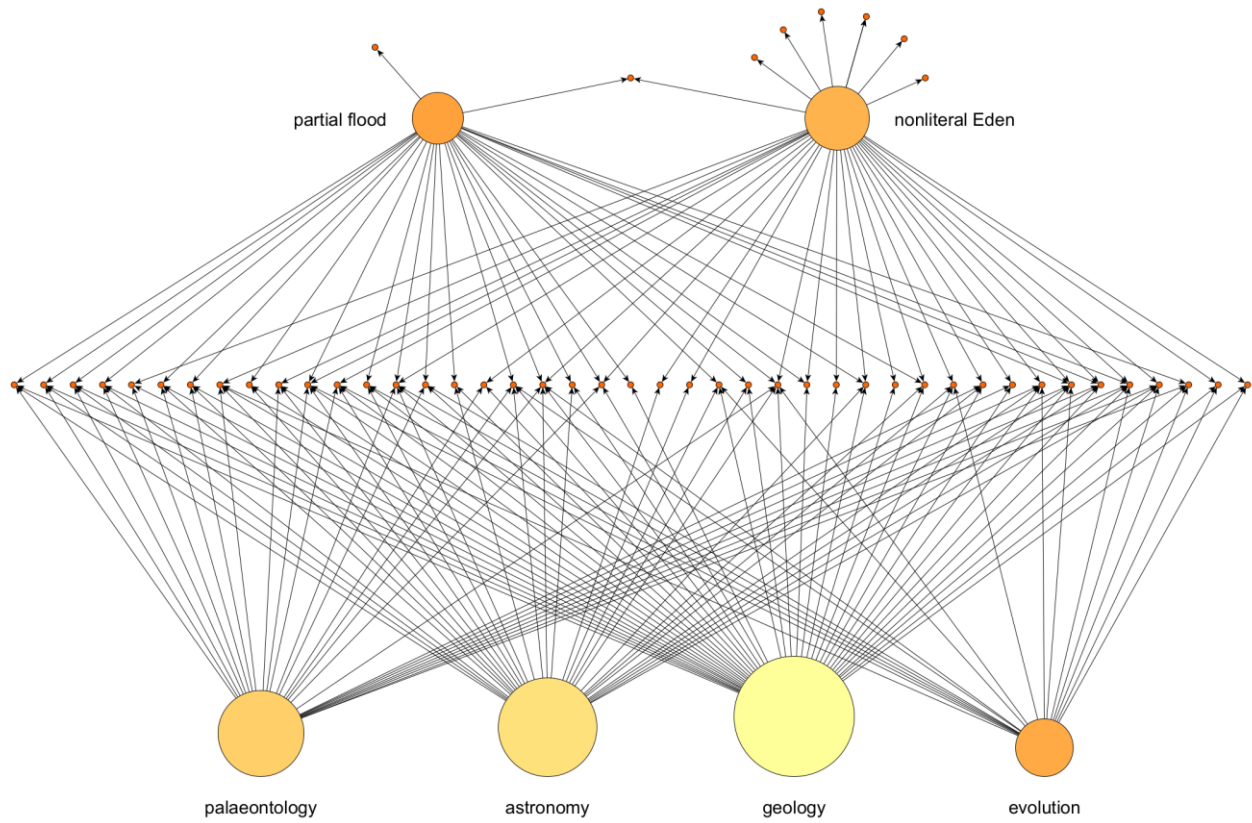


Figure D.3 – Influence of the historical sciences on a nonliteral Eden and partial flood theories

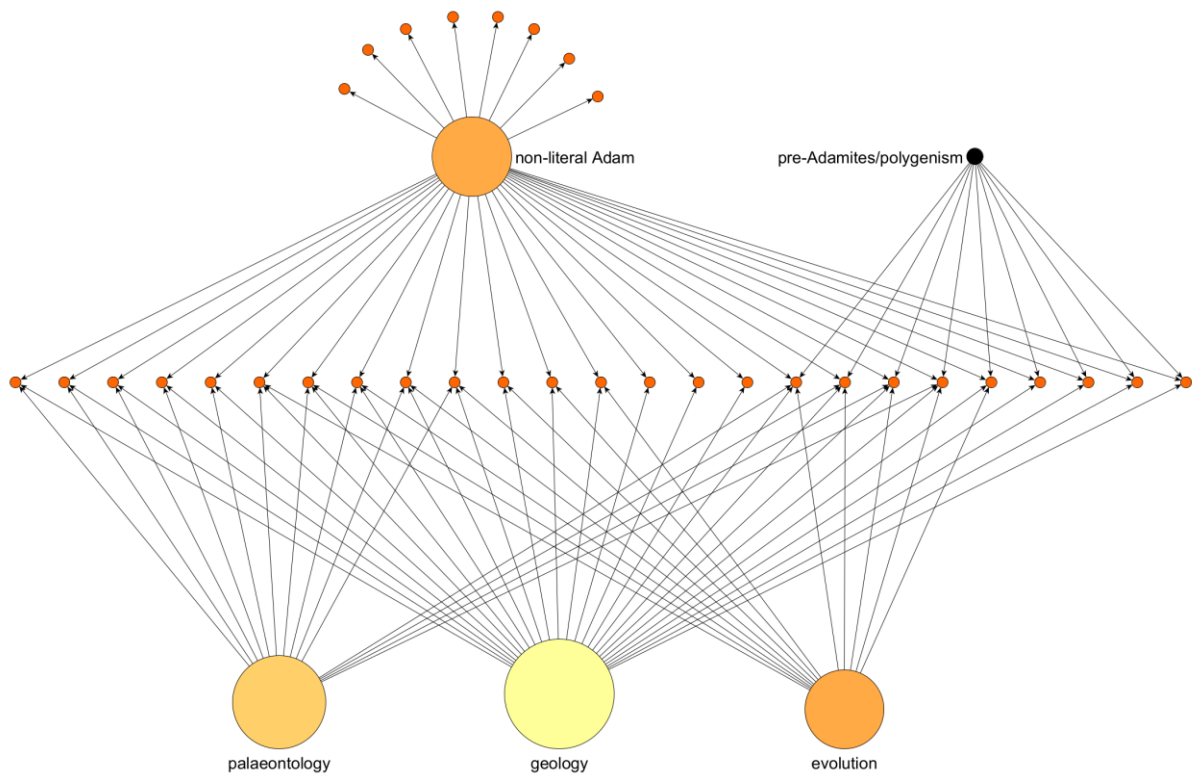


Figure D.4 – Influence of the historical sciences on the literal historicity of Adam²

² This graph also includes commentators who question, but do not categorically deny, the literal historicity of Adam.

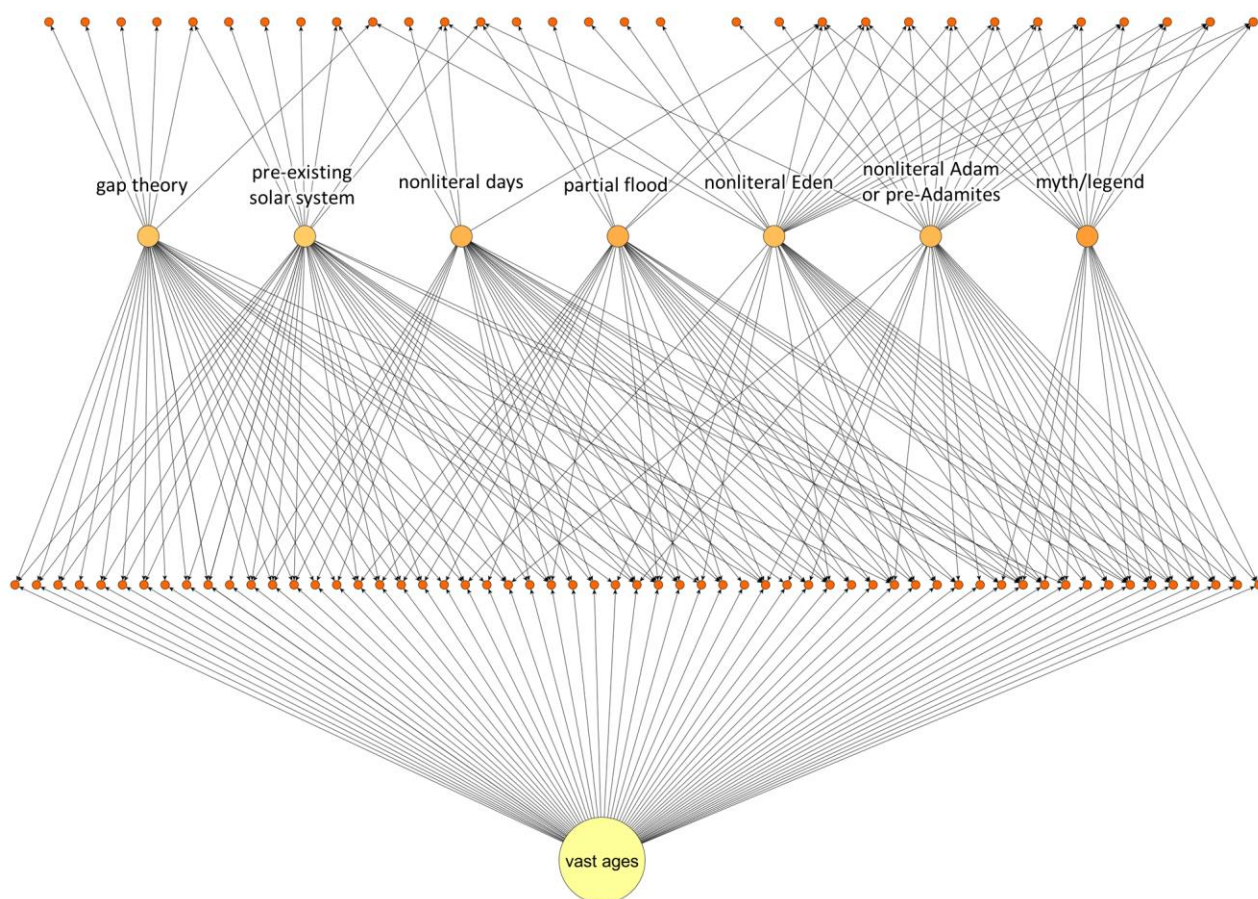


Figure D.5 – Correlation of vast ages with other non-literal interpretations of Genesis 1-11³

³ The large nodes represent elements of interpretation and whilst the small nodes are the commentaries themselves. The nodes at the top represent the smaller group of commentators who do not assert vast ages, but still depart from the literal sense of the text. Of this latter group it is worth noting that many of these commentators would most likely affirm the world to be older than six thousand years, but refrain from stating these convictions in their commentaries. For example, Arnold (1875:300) believes that the universe could have been created to look a lot older than it is. Likewise, although Bacon (1892:335-350), Doughty (1892:84-85), Bennett (1904:72, 95, 103, 128), Body (1894:15-16, 92-93) and Bohlen (1862a:12, 106; 1862b:3-4, 52, 56) do not mention the age of the earth, in their view Genesis is completely irreconcilable with the historical sciences – a perspective which would typically adopt the tenets of modern astronomy and geology, and therefore, the concept of deep time.

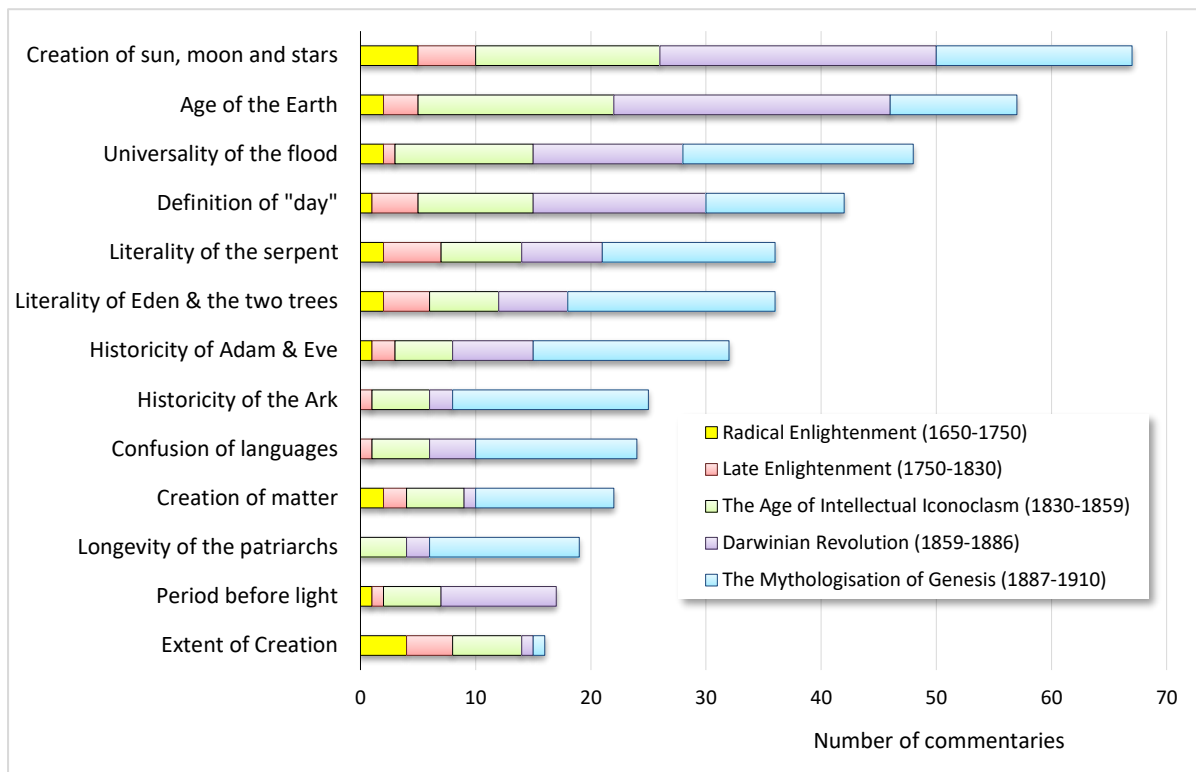


Figure D.6 – Distribution of deviations per criterion in commentaries post-1650 by time period

Appendix E: Citation table

Table E – Citation data from Philo to Skinner

Name	Exegetical & theological citations	Philosophical & scientific citations
Philo		Plato, Socrates, Pythagoras, Hippocrates, Heraclitus
Josephus	Philo	
Justin	Philo, Josephus	Plato
Irenaeus		
Theophilus	Josephus, Justin	
Tertullian		Plato
Clement	Philo	Plato, Aristotle, Pythagoras, Polybus, Heraclitus, Xenocrates
Hippolytus		
Origen	Philo, Clement, Josephus	Plato
Africanus		
Victorinus		
Lactantius	Theophilus, Tertullian	Plato, Cicero, Aristotle, Pythagoras, Epicurus
Athanasius		
Eusebius	Josephus, Africanus, Clement	
Ephrem		
Basil	Origen	Aristotle, Plato, Herodotus, Cicero
Ambrose	Basil, Philo, Book of Wisdom	Plato, Aristotle, Pythagoras, Democritus, Cicero, Virgil, Ovid, Lucretius, Pliny, Horace
Didymus	Philo, Origen, Book of Wisdom, Book of Jubilees	
Gregory	Aquila, Basil	Aristotle, Plato
Chrysostom	Basil	
Augustine	Philo, Origen, Ephrem, Basil, Book of Wisdom, Book of Sirach	Plato, Plotinus, Porphyry, Cicero
Jerome	Aquila, Tertullian, Origen	Porphyry
Severian	Chrysostom	
Cyril		
Theodoret		Plato, Pythagoras, Socrates
Anastasius	Cyril, Ammonius, Basil, Gregory, Papias, Clement, Pantaeus, Irenaeus, Justin, Philo, Ambrose, Origen, Chrysostom, Theodore, Severian, Eusebius, Epiphanius, Theodoret, Methodius, Book of Wisdom	Plato, Pythagoras
Bede	Jerome, Basil, Augustine, Ambrose, Clement, Gregory, Josephus, Isidore, Book of Wisdom, Book of Sirach	Virgil, Ovid, Pliny
Damascene	Gregory of Nazianzus, Gregory of Nyssa, Basil, Origen, Severian	Plato, Socrates, Aristotle
Anselm	Augustine, Book of Sirach	
Abelard	Augustine, Origen, Jerome, Bede, Josephus, Ambrose, Isidore	Plato, Boethius
Lombard	Augustine, Bede, Jerome, Origen, Gregory, Chrysostom, Alcuin of York, Isidore, Book of Wisdom, Book of Sirach	Plato, Aristotle, Strabo
Ibn Ezra		
Maimonides	Ibn Ezra	Aristotle, Plato
Grosseteste	Augustine, Basil, Ambrose, Jerome, Damascene, Chrysostom, Bede, Josephus, Gregory of Nyssa, Book of Wisdom, Book of Sirach	Aristotle, Plato, Isidore, Pliny, Ovid, Ptolemy, Seneca, Boethius
Aquinas	Augustine, Basil, Ambrose, Gregory of Nyssa, Origen, Jerome, Bede, Damascene, Chrysostom, Isidore, Book of Wisdom, Book of Sirach	Aristotle, Plato, Pliny, Ptolemy, Boethius, Dionysius, Pythagoras, Strabo
Luther	Augustine, Ambrose, Jerome, Hilary, Origen, Nicholas de Lyra, Bernard, Book of Wisdom, Book of Sirach	Aristotle, Plato, Dionysius, Pythagoras
Calvin	Augustine, Jerome, Origen, Chrysostom	Aristotle, Plato, Pliny

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Babington	Augustine, Luther, Damascene, Lactantius, Bede, Cyril, Tertullian, Philo, Book of Sirach	Aristotle
Willet	Augustine, Mercer, Pereira, Chrysostom, Basil, Theodoret, Ambrose, Ibn Ezra, Luther, Calvin, Tertullian, Bede, Aquinas, Damascene, Origen, Jerome, Irenaeus, Gregory, Josephus, Lombard, Lyra, Philo	Aristotle, Plato, Pliny, Plutarch, Ptolemy, Thales, Strabo
Raleigh	Augustine, Origen, Cyril, Chrysostom, Gregory, Jerome, Aquinas, Ambrose, Lactantius, Bede, Lyra, Lombard, Mercer, Calvin, Luther, Basil, Ephrem, Theodoret, Damascene, Victorinus, Comestor, Philo, Josephus, Irenaeus	Aristotle, Plato, Pythagoras, Virgil, Hugo, Ovid, Plotinus, Ptolemy, Pliny, Boethius, Dionysius, Strabo
Ainsworth	Menachem ben Saruq, Maimonides	Pliny, Plutarch
Salkeld	Augustine, Ambrose, Origen, Philo, Chrysostom, Jerome, Tertullian, Basil, Abulensis, Ephrem, Bede, Josephus, Aquinas, Lombard, Justin, Damascene, Gregory, Lyra, Rupert of Deutz, Eugubinus, Bonaventure, Isidore	Aristotle, Plato, Porphyrius, Dionysius, Strabo
Walker	Augustine, Ambrose, Athanasius, Theodoret, Cyril, Damascene, Bede, Lombard, Tertullian, Jerome, Philo, Ephrem, Origen, Luther	Aristotle, Plato
Jackson		
Lightfoot		
Trapp	Augustine, Lactantius, Origen, Damascene, Luther, Basil, Bernard, Ignatius, Lombard, Nazianzen, Gregory, Tertullian, Bede, Chrysostom, Ambrose, Theodoret, Jerome, Rupertus, Josephus, Scaliger, Isidore, Qur'an	Aristotle, Plato, Plotinus, Thales, Pliny, Proclus, Zoroaster, Herodotus, Varro
Ussher	Augustine, Lightfoot, Maimonides, Josephus, Philo, Origen, Ambrose, Chrysostom, Basil, Eusebius, Justin, Theophilus, Tertullian, Clement, Hippolytus, Africanus, Lactantius	
Needler	Augustine, Ambrose, Willet, Luther	Seneca
Richardson		
Hughes	Augustine, Calvin, Luther, Junius	
Hale	Philo, Maimonides	Copernicus, Galileo, Kepler, Descartes, Aristotle, Ocellus, Epicurus, Plutarch, Thales, Pythagoras, Democritus, Vossius
Burnet	Augustine, Jerome, Basil, Symmachus, Josephus, Justin, Damascene, Bellarmine, Ephrem, Bede, Aquinas, Isidore, Augustine, Origen, Chrysostom, Nazianzen, Damascene, Philoponus, Jerome, Ambrose, Bede, Isidore, Basilus, Maimonides, Josephus, Philo, Eusebius, Basil	Aristotle, Plato, Descartes, Pliny, Virgil, Epicurus, Pythagoras, Strabo
P. Henry	Lightfoot, Stillingfleet, Cave, Philo, Bellarmine	
Poole	Philo, Lactantius	Plato, Seneca, Plutarch, Berosus, Abydenus, Pliny, Strabo
Bunyan		
Le Clerc	Grotius, Strabo, Vossius, Philo, Josephus, Jerome, Stillingfleet, Justin, Irenaeus, Theophilus	Plato, Pliny, Cicero, Aristotle, Halley
Kidder	Josephus, Philo, Maimonides, Le Clerc, La Peyrère, Ussher, Raleigh	Hobbes, Spinoza
Patrick	Eusebius, Ibn Ezra, Maimonides, Theophilus, Philo, Chrysostom, Justin, Nazianzen, Vossius, Abarbanel, Gregory, Origen, Tertullian, Irenaeus, Basil, Calvin, Ussher, Lightfoot, Mercer, Junius, Augustine, Aquinas, Raleigh, Jerome	Aristotle, Anaxagoras, Thales, Strabo, Bochart, Ray, Boethius, Pliny, Plutarch, Seneca, Plato
Whiston	Patrick, Burnet	Newton, Plato
M. Henry	Lightfoot	Boyle
Stackhouse	Ussher, Burnet, Le Clerc, Ainsworth, Hale, Patrick, Bedford, Philo, Augustine, Justin, Clement, Athanasius, Origen, Josephus, Tertullian, Lactantius, Stillingfleet, Basil, Jenkins, Lightfoot, Heidegger, Raleigh, Milton	Bochart, Boyle, Copernicus, Derham, Cudworth, Whiston, Bentley, Ray, Pliny, Galen, Herodotus, Wells, Locke, Strabo, Whiston
Colman	Henry, Burnet, Patrick, Milton	
Jennings		Whiston, Halley
Kennicott	Salkeld, Jenkin, Rupertus, Willet, Le Clerc, Augustine, Clarke, Taylor, Stackhouse, Worthington, Heidegger, Robinson, Burnet, Mede, Patrick, Grotius, Selden, Origen, Bedford, Milton	Virgil
Astruc	Ussher, Le Clerc, La Peyrère, Simon, Eusebius, Cyril, Clement, Philo, Josephus, Augustine	Voltaire, Hobbes, Spinoza
J. Scott	Milton	
Shuckford	Burnet, Middleton, Kennicott, Bolingbroke, Grotius, Milton, Pope	Locke, Plato, Ovid

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Gill	Ussher, Milton, Maimonides, Ibn Ezra, Onkelos, Philo, Bochart, Josephus, Whiston, Capellus, Clement, Patrick, Raleigh	Hobbes, Spinoza, Derham, Newton, Huygens
Purver	Ainsworth, Maimonides, Lightfoot, Mercer, Patrick, Poole, Raleigh, Bedford, Josephus, Onkelos, Grotius, Shuckford, Stillingfleet, Chrysostom	
Wesley	Henry	
Dodd	Locke, Patrick, Le Clerc, Calvin, Clarke, Grotius, Smith, Warburton, Josephus, Gregory, Jerome, Bochart, Heidegger, Mede, Ainsworth, Delaney, Shuckford, Raleigh, Lightfoot, Jamieson, Whiston, Woodward, Burnet, Stillingfleet	Newton, Grew, Ray, Derham, Voltaire
Rosenmüller	Basil, Gregory, Ambrose, Hilary, Isidore, Damascene, Onkelos	Newton, Descartes, Buffon, Burnet, Leibnitz, Woodward, Ray, Whiston, Linnaeus, Bolingbroke, Blount
Buffon		Newton, Whiston, Burnet, Woodward, Maupertuis, Scheutzer, Leibnitz, Steno, Ray, Drake, Cavendish, Pliny, Plato, Aristotle, Dalibard, Becher, Palissy, Reaumur, Jussieu, Bourguet, Hupeau, Granger, Costelli, Halley, Boyle, Strabo, Augustine
Brown		
Geddes	Justin, Theophilus, Athanasius, Nazianzen, Origen, Philo, Basil, Josephus, Irenaeus, Clement, Gregory, Ambrose, Augustine, Poole, Eichhorn, Astruc	
T. Scott	Patrick, Maimonides, Henry	
Priestley	Geddes	Kirwan
Dimock	Bochart, Jackson, Grotius, Poole, Lowth, Kennicott, Winder, Stillingfleet, Owen	
Fuller	Milton, Josephus, Ainsworth, T. Newton	Cuninghame
Benson	Henry, Kimchi, Poole, Lightfoot, T. Newton, Mede	
Clarke	Jones, Parkhurst, Wilmet, Ibn Ezra, Ainsworth, Ephrem, Kennicott, Gregory, Priestley, Shuckford, Dodd, Jerome, Maimonides, Josephus, Hales, Wall, Arbuthnot, Greaves, Wilkins, Lightfoot	Herschel, Lalande, Ray, Newton, Priestley, Woodward, Long, Digby, Tyson, Kirwan, Tournefort
Hewlett	Grey, Philo, Maimonides, Poole, Stillingfleet, Milton, Huet, Patrick, Dodd, Ally, Horne, Chrysostom, Geddes, Grotius, Fawkes, Henry, Josephus, Poole, Jones, Lowth, Mede, Bochart, Clement, Eusebius, Origen, Augustine, Josephus, Warburton, Eichhorn, Lightfoot, Shuckford, Raleigh, Onkelos, Fawkes, Dawson, Selden, Le Clerc, Rosenmüller, Wilkins, Wilson, Locke, Whiston, Burnet, Watson	Bouguer, Hawksbee, Bernoulli, Franklin, Taylor, Euler, Watson, Pluche, Descartes, Malbranche, Huygens, Newton, Fawkes, Huetius, Linnaeus, Kepler, Kirwan, Halley, Whiston, Englefield, Wilkins
D'Oyly	Patrick, Wilson, Wells, Kidder, Pearson, Hall, Stackhouse, Horne, Chrysostom, Barnabas, Butler, Bentley, Hales, Young, Beveridge, Clarke, Kennicott, Pyle, Sanderson, Mede, Philo, Delaney, Latimer, Wogan, Conybeare, Berriman, Shuckford, Derham, Whiston, Tillotson, Leland, Chandler, Waterland, Bedford, T. Newton, Jones, Eusebius	Buffon, Stillingfleet, Paley
Bellamy	Grotius, Simeon, Tertullian, Philo, Maimonides, Onkelos, Kimchi, Clarke, Pococke, Origen, Eusebius, Augustine, Clement, Le Clerc, Parkhurst, Jerome, Dodd, Shuckford	Buffon
Horsley		
Faber	Warburton	Cuvier, Parkinson, Deluc, Dolomieu
Close		
Bonnet	Calvin, Augustine, Bellarmine, Chrysostom, Tertullian, Philo, Justin, Origen, Eichhorn, Hengstenberg, Tholuck, Ambrose, Clement, Gabler, Irenaeus, Theodoret, Theophilus, Luther, Gill, Clarke, Abarbanel, Dæderlein, Græcher, Kimchi, Ziegra, Knapp, Meyer, Milton, Josephus, Rougemont, Herder	
Bohlen	Ibn Ezra, Jerome, Simon, van Dale, Spinoza, De Wette, Herder, Augustine, Volney, Gesenius, Eichhorn, Geddes, Rosenmüller, Josephus, Clement, Kelle, Le Clerc, Gabler, Ewald, Jahn, Vater, Johannsen, Kaiser, Tuch, Luther, Burnet, Schumann, La Peyrère, Ziegler, Schleiermacher, Thirlwall, Reinhardt, Tholuck, Michaelis, Ewald, Whiston, Dupuis, Buttmann, Astruc, Bochart	Buffon, Herschel, Euler, Lyell, Sedgwick, Owen, Cuvier- Agassiz, Pye-Smith, Humboldt
Sibthorp	Henry, T. Scott	

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Kitto	Ewald, Hävernick, Rosenmüller, Jahn, Hengstenberg, Stowe, Graves, Faber, Blunt, Ainsworth, Bonfrere, Osiander, Vater, Kidder, Parker, Geddes, Theodoret, Bede, Eusebius, Gray, Turner, Astruc, Eichhorn, De Wette, Bohlen, Tuch, Ranke, Drechsler, Vitringa, Calmet, Ilgen, Holden, Gleig, Horne, Hughes, Schmid, Cartwright, Fuller, Bush, Pye-Smith, Clarke, Wells, Basil, Josephus, Grotius, Cyril, Dawson, Jackson, Hales, Brown, Lindsley, Abarbanel, Michaelis, Bochart, Gesenius, Robinson, Baumgarten, Ussher	Linnaeus, Jones
Bush	Fuller, Hobbes, Spinoza, Simon, Le Clerc, Volney, Hasse, Nachtigall, Vater, Bertholdt, De Wette, Gesenius, Horne, Jahn, Hall, Josephus, Vitringa, Lightfoot, Trapp, Horsley, Patrick, Henry, Grotius, Wilkins	Sedgwick, Lawrence
Hitchcock	Patrick, Poole, Philo, Justin, Michaelis, Geddes, Schmucker, Simon, Vatablus, Estius, Bauer, Eichhorn, Hulda, Ziegler, Paulus, Pott, Hensler, Kaufman, Stuart, Horsley, Josephus, Origen, Augustine, Whiston, Knapp	Humboldt, Lyell, Cuvier, Brongniart, Jamieson, Buckland, Sedgwick, Murchison, Conybeare, Greenough, Bakewell, Mantell, De la Beche, Ure, Penn, Deluc
Pye-Smith	Le Clerc, Chalmers, Hitchcock, Fleming, Basil, Patrick, Powell, Kirby	Whewell, Herschel, Buckland, Sedgwick, Babbage, Ray, Bentley, Derham, Clarke, Paley, Hitchcock, Lyell, Hutton, C. Darwin, Murchison, St. Hilaire, Lamarck, Powell, Linnaeus, Cuvier, W. Smith, Prichard
Turner	Jahn, Le Clerc, Ibn Ezra, Spinoza, Ewald, Calmet, Gleig, Vitringa, Le Cene, Stackhouse, Eichhorn, Kelle, Ilgen, Rosenmüller, Herder, Drechsler, Tertullian, Maimonides, Scharbau, Astruc, Hasse, Vater, Hartmann, Hengstenberg, Stähelin, Buddäus, Jarchi, Vossius, Gesenius, Pfeiffer, Bush, Wiseman, Bull, Augustine, Gabler, Palfrey, Pye-Smith, Kennicott, Abarbanel, Horsley, Holden, Berger, Josephus, T. Newton	Copernicus, Pye-Smith, Hitchcock
Kurtz	Eichhorn, Ammon, Drechsler, Delitzsch, Ebrard, Strauss, Hengstenberg, Hofmann, Lange, Delitzsch, Rougemont, Hengstenberg, Vogt, Eichhorn, De Wette, Bertholdt, Jahn, Scholz, Keil, Kimchi, Ibn Ezra, Theodoret, Chrysostom, Augustine, Jerome, Rosenmüller, Maimonides, Michaelis, Africanus, Josephus, Calvin, Luther, Tuch, Vossius, Philo, Justin, Clement, Tertullian, Cyprian, Ambrose, Vitringa	Herschel, Newton, Kepler, Copernicus, Humboldt, Struve, Bessel, Maclear, Henderson, Peters, Rümker, Mädler, Schubert, Brahe, de Fontenelle, Galileo, Halley, Derham, Lacaille, Kant, Lambert, Rosse, Robinson, Wagner, Laplace, Herschel, Humboldt, Schubert, Bessel, Steffens, Agassiz, Buckland, Bronn, Buffon, Cuvier, Wagner, Prichard
Wight	Hitchcock, Buckland, Chalmers, Pye-Smith, Wardlaw, Alexander, Stuart, Bush, Powell, Kitto, Silliman	[Chambers], Herschel, Laplace, Ansted, Murchison, Sedgwick, Miller, Hutton, Deluc, Brongniart, MacCulloch, McLauren, Smith, Lyell, C. Darwin
Gerlach	Michaelis, Chrysostom, Luther, Augustine, Anselm, Bernard, Luther	
Rendell	Powell, Pusey, Buckland, Chalmers, Hewlett, Pye-Smith, Origen, Josephus, Wiseman, Vater, Eichhorn, Grotius, Milton, Blair, Robertson, Dodd, Patrick, Collier, Rosenmüller, Philo, Maimonides, E. Darwin, Davy, Wisdom of Solomon, Clarke, Montaigne, Chrysostom, Augustine, Irenaeus, Luther, Shuckford, Poole, Brown, Turner, Geddes, Henry, T. Scott, Wilkins, Cockburn, Buckland, Vossius, Stillingfleet, Turner, Wesley, Ussher	Sedgwick, Powell, Fleming, Hitchcock
Hamilton	Eichhorn, De Wette, Strauss, Henri, Gesenius, Ussher, Hasse, Rosenmüller, Michaelis, Eckermann, Tholuck, Neander, Lightfoot, Stillingfleet, Prideaux, Graves, Butler, Faber, Horne, Stuart, Le Clerc, Simon, Hartmann, Hengstenberg, Vitringa, Clarke, Josephus, T. Newton, Philo, Buckland, Pye-Smith, Chalmers, Silliman, Hale, Jackson, Poole, Augustine, Justin, Irenaeus, Clement, Tertullian, Cyprian, Lactantius, Eusebius, Maimonides, Cahen, Woodward, Leibniz, Fleming, Prichard, Wiseman	Agassiz, Miller, Hitchcock, Herschel, Lamarck, Lyell, Owen, Hutton, Richardson, Silliman, Mantell, Berkeley, Humboldt, Sedgwick, C. Darwin, Cuvier
Paul	Lee, Stewart, Hitchcock, Hengstenberg, Josephus, Philo, Origen, Augustine, Bede, Whiston, Deluc, Faber, Pye-Smith, Rosenmüller, Astruc, Eichhorn, Ainsworth, Bush, Glassius, Michaelis	Hitchcock, Pye-Smith, Stewart
Delitzsch ¹	Kurtz, Astruc, Eichhorn, Herder, Vater, Hartmann, Ewald, Bleek, Stähelin, Tuch, Knobel, Hupfeld, Drechsler, De Wette, Ranke, Bohlen, Bunsen, Hofmann, Luther, Gesenius	Cuvier, Baumgarten, Wagner, Herschel, Buckland, Prichard, Humboldt, Weber
Jervis	Eusebius, Patrick, Clarke, Pye-Smith, Harcourt, Jennings, Hyde, Nazianzen, Justin, Origen, Basil, Chrysostom, Sumner, Muhammad, Josephus, Jerome, Williams, Johnson, Maimonides, Ibn Ezra, Gesenius, Kennicott, Theodoret, Lightfoot, Stillingfleet, Rosenmüller	Herschel, Comte, MacCulloch, Pye-Smith, Murchison, Buckland, Ehrenberg, Chalmers
Cumming	King, Herder, Schlegel, Wiseman, Josephus, Eusebius	Hitchcock, [Chambers], Humboldt
Dods		Huxley, Mill

¹ i.e. for *Die Genesis ausgelegt* (1852), not *Neuer Commentar Ueber die Genesis* (1887)

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Lane	Lee, Rosenmüller, Clarke, Philo, Miller, Coleridge, Kurtz, Eichhorn, Onkelos, Hamilton, Origen, Josephus, Ussher, Hale, Luther, Augustine	Miller, Galileo, Newton, Hume, Hobbes, Bacon, Cuvier, Bunsen, Müller, Prichard, Hitchcock, Knox, Lyell, Pye-Smith, Anderson
MacDonald	Luther, Holden, Philo, Josephus, Origen, Clement, Irenaeus, Tertullian, Athanasius, Chrysostom, Augustine, St Victor, Bertholdt, Damascene, Lombard, Erigena, Calvin, La Peyrère, Kidder, Patrick, Hutchinson, J. Scott, Herder, Eichhorn, Tuch, Winer, Rosenmüller, Ammon, Bauer, Vater, Gesenius, Bohlen, Werner, Tholuck, Müller, Sherlock, Horsley, Topham, Geddes, Jahn, Hävernicks, Tiele, Baumgarten, Schröder, Delitzsch, Richers, Hengstenberg, Drechsler, Kurtz, Fürst, Knobel, Ewald, Buckland, Pye-Smith, Descartes, Whiston, Deluc, Delitzsch, Kitto, Gabler, Whately, Bush, Schumann, Onkelos, Ibn Ezra, Saadiah, Dath, Owen, Knobel, Le Clerc, Michaelis, Hartmann, Buttmann	Herschel, Powell, Leibniz, Wolff, [Chambers], Bunsen, Laplace, Lamarck, Whewell, Sedgwick, Humboldt, Murchison, Phillips, Miller, Lyell, Pye-Smith, Whiston, Burnet, Silliman, Cuvier, Jamieson, Henslow, Balfour, de Maillet, Voltaire
Jukes	Jerome, Augustine, Ambrose, Gregory, Parkhurst, Origen, Bernard, Clement	
Mackintosh		Newton
Miller	Poole, Stillingfleet, Pye-Smith, Hitchcock, Chalmers, Kitto	Galileo, Lamarck, Lyell, de Maillet, Agassiz, Darwin, Sedgwick, Hume, Buffon, Buckland, Cuvier, Murchison
Davies		Galileo, Torricelli, Newton, Morton, Buffon, Hunter, Jacquinot, Blumenbach, Kant, Metzan, Tschudi
Kalisch	Miller, Josephus, Gregory, Origen	Herschel, Laplace, Kepler, Tycho, Cuvier, Galileo, Copernicus, Newton, Humboldt, Slough, Buffon, Prichard, Blumenbach, Vrolik, Weber, Halley, Cuvier, Deluc, Dolomieu
Hoare	Eichhorn, De Wette, Strauss, Neander, Olshausen, Tholuck, Kurtz, Böck, Hävernicks, Stier, Graves, Hale, Josephus, Kitto, Maimonides, Stillingfleet, Mede, Buckland, Coleridge, Lee, Miller, Pusey, Chalmers, Sedgwick, Gray, Pye-Smith, Ainsworth, McCausland, Patrick, Gleig, Lyra, Stackhouse, Clement, Gregory, Kalisch, Horsley, Bryant, Harcourt, Faber, Jenkins, Le Clerc	Lyell, Whewell, Herschel, Sedgwick, Spinoza, Lamarck, Jones, Guyot, Murchison, Berkeley, Hitchcock, Bell, Mantell, Dickeson, Young, Richardson, Cuvier, Owen
Keil	Ewald, Hävernicks, Vaihinger, Herder, Richers, Keerl, Hofmann, Bunsen, Theodoret, Ziegler, Luther, Gesenius, Tuch, Philo, Baumgarten, Hengstenberg, Book of Wisdom, Chrysostom, Calvin, Kurtz, De Wette, Huther, Philippi, Vitringa, Bochart	Descartes, Laplace, Humboldt, Buckland, Cuvier
Williams	Augustine, Chrysostom, Hävernicks, Bede, Miller, Origen, Ambrose, Book of Sirach, Book of Wisdom, Basil, Theodoret, Josephus, Irenaeus, Cyril, Calvin	
Groves	Kidder, Hävernicks, Hengstenberg, Davidson, Horne, Kurtz, Keil, Delitzsch, Ayre, Michaelis, Tuch, De Wette, Hupfeld, Ibn Ezra, Astruc, Eichhorn, Vater, Hartmann, Faber, Miller, Maurice, Whewell, Hitchcock, Chalmers, Buckland, Wagner, Kalisch, Knobel, Wright, Phillips, Wiseman, Horsley, Sedgwick, Gesenius, Milton, Leslie, Patrick, Le Clerc, Rosenmüller, Ainsworth, Blackadder, Mercer, Maurer, Bull, Fairburn, Bochart, Gerlach, Butler, Mede, Waterland, Barry, Berriman, Jackson, Philo, Justin, Herder, Vossius, Schlegel, Hamilton, Chrysostom, Scholz	Agassiz, Cuvier, Herschel, Spinoza, Jamieson, Humboldt, Lyell, Sedgwick, Miller, Richardson, Mantell, Somerville, Lardner, Bunsen, Müller, Prichard
Colenso	Hengstenberg, Ewald, Kurtz, De Wette, Bleek, Hävernicks, Keunen, Davidson, Whately, Mansel, Browne, Burgeon, T. Scott	Lyell
Jamieson	Bunsen, Ewald, Lepsius, Davidson, Hegel, Colenso, Maurice, Coleridge, Stanley, Williams, Wilson, Jowett, Lee, Graves, Rosellini, Gesenius, Hengstenberg, Wilkinson, Stuart, Rosenmüller, Prichard, Hävernicks, MacDonald, Kidd, Stillingfleet, Josephus, Pye-Smith, Kitto, Ibn Ezra, Kimchi, Maimonides, Knobel, King, Buckland, Penn, Kurtz, McCaul, Lardner, Crofton, Tuch, Gabler, Augustine, Origen, Hitchcock, Hamilton, Ragg, Chalmers, Lightfoot, Eichhorn, Knapp, Miller, Goodwin, De Wette, Powell, Onkelos, Poole, Warburton, Hodge, Milne, Kennicott, Michaelis, Jahn, Bochart, Henderson, Milton, Clarke, Hardwick, Le Clerc, Delitzsch, Hackett, Hales, Buttmann, Bohlen, Hupfeld, Ussher, Parker, Clinton, Justin, Clement, Tertullian, Lactantius, Chrysostom, Keil, Arbuthnot, Horsley	Voltaire, Herschel, Dana, Humboldt, Laplace, Tyndall, D'Orbigny, Beaumont, Murchison, Agassiz, Owen, C. Darwin, Lyell, Linnaeus, Prichard, Swainson, Landolles, Forbes, Derham, Kirby, Cuvier, Bunsen, Waitz, Blumenbach, Retzius, Champollion, Smythe, Hunt, Clapperton, Livingstone, Ragg, Wilson, Bachman, Sedgwick, Hamilton, Ainsworth
Murphy	Josephus, Theodoret	
Jacobus	Bush, Colenso, Chalmers, Wadlaw, Murphy, Keil, Hengstenberg, Rawlinson, Graves, Jahn, McCaul, De Wette, Sleidanus, Delitzsch, Kurtz, Theodoret, Strauss, Augustine, Newton, Vitringa, Lewis, Calmet, Wilkinson, Hävernicks, Kitto, Ewald, Ussher, Hales, Jackson, Bunsen, Harris, Poole, Kalisch, Dana, Mitchel, Gesenius, Beaumont, Pattison, Benisch, Luther, DeSola, Magee, Milton, Bohlen, Leland, Chrysostom, Gerlach, Calvin	Huxley, Herschel, Agassiz, C. Darwin, Owen, Cuvier, Lyell, Wallace, Humboldt, Whewell, Dana, Miller, D'Orbigny, Bessel, McDonald, Hitchcock, Lamarck, Austen, Lubbock, Prichard, Bachman, Cabell, Lepsius, Blumenbach, Müller

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Lange	Colenso, Delitzsch, Keil, Knobel, Bohlen, Kurtz, Ewald, Hengstenberg, Lengerke, Bleek, Ussher, Josephus, Becker, De Wette, Baumgarten, Bertholdt, Hävernicks, Philo, Vaihinger, Luther, Hamann, Bunsen, Raschi, Ibn Ezra, Basil, Ambrose, Hupfeld, Theodoret, Saadia, Herder, Longinus, Tertullian, Gesenius, Hofmann, Wagner, Calvin, Rosenmüller, Eichhorn, Umbreit, Tuch, Maimonides, Wordsworth, Murphy, Jacobus, Kimchi, Beck, Ephrem	Cuvier, Whewell, Herbert, Comte, C. Darwin, Hegel, Copernicus, Herschel, Prichard
Candlish	Josephus	Paley
Quarry	Goodwin, Miller, Challis, McCaul, Augustine, Josephus, Rorison, MacDonald, Aquinas, Hengstenberg, Keil, Burnet, Basil, Stillingfleet, Maimonides, More, Bacon, Bede, Origen, Irenaeus, Philo, Clement, Grotius, Onkelos, Warburton, Pye-Smith, Poole, Davidson, Colenso, Voss, Shuckford, Le Clerc, Heidegger, Gregory,	Lyell, Copernicus, Galileo, Newton, Voltaire, Laplace
Bonar	Milton, Theodoret, Calvin, Burton, Barrington, Venema, Robertson, Josephus, Rosenmüller, Gesenius, Reland, Brown, Kennicott, Augustine, Tertullian, Kidder, Rungius, Hävernicks, Faber, Bernard, Hengstenberg, Bush, Mercer, Fuller, Coverdale, Jerome, Morrison, Diodati, Fleming, Wesley, Ussher, Mede, Bunyan, Ness, Valentinus, Trapp, Poole, White, Jackson, Irving, De Sola, Fagius, Hutchinson, Lactantius, Patrick, Hamilton, Marbachius, Philo, Maitland, Stuart, Origen, Chrysostom, Ambrose	
Conant	Silliman, Guyot, Pye-Smith, Delitzsch, Lange, Murphy, Auberlen, Herder	Dana, Paley
Thompson	Hengstenberg, W. Smith, Ewald, Delitzsch, Lange, Gesenius, Barrows, Lewis, Kalisch, Augustine, Müller, Murphy, Tholuck, Ussher	Guyot, Dana, Agassiz, Huxley, C. Darwin, Vogt, Owen, Humboldt, Lyell, Loomis, Hopkins, Rochet, Marsh, Cuvier, Spencer
Warrington	De Wette, Benisch, Kalisch, Tuch, Keil, Knobel, Delitzsch, Gesenius, Ewald, Kurtz, Pusey	C. Darwin, Herschel, Lyell, Carpenter, Spencer, Tyndall, Mill, Beale
Alford	Gesenius, Kalisch, Philo, Knobel, Keil, Quarry, Delitzsch, Jewish Targums, Wisdom of God, Lange, Luther, Eusebius, Murphy, Theodotion, Ewald, Wordsworth, Wright, Onkelos, Poole, W. Smith, Westcott, Hengstenberg, Josephus, Kimchi, Colenso	
Browne	Vitringa, Astruc, McCaul, Keil, Quarry, Smith, Kalisch, Onkelos, Le Clerc, Gesenius, Abarbanel, Chrysostom, Philo, Gerundinus, Ibn Ezra, Maimonides, Bohlen, Justin, Irenaeus, Theophilus, Theodoret, Basil, Kurtz, Miller, Nachmanides, La Peyrère, Josephus, Calvin, Huet, Bochart, Michaelis, Rosenmüller, Raumer, Heidegger, Kennicott, Augustine, Mede, Jerome, Tuch, Milton, Gerlach, Patrick, Gregory, Eichhorn, Hartmann, Warburton, Luther, Grotius, Delitzsch, Kimchi, Rashi, Münster, Pererius, Knobel, Vater, Hävernicks, Baumgarten, Cyril, Lactantius, Ewald, De Wette, Maurer, Davidson, Müller, Ussher	Galileo, Copernicus, C. Darwin, Prichard, Lubbock, Lyell, Buffon, Beaumont
Hirschfelder	Kalisch, Colenso, Pusey, Babbage, Gesenius, Ewald, Hengstenberg, Penn, Bohlen, Vater, Maurer, Goodwin, Miller, Buckland, Townsend, Gregory, Justin, Basil, Caesarius, Origen, Augustine, Theodoret, Episcopus, Lewis, Harris, Davis, Kalisch, Lewis, Ibn Ezra, Kimchi, Kurtz, Harris, Gregory, Justin, Basil, Caesarius, Origen, Augustine, Theodoret, Episcopus, Wiseman, Pye-Smith, Buckland, Pusey, Sumner, Hall, Nachmanides, Luther, Longinus, Goodwin, Miller, Davis, Tupper, La Peyrère, Bunsen, Faber, Stanhope, Locke, Stillingfleet, Raleigh, Mackintosh, Whately, Bacon, Steward, Ariel, Ussher, Calmet, Hales, Delitzsch, Keil, Tertullian, Chrysostom, Maimonides, Astruc, Eichhorn, Hengstenberg, De Wette, Ewald, Colenso, Davidson, Rawlinson, Vitringa, Gleig, Horne, Bush, Bertheau, Reland, Calvin, Clark, Patrick, Onkelos, Luther, Philo, Irenaeus, Clement, Josephus, Vater, Rosenmüller, Tuch, Bochart, Kennicott, Vossius, Poole, Le Clerc,	Humboldt, Lyell, D'Orbigny, Balfour, Herschel, D'Orbigny, Kepler, Herschel, Lyell, Silliman, Buckland, Schemhzer, Otway, Agassiz, Morton, Nott, Warren, Gibson, Kneeland, Voltaire, Rousseau, Paine, Kames, Gibbon, Prichard, Abernethy, Carpenter, Rush, McCulloch, Combe, Bell, Tiedemann, Richardson, Boerhave, Müller, Humboldt, Buffon, Blumenbach, C. Darwin, Cuvier, Leichenbach, Erleben, Linnaeus, Audubon, Hooker, Owen, Huxley
Arnold	Gesenius, Augustine, Colenso, Chrysostom, Philo, Josephus, Justin, Irenaeus, Clement, Eusebius, Tertullian, Cyprian, Lactantius, Ambrose, Theodoret, Kurtz, Delitzsch, Chalmers, Buckland, Schubert, Hengstenberg, Deluc, Cuvier, Miller, Basil, T. Newton, Aquinas, Origen, Gregory, Schultz	Galileo, Copernicus, Kepler, Volney, Wagner, Goethe, Prichard, Hume, Voltaire, Bolingbroke, Toland, Diderot, Hobbes, C. Darwin, Huxley, Tyndall, Busk, Laplace, Chambers, de Maillet, Lamarck, Wallace, Agassiz, Herschel, Maxwell, Murchison, Crawford, Hooker, Bischoff, Haeckel, La Peyrère, Lyell, Blumenbach, Cuvier, Deluc, Dolomieu, Buckland, Kant, Woodward, Werner, Hutton, Ainsworth, Dickinson
Warring	Dana, Tyndall, Lange, Lewis, Clarke	Huxley, Spencer, Newton, Le Verrier, Crofton, Laplace, Cooke, Murchison, Lyell, Leslie, Humboldt, C. Darwin, Herschel, Kepler
Robertson	Warburton	

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Gibson	Colenso, Augustine, Origen, Irenaeus, Henry, Kurtz, Hengstenberg, Candlish, Lewis, Lange	Huxley, Dana, Tyndall, Haeckel, Latham, Andrews
Nisbet	Josephus, Origen, Augustine, Conant, Basil, Caesarius, Whiston, Knapp, Kurtz, Winchell, Dawson, Dana, Milton, Ussher, Prichard, Eichhorn, Michaelis, Bunsen, Delitzsch, Müller, Herder, Chalmers	Dana, Gray, Dawson, Miller, Descartes, Kant, Herschel, Laplace, Rosse, Newton, Agassiz, Carpenter, Kepler, Martineau, Wallace, C. Darwin, Davy, Oersted, Faraday, Mayer, Tyndall, Lyell, Humboldt, Poisson, Hopkins, Lamarck, C. Darwin, Spencer, Huxley, Gaudry, Marsh, Virchow, Schlieden, Le Comte, Nott, Gliddon, Winchell, Fontaine, Whitney, Quatrefages, Cuvier, Humphreys, Abbot, Dolomieu, Beaumont, Latham, Procter
Whitelaw	Damascene, Jerome, Ibn Ezra, Hobbes, La Peyrère, Spinoza, Simon, Le Clerc, Astruc, Tuch, Knobel, Hupfeld, De Wette, Bohlen, Bleek, Delitzsch, Ewald, Graf, Kuenen, Wellhausen, Hartmann, Vitringa, Keil, Rawlinson, Vater, Hengstenberg, Colenso, Hävernick, Eichhorn, Ilgen, Stähelin, Lengerke, Bunsen, Sack, Ranke, Drechsler, Baumgarten, Kurtz, Philo, Josephus, Witsius, Lewis, Oehler, Gesenius, Lange, Tayler, MacDonald, Murphy, Kalisch, Alford, Luther, Lombard, Candlish, Cocceius, Fürst, Calvin, Buckland, Chalmers, Pye-Smith, Wordsworth, Bush, Dawson, Smith, Müller, Dana, Milton, Kitto, Augustine, Ainsworth, Bede, McCaul, Hofmann, Rosenmüller, Miller, Willet, Lyra, Maimonides, Gerundinus, Richers, Kimchi, Irenaeus, Clement, Origen, Umbreit, Drusius, Davidson, Tiele, Michaelis, Reland, Alexander, Kennicott, Scotus, Aquinas, Fairbairn, Jahn, Böhme, Ziegler, Lightfoot, Fichte, Kant, Schiller, Leibniz, Baur, Hegel, Schleiermacher, Schelling, Clarke, White, Hodge, Poole, Wilkins, Quarry	Laplace, Kant, Green, Thomson, Descartes, Newton, Huygens, Euler, Tayler, Clarke, Huxley, Miller, Dana, Lyell, Herschel, Croll, Evans, Drayson, Bell, Tyndall, Beale, Cook, Page, C. Darwin, Wallace
Dillmann	Philo, Josephus, Wellhausen, De Wette, Hofmann, Kurtz, Lange, Bunsen, Bauer, Rosenmüller, Wuttke, Johannsen, Lenormant, Pustkuchen, Eusebius, G. Smith, Delitzsch, Jensen, Ewald, Knobel, Tuch, Herder, Buttmann, Bohlen, Lutz, Schrader, Cölln, Riehm, Erzväter, Gabler, Calvin, Münster, Piscator, Gerhard, Gesenius, Dathe, Thormeyer, Baumgarten, Geiger, Ibn Ezra, Grotius, Keil, Schmid, Eichhorn, Mercer, C. Driver, Drusius, Ilgen, Pott, Schumann, Stähelin, Lagarde, Hoelemann, Hupfeld, Nöldeke, Hasse, Schultz, Hengstenberg, Onkelos, Luther, Reland, Bochart, Huetius, Hopkins, Rask, Pressel, Budde, Hävernick, Voss, Origen, Michaelis	
Exell	Keil, Delitzsch, Candlish, Murphy, Bush, McCaul, Fraser, Augustine, Cowles, Wardlaw, Hitchcock, Chalmers, Buckland, Sedgwick, Kurtz, Pratt, Birks, Alford, White, Trapp, King, Lange, Lewis, C. Driver, Milton, G. Smith, Gesenius, Fürst, Davies, Tertullian, Justin, Luther, Stier, Baumgarten, Cumming, Onkelos	C. Darwin
Parker		
Burgon	Prichard	Prichard, C. Darwin, Gladstone, Huxley
Delitzsch ²	Carlstadt, Hobbes, Spinoza, Astruc, Eichhorn, Geddes, Vater, Hartmann, Tuch, Ewald, Hupfeld, Kurtz, Dillmann, Wellhausen, Hofmann, Drechsler, Riehm, C. Driver, Grotius, Ibn Ezra, Schrader, Budde, Bunsen, Zöckler, Augustine, MacDonald, Dawson, Lactantius, Hengstenberg, Knobel, Keil, Hoelemann, Luzzatto, Reggio, Stähelin, Baumgarten, Lagarde, La Peyrère, Köhler, Theodoret, Josephus, Heidenheim, Aquinas, Reuss, Bernard, Gregory, Luther, Bohlen, Colenso, Hasse, Buttmann, Vossius, Jerome, Michaelis, Gesenius, Eusebius, Ussher, Herder, Schiller, Africanus, Onkelos, Cyril, Lyra, Calvin, Melancthon, Lange, Philo	Grimm, Humboldt, Kant, Lyell, C. Darwin, Suessm Cuvier, Herschel
Huntingford	Wordsworth, Kalisch	C. Darwin
Bacon	Dillmann, Wellhausen, Kuenen, Budde, Jülicher, Delitzsch, Kittel, Harper, Briggs, Moore, Ibn Ezra, Spinoza, Hobbes, La Peyrère, Simon, Dale, Le Clerc, Astruc, Michaelis, Eichhorn, Geddes, Vater, Hupfeld, Ilgen, Nöldeke, Sanchoniathon, Berosus, Manetho, Eusebius, Josephus, Colenso, De Wette, Graf, Kautzsch, Socin, G. Smith	
Fripp	Wellhausen, Bleek, Kuenen, Dillmann	
Ryle	Josephus, Eusebius, G. Smith, Sayce, Schrader, C. Driver, Woods, Boscawen, Delitzsch, Milton, Irenaeus, Calvin, Rawlinson	
Doughty		

² i.e. for *Neuer Commentar Ueber die Genesis* (1887), not *Die Genesis ausgelegt* (1852).

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Kipp	Dana, Green	Dana, Dawson, Winchell, Warring, Guyot, Wright, Le Comte, Draper, Newberry, Laplace, Herschel, Mitchell, Watson, Helmholtz, De Motte, Newton, Thompson, Lockyer, Guthrie, Huxley, Boussingault, Lamarck, C. Darwin, McCosh, Lyell, Wallace, Newcombe
Davis	G. Smith, Delitzsch, Tiele, Jensen, C. Driver, Augustine, Dillmann, Josephus, Ellicott, Book of Wisdom, Keil, Kurtz, Book of Enoch, Philo, Clement, Justin, Africanus, Chrysostom, Cyril, Jerome, Onkelos, Wellhausen, Sayce	
Body	Ewald, Eichhorn, C. Driver, Cornell, Addis, Briggs, Ramsay, Cheyne, R. Smith, Astruc, Jerome, Wellhausen, Simon, Schrader, Dillmann, Strack, Kittel, Robertson, Kuenen, Renan, Stade, Ibn Ezra, Augustine, Chrysostom, Fleury, Vitranga, Hupfeld, Geddes, De Wette, Addis, Bleek, Ilgen, Graf, Reuss, Westcott, Thompson, Gregory, Aquinas, G. Smith, Sayce, Schultz, Coggin, Harper, Watson, Nöldeke, Delitzsch	C. Darwin, Huxley, Spencer, Romanes, Weismann,
Wade	Delitzsch, Dillmann, Kuenen, Schrader, Wellhausen, C. Driver, Kyle, Robertson, Sayce, Sanday, R. Smith, Montefiore, Watson, Westphal, Spurrell, Addis, Frupp	
Perce	Warren, Hughes, Miller, Kurtz, Boardman, Buckland, Dana, Dawson, Chalmers, Pye-Smith, Harris, King, Hitchcock, Wood, Jamieson, Winchell, Ibn Ezra, Kimchi, Ainsworth, Buxtorf, Nordheimer, Ephrem, Gesenius, Lange, Patrick, Milton, Delitzsch, Whitelaw, Ussher, G. Smith, Sayce, Ralegh, Kitto, W. Smith, Bunsen, Crawford, White	Voltaire, Lyell, Laplace, Hough, Herschel, Leibniz, Kant, Le Comte, Mayer, Helmholtz, Green, G. C. Darwin, Barnard, Olbers, Mattison, Patteron, Secchi, Copernicus, Newton, Priestley, Hunt, Logan, Winslow, Adhemar, Croll, Thomson, A. Smith, Gray, Ball, Nordenskjöld, Keerl, Reclus, Humboldt, Hooker, C. Darwin, Agassiz, Hartt, Dana, Newberry, Croll, Cassini, Bianchini, Schröter, Proctor, Schiaparelli, Tacchini, Lowell, See, Mangin, Klee, Bourchepon, Drayson, Bell, Warring, Kingsley, Linnaeus, Richeraud, Blainville, Spencer, Lewes, Holmes, Dewey, Paine, Murchison, Hutton, Carpenter, Forbes, la Beche, Huxley, Kuntze, Saporta, Heer, Tenney, Leunis, Figuier, Buffon, Cuvier, Lamarck, Prestwich, Marsh, Berthoud, Lubbock, Topinard, Whitney, Lenormant, Wallace, Laing, Quatrefages, Fraissent, Warren, Bunsen, Dawson, Rawlinson, Prichard, Latham, Orton, Packard, Scribner, Belcher, Van Baer, Mann, Gekie, Newcomb, Shaler, Whewell, Salter, Babbage, Winslow, Hutchinson
Jones	Ryle, Astruc, Graf, Kuenen, Wellhausen, Cheyne, C. Driver, R. Smith, Delitzsch, Sayce, De Wette, Jamieson, Watson, Staib, Augustine, Fichte, Fuller, Maimonides, Luther, Hofmann, Origen, Milton, Kurtz, Miller, Dods, Lewis, Lange, Dawson, Gibson, Keil, Chalmers, Gesenius, Powell, Rosenmüller, De Wette, Tuch, South, Watts, Josephus, Böhme, Pye-Smith, Hävernick, Rawlinson, G. Smith, Leibniz, Hodge, Davidson, Urquhart, Lenormant	Cuvier, Dawson, Dana, Guyot, Lyell, Huxley, Tyndall, Romanes, Haeckel, Murchison, Agassiz, Owen, Newton, Copernicus, Galileo, Kepler, Voltaire, Laplace, Kant, Ball, Whewell, Pascal, Spencer, Salisbury, C. Darwin, Drummond, Tait, Le Comte, Schaafhausen, Wallace, Lubbock, Hegel, Faraday, Watt
Grant	Astruc, Eichhorn, Ewald, Vater, Hartmann, De Wette, Hupfeld, Kuenen, Davidson, R. Smith, C. Driver, G. Smith, Briggs, Harper, Dods, Green, Morgan, Grant, Kelly	
Worcester	Dillmann, Lenormant, Hupfeld, Addis, Holzinger, Budde, Wellhausen, Jastrow, Kautzsch, Socin, Zunz, Delitzsch, Schrader, Jensen, Jeremias, Zimmern, Brinton, Schwarz, Andree, Renan, Bacon, Ingersoll, Rawlinson, Layard, G. Smith, Ibn Ezra, Hobbes, Spinoza, Astruc, Colenso, Gunkel, Philo, Arnold, Eusebius, Bunsen, Ewald, Movers, Baudissin, McConnell, Maimonides, König, Stade, Cheyne, Augustine, Luther, Haupt, Horne, White	Comte, C. Darwin, Voltaire, Kant, Laplace, Huxley, Lyell
Pratt	Miller, Hall, Hodge, Henry, Calvin, Ussher, Gesenius	Wright
Gunkel	Reuss, Wellhausen	
Driver	Dillmann, Delitzsch, Sayce, G. Smith, Gesenius, Gunkel, Holzinger, Schrader, Knobel, Tristram, Maspero, Tuch, Carpenter, Moore, Woods, Ewald, Wellhausen, Budde, Stade, Gray, König, Ottley, Ussher, Hommel, Rogers, Boscawen, King, Capron, Davidson, Müller, Kittel, Watson, Kirkpatrick, Sanday, Farrar, Ryle, Wade, Ibn Ezra, Kurtz, Chalmers, Miller, Dana, Guyot, Lenormant, Rawlinson	C. Darwin, Lyell, Huxley, Tylor, Keane, Prestwich, Dawkins, Geikie, Lubbock, Evans, Hogarth, Turner, Ball, Dawson, Laplace, Prichard
Bennett	Delitzsch, Dillmann, Driver, Gunkel, Holzinger, Spurrell, Ball, Haupt, Jensen, Davis, Eusebius, G. Smith, Book of Wisdom, Jastrow, R. Smith, Milton, Baethgen	

Table E.1 (continued)

Name	Exegetical & theological citations	Philosophical & scientific citations
Knox	Maclaren, Hasting, Robertson, Edersheim, Peloubet	
Gordon	Tuch, Dillmann, Delitzsch, Holzinger, Gunkel, Strack, Spurrell, Driver, Bennett, Baer, Ball, Kittel, Müller, Schrader, Winckler, King, Bezold, Jeremias, Zimmern, Kuenen, Wellhausen, Budde, Ryle, Cheyne, R. Smith, Kurzer, Lenormant, Jastrow, Nöldeke, Sayce, Lange, Stade, De Wette, Longinus, Ewald	Hegel, Spencer
Goodspeed	Hobbes, La Peyrère, Spinoza, Le Clerc, Astruc, Reuss, Graf, Kuenen, Wellhausen, Briggs, Philo, Josephus, Rawlinson, Sayce, Bartlett, Harper, Driver, Vernes, Kittel, G. Smith, Colenso, Cheyne, Bissell, Budde, Gunkel, Kautzsch, McFadyen, Orr, Spurrell, Müller, König, Dillmann, Delitzsch, Riehm, Oettli, Winkler, Halévy, Hommel, Klostermann, Green, Lewis, Dods, Bush, Murphy, Dawson, Milton, Hall, Gesenius, Conant, Whitelaw, Dana, Maimonides, Kalisch, Calvin, Alford, Onkelos, Ewald, Keil, R. Smith, Macdonald, Patrick, Knapp, Kaulen	Naville, Dana, Huxley, Cuvier, Whitelaw, C. Darwin
Mitchell	Philo, Josephus, Driver, Bacon, Dillmann, G. Smith, Jastrow	
Skinner	Spurrell, Bennett, Driver, Holzinger, Gunkel, Tuch, Delitzsch, Dillmann, Strack, Ayles, Ball, Calvin, Ibn Ezra, Jerome, Knobel, Rashi, Ryle, Budde, Kuenen, Philo, Origen, Nöldeke, Reuss, Gordon, Goldziher, B. Luther, Ewald, Astruc, Eichhorn, Hupfeld, De Wette, Wellhausen, Graf, Orr, Westphal, R. Smith, Cornill, König, Sayce, Eerdmans, Procksch, Schrader, Winckler, Cheyne, Geiger, Milton, Olshausen, Chrysostom, Gregory, Augustine, Ilgen, Lagarde, G. Smith, Müller, King, Lenormant, Dawson, Josephus, Bochart, Kittel, Hommel, Zimmern, Buttmann, Poole, Spinoza, Herder, Luther, Michaelis, Jeremias	

Appendix F: Adjacency matrices and directed networks¹

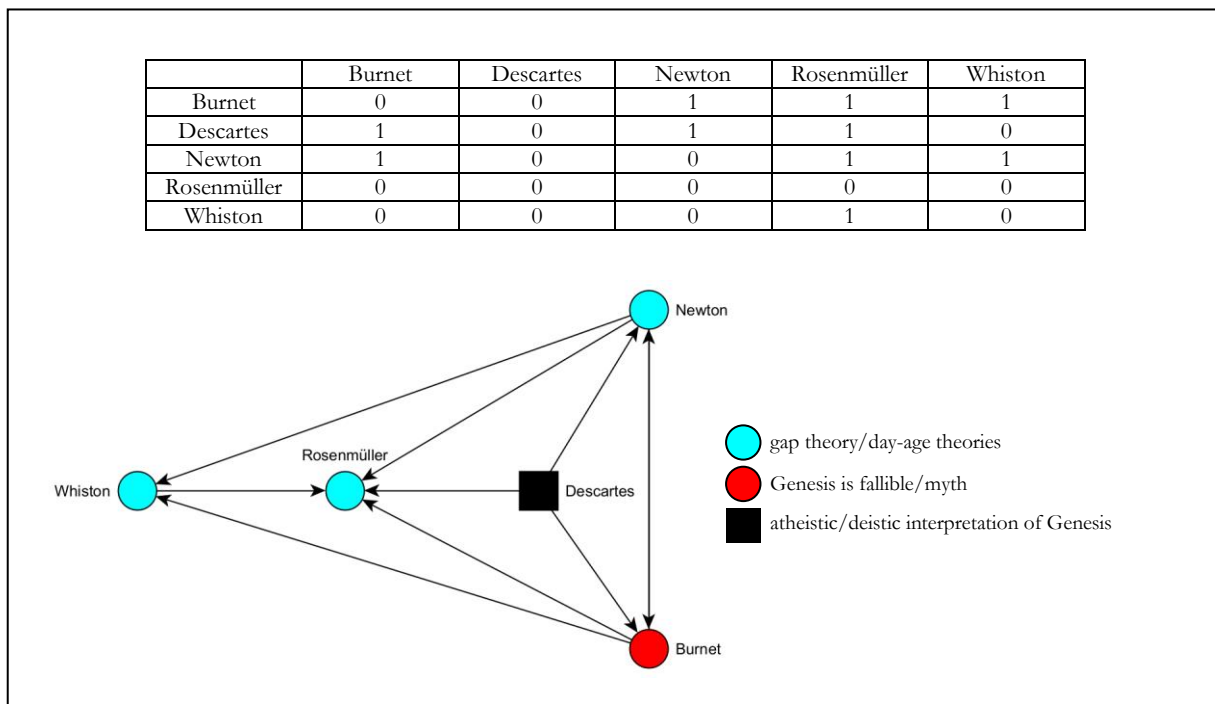


Figure F.1 – Adjacency matrix and network diagram neighbouring Burnet

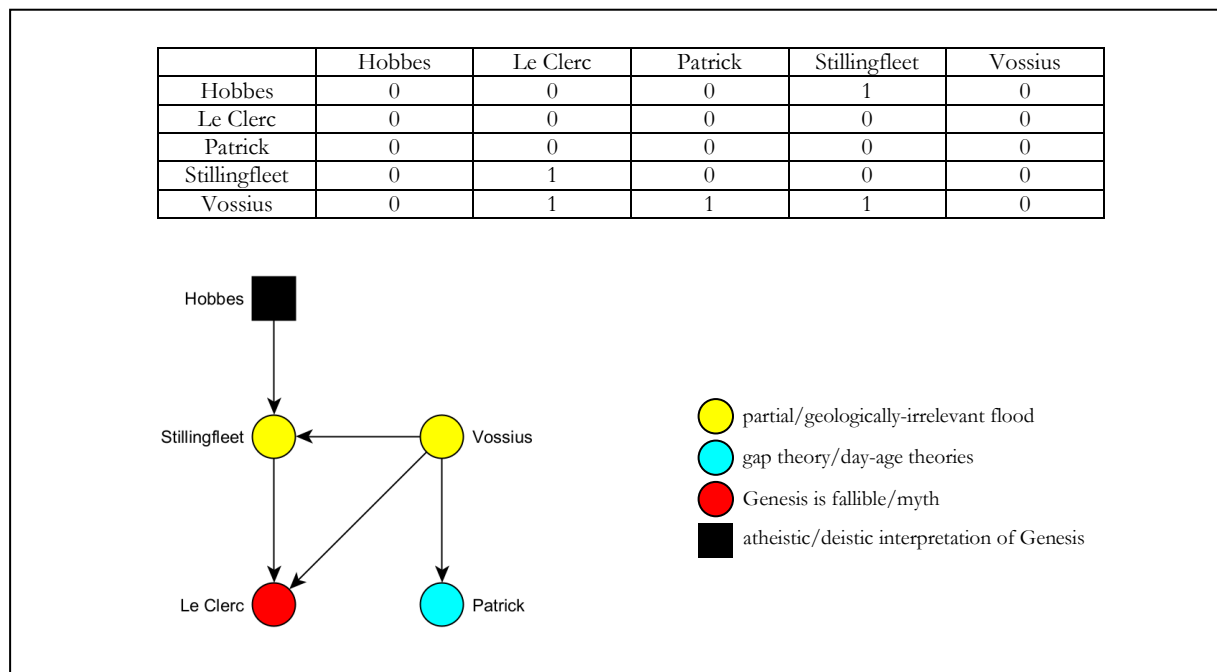


Figure F.2 – Adjacency matrix and network diagram neighbouring Vossius

¹ All network diagrams presented in this dissertation were made using yEd (of yWorks GmbH).

Appendix G: Categorising influential scientists from 1650-1910

	Natural history	Natural theology	Geology	Palaeontology	Astronomy	Meteorology	Cosmology	Anthropology	Zoology	Botany	Biology	Geography	Mathematics	Chemistry	Physics	Physiology
Astruc	✓											✓				✓
Babbage		✓			✓								✓			
Buckland	✓	✓	✓	✓												
Buffon	✓		✓				✓	✓	✓				✓			
Burnet	✓		✓				✓									
Chalmers	✓	✓	✓		✓											
Chambers	✓		✓	✓			✓		✓							
Colenso													✓			
Condorcet													✓			
Cuvier	✓		✓	✓				✓	✓							
D'Alembert	✓				✓		✓						✓		✓	
Darwin, C.	✓		✓						✓	✓	✓					
Deluc	✓		✓	✓		✓										
Descartes						✓	✓		✓				✓		✓	
Darwin, E.	✓						✓		✓	✓						✓
de Fontenelle			✓		✓		✓						✓			
Herschel	✓		✓		✓	✓							✓			
Hitchcock	✓	✓	✓	✓										✓		
Hutton	✓		✓			✓								✓	✓	
Kant	✓						✓	✓								
Lamarck	✓		✓						✓	✓	✓					
Laplace					✓		✓						✓		✓	
Lyell	✓		✓					✓								
de Maillet	✓		✓				✓	✓				✓				
Miller	✓		✓	✓												
Newton		✓			✓		✓						✓		✓	
Prichard								✓								✓
Priestley		✓			✓									✓	✓	
Pye-Smith			✓													
Sedgwick	✓	✓	✓													
Vossius												✓			✓	✓
Whewell		✓	✓		✓		✓						✓		✓	
Whiston	✓		✓				✓						✓			

Table G – Scientists and their scientific expertise (1650-1910)

Bibliography

- Abelard, P. 2009. Dialogue 2: between the philosopher and the Christian. In: Edgar, W. & Oliphant K.S., eds. *Christian apologetics: past and present*. Vol. 1. Illinois: Crossway. pp. 357-364.
- Abelard, P. 2011. *Peter Abelard: an exposition on the six-day work*. Vol. 8. Translated by Zemler-Cizewski, W. Turnhout: Brepols Publishers. (Corpus Christianorum: in translation).
- Aborn, T.L. 1919. *Notes on the study of Genesis*. Ontario: Pembroke.
- Acosta, A.M. 2002. Conjectures and speculations: Jean Astruc, obstetrics, and biblical criticism in eighteenth-century France. *Eighteenth-Century Studies*, 35 (2):256-266, Winter.
<https://www.jstor.org/stable/30054183> Date of access: 1 February 2019.
- Adams, J. 1850. Autobiography. In: Adams, C.F., ed. *The works of John Adams*. Vol. 2. Boston: Charles C. Little and James Brown. pp. 503-517.
- Adams, J. 1865. *The works of John Adams*. Vol. 10. Boston: Little, Brown and Company.
- Adams, J. 1927. *Statesman and friend: correspondence of John Adams with Benjamin Waterhouse 1784-1822*. Boston: Little, Brown, and Company.
- Africanus, J. 1886. The extant writings of Julius Africanus. In: Coxe, A.C., ed. *Fathers of the third century: Gregory Thaumaturgus, Dionysius the Great, Julius Africanus, Anatolius and minor writers, Methodius, Arnobius*. Buffalo: The Christian Literature Company. pp. 125-140. (The Ante-Nicene Fathers: translations of the writings of the fathers down to A.D. 325).
- Agassiz, L. 1850. The diversity of origin of the human races. *The Christian examiner and religious miscellany*, 49 (4th series) (14):110-145, July.
- Agassiz, L. 1896. *Methods of study in natural history*. Boston and New York: Houghton, Mifflin and Company.
- Ainsworth, H. 1843. *Annotations on the Pentateuch or the five books of Moses*. Vol. 1. Edinburgh: Blackie & Son.
- Albritton, C.C. 2002. *The abyss of time: changing conceptions of the earth's antiquity after the sixteenth century*. New York: Dover Publications, Inc.
- Aldridge, A.O. 1997. Natural religion and Deism in America before Ethan Allen and Thomas Paine. *The William and Mary Quarterly*, 54 (4):835-848, October. <https://www.jstor.org/stable/2953885> Date of access: 17 March 2020.
- Alexander, A. 1848. Sketches of moral and mental philosophy: their connexion with each other, and their hearings on doctrinal and practical Christianity. *The Biblical Repertory and Princeton Review*, 20 (4):529-542. <https://commons.ptsem.edu/id/biblicalrepertor2041walk-dmd003> Date of access: 13 August 2021.
- Alford, H. 1872. *The book of Genesis, and part of the book of Exodus*. London: Strahan & Co.
- Allen, E. 1836. *Reason, the only oracle of man; or, a compendious system of natural religion*. New-York: G.W. & A.J. Matsell.
- Allibone, S.A. 1870. *A critical dictionary of English literature and British and American authors*. Vol. 2. Philadelphia: J.B. Lippincott & Co.
- Altholz, J.L. 1994. A tale of two controversies: Darwinism in the debate over "Essays and Reviews". *Church History*, 63 (1):50-59, March. <http://www.jstor.com/stable/3167832> Date of access: 10 June 2022.
- Ambrose. 1961. *Saint Ambrose: hexameron, paradise, and Cain and Abel*. Translated by Savage, J.J. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Amos, S. 2007. The Reformation as a revolution in worldview. In: Hoffecker, W.A., ed. *Revolutions in Worldview*. New Jersey: P&R Publishing Company. pp. 206-239.
- Anastasius. 2007. *Hexameron*. Translated by Kuehn, C.A. & Baggarly J.D. Roma: Pontificio Istituto Orientale. (Orientalia Christiana Analecta).
- Anderson, E.W. 1975. Bede: pioneer British geographer? *Area*, 7 (3):223-224.
<https://www.jstor.org/stable/20001015> Date of access: 8 July 2019.
- Anon. 1784. A key to the three first chapters of Genesis, etc. *The European Magazine and London Review: containing the literature, history, politics, arts, manners & amusements of the age*, 5:444-445, June.
- Anon. 1804. Article X. Review of The temple of nature, or the origin of society. *The British Critic*, 23:169-174, February.

- Anon. 1824. *Catalogue of the library of the American philosophical society*. Philadelphia: Joseph R.A. Skerrett.
- Anon. 1837. Geology and mineralogy considered with reference to natural theology. By the Rev. William Buckland, D.D., canon of Christ's church, and reader in geology and mineralogy in the University of Oxford. *The Edinburgh review, or critical journal*, 65 (131):1-39, April.
- Anon. 1851. *Southey's common-place book: fourth series*. London: Longman, Brown, Green, and Longmans.
- Anon. 1856. *The creative week: being a secular exposition of the Mosaic record of creation*. Edinburgh: Maclachlan and Stewart.
- Anon. 1862. Review of Colenso on the Pentateuch. *The Guardian*:1-16, December 3.
- Anon. 1863. *The historic character of the Pentateuch vindicated: a reply to part I. of Bp. Colenso's "Critical examination."* London: William Skeffington.
- Anon. 1904. *De tribus impostoribus, A.D. 1230: the three imposters*. Translated by Anon. [Ohio]: Privately printed for the subscribers.
- Anon. 1975. The New York Academy of Sciences and the American intellectual tradition: an historical overview. *Transactions of the New York Academy of Sciences*, 37:3-13. <https://doi.org/10.1111/j.2164-0947.1975.tb03035.x> Date of access: 23 September 2023.
- Anon. 1989. *The book of Jubilees*. Vol. 511. Translated by Vanderkam, J.C. Lovanii: In Aedibus E. Peeters. (Corpus Scriptorum Christianorum Orientalium).
- Anselm. 1998. Why God became man. In: Davies, B. & Evans G.R., eds. *The major works*. Translated by Fairweather, J. Oxford: Oxford University Press. pp. 260-356.
- Appel, T.A. 1987. *The Cuvier-Geoffroy debate: French biology in the decades before Darwin*. Oxford: Oxford University Press.
- Aquinas, T. 1914. *The "summa theologica" of St. Thomas Aquinas: part III. QQ. XXVII-LIX*. Vol. 16. Translated by Province, F.O.T.E.D. London: R. & T. Washbourne.
- Aquinas, T. 1920. *The "summa theologica" of St. Thomas Aquinas: part I. QQ. I-XXVI*. Vol. 1. Translated by Province, F.O.T.E.D. 2nd ed. London: Burns Oates & Washbourne.
- Aquinas, T. 1921a. *The "summa theologica" of St. Thomas Aquinas: part I. QQ. XXVII-XLIX*. Vol. 2. London: Burns Oates & Washbourne.
- Aquinas, T. 1921b. *The "summa theologica" of St. Thomas Aquinas: second part of the second part QQ. CXLI-CLXX*. Vol. 13. London: Burns Oates & Washbourne.
- Aquinas, T. 1922. *The "summa theologica" of St. Thomas Aquinas*. Vol. Part I: QQ. L-LXXIV. Translated by Province, F.O.T.E.D. London: Burns Oates & Washbourne Ltd.
- Aquinas, T. 1922a. *The "summa theologica" of St. Thomas Aquinas: part I. QQ. L-LXXXIV*. Vol. 3. Translated by Province, F.O.T.E.D. 2nd ed. London: Burns Oates & Washbourne.
- Aquinas, T. 1922b. *The "summa theologica" of St. Thomas Aquinas: part I. QQ. LXXV-CII*. Vol. 4. Translated by Province, F.O.T.E.D. 2nd ed. London: Burns Oates & Washbourne.
- Aquinas, T. 2010. *The academic sermons*. Vol. 11. Translated by Hoogland, M.-R. Washington, D.C.: The Catholic University of America Press. (The fathers of the church: mediaeval continuation).
- Arber, A. 1913. Nehemiah Grew: 1614-1712. In: Oliver, F.W., ed. *Makers of British botany: a collection of biographies by living botanists*. Cambridge: Cambridge University Press. pp. 44-64.
- Aristotle. 1931. Meteorologica. In: Ross, W.D., ed. *The works of Aristotle*. Vol. 3. Translated by Webster, E.W. Oxford: Clarendon Press. pp. 338^a-390^b.
- Arnold, B.T. 2009. *Genesis*. Cambridge: Cambridge University Press. (The new Cambridge Bible commentary).
- Arnold, J.M. 1875. *Genesis and science: or the first leaves of the Bible*. 2nd ed. London: Longmans, Green, and Co.
- Ashwin-Siejkowski, P. 2010. *Clement of Alexandria on trial: the evidence of 'heresy' from Photius' bibliotheca*. Vol. 101. Leiden: Brill. (Supplements to Vigiliae Christianae: texts and studies of early Christian life and language).
- Ashworth, W.B. 1986. Catholicism and early modern science. In: Lindberg, D.C. & Numbers R.L., eds. *God and nature: historical essays on the encounter between Christianity and science*. Berkeley: University of California Press. pp. 136-166.
- Aspinwall, B. 1977. The last laugh of a humane faith: Dr. Alexander Geddes 1737-1801. *New Blackfriars*, 58 (686):333-340, July. <https://www.jstor.org/stable/43246731> Date of access: 2 July 2020.
- Astruc, J. 1753. *Conjectures sur les memoires originaux dont il paroît que Moyse s'est servi pour composer le livre de la Genese*. Brussels: Chez Fricx.

- Athanasius. 1888. Three discourses of Athanasius against Arianism. In: Newman, J.H.C., ed. *Select treatises of St. Athanasius in controversy with the Arians*. Vol. 1. Translated by Newman, J.H.C. 4th ed. London: Longmans, Green and Co. pp. 153-428.
- Athanasius. 1971. Our father Saint Athanasius archbishop of Alexandria against the pagans. In: Thomson, R.W., ed. *Athanasius: contra gentes and de incarnatione*. Translated by Thomson, R.W. Oxford: Clarendon Press. pp. 2-133.
- Atkins, J. 1735. *A voyage to Guinea, Brasil, and the West Indies*. London: Printed for Cæsar Ward and Richard Chandler.
- Augustine. 1887a. Reply to Faustus the Manichæan. In: Schaff, P., ed. *St. Augustin: The Writings against the Manichæans and against the Donatists*. Vol. 4. Translated by Cunningham, J.G. Edinburgh: T&T Clark. pp. 151-345. (A select library of the Nicene and Post-Nicene fathers of the Christian church).
- Augustine. 1887b. The city of God. In: Schaff, P., ed. *St. Augustin's city of God and Christian doctrine*. Buffalo: The Christian Literature Company. pp. 1-511. (A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church).
- Augustine. 1956. The book of St. Augustine on the gift of perseverance. In: Lesousky, M.A., ed. *The De dono perseverantiae of Saint Augustine: a translation with an introduction and a commentary*. Translated by Lesousky, M.A. Washington, D.C.: The Catholic University of America Press. pp. 104-217. (Patristic Studies).
- Augustine. 1981. *On Christian doctrine*. Translated by Robertson, D.W. Bobbs-Merrill Educational Publishing.
- Augustine. 1982. *The literal meaning of Genesis*. Vol. 1. Translated by Taylor, J.H. New York: Newman Press. (Ancient Christian writers).
- Augustine. 2002. *On Genesis*. Translated by Hill, E. New York: New City Press. (The works of Saint Augustine).
- Augustine. 2006. *Augustine: confessions and enchiridion*. Translated by Outler, A.C. Kentucky: The Westminster Press. (The library of Christian classics).
- Augustine. 2008a. *Saint Augustine: the city of God: books VIII-XVI*. Vol. 7. Translated by Walsh, G.G. & Monahan G. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Augustine. 2008b. *Saint Augustine: the city of God: books XVII-XXII*. Vol. 8. Translated by Walsh, G.G. & Honan D.J. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Austin, W.H. 1970. Isaac Newton on science and religion. *Journal of the History of Ideas*, 31 (4):521-542, Oct-Dec. <http://www.jstor.org/stable/2708258> Date of access: 7 April 2016.
- Averroes. 1921. *The philosophy and theology of Averroes*. Translated by Jamil-Ur-Behman, M. Baroda: A.G. Widgery.
- Babbage, C. 1838. *The ninth Bridgewater treatise: a fragment*. London: John Murray.
- Babbage, C. 1864. *Passages from the life of a philosopher*. London: Longman, Green, Longman, Roberts & Green.
- Babington, G. 1592. *Certaine plaine, briefe, and comfortable notes vpon euerie chapter of Genesis Gathered and laid downe for the good of them that are not able to vse better helpes, and yet carefull to read the worde, and right heartilie desirous to taste the sweete of it*. London: Printed for Thomas Charde.
- Bacon, B.W. 1892. *The genesis of Genesis: a study of the documentary sources of the first book of Moses in accordance with the results of critical science illustrating the presence of bibles within the Bible*. Hartford: The Student Publishing Company.
- Bacon, F. 1861. *Of the proficience and advancement of learning*. London: Bell & Daldy.
- Bacon, F. 1884. Valerius terminus; of the interpretation of nature. In: *The Works of Francis Bacon*. Vol. 1. New York: R. Worthington. pp. 81-95.
- Bacon, F. 1901. *Novum organum*. New York: P. F. Collier And Son. (Library of universal literature, part 1, Science 22).
- Bacon, F. 1902. *Advancement of learning*. New York: P. F. Collier & Son.
- Ball, J.M. 1910. *Andreas Vesalius: the reformer of anatomy*. Saint Louis: Medical Science Press.
- Baraniuk, C. 2017. The queen of science. *New Scientist*, 235 (3132):40-41, July. <https://www.sciencedirect.com/science/article/pii/S026240791731271X> Date of access: 9 January 2020.

- Barker, P. & Goldstein, B.R. 2001. Theological foundations of Kepler's astronomy. *Osiris*, 16:88-113. Date of access: 20 January 2016.
- Barnard, L.W. 1967. *Justin Martyr: his life and thought*. Cambridge: Cambridge University Press.
- Baron, R. 1763. The preface. In: *A cordial for low spirits* Vol. 1. London. pp. iii-xxvii.
- Barr, J. 1999. Pre-scientific chronology: the Bible and the origin of the world. *Proceedings of the American Philosophical Society*, 143 (3):379-387, September. <http://www.jstor.org/stable/3181950> Date of access: 21 October 2022.
- Barrow, I. 1734. *The usefulness of mathematical learning explained and demonstrated: being mathematical lectures read in the publick schools at the university of Cambridge*. Translated by Kirkby, J. London: Printed for Stephen Austen.
- Barrow, I. 1831. *Sermons on the apostle's creed continued*. Vol. 6. London: A.. J. Valpy. (The works of Dr Isaac Barrow with some account of his life, summary of each discourse, notes, etc).
- Barrow, I. 1916. *The geometrical lectures of Isaac Barrow*. Translated by Child, J.M. Chicago and London: The Open Court Publishing Company. (The Open Court series of classics of science and philosophy).
- Barth, K. 1959. *From Rousseau to Ritschl*. London: SCM Press. (The Library of Philosophy and Theology).
- Barton, W.E. 1920. *The soul of Abraham Lincoln*. New York: George H. Doran Company.
- Basil. 1963. *Saint Basil: exegetic homilies*. Translated by Way, A.C. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Baxter, R. 1655. *Humble advice: or the heads of those things which were offered to many honourable members of parliament by Mr Richard Baxter at the end of his sermon, Decemb. 24. at the Abby in Westminster. With some additions as they were delivered by him to a friend that desired them, who thought meet to make them publick*. London: Printed for Thomas Underhill and Francis Tyton.
- Baxter, R. 1830. Gildas salvianus: the Reformed pastor. In: Orme, W., ed. *The practical works of the Rev. Richard Baxter*. Vol. 14. London: James Duncan. pp. 1-394. (The practical works of the Rev. Richard Baxter).
- Bayle, P. 1826. *Sadeur*. Vol. 3. London: Printed for Hunt and Clarke. pp. 159-172.
- Bayle, P. 2005. *A philosophical commentary on these words of the gospel, Luke 14.23, "Compel them to come in, that my house may be full"*. Indianapolis: Liberty Fund. (Natural law and enlightenment classics).
- Baylee, J. 1857. *Genesis and geology*. London: Arthur Hall and Co.
- Bede. 2008. *Bede: on Genesis*. Translated by Kendall, C.B. Liverpool: Liverpool University Press. (Translated texts for historians).
- Bedford, A. 1728. *Animadversions upon Sir Isaac Newton's book, intituled the chronology of ancient kingdoms amended*. London: Printed by Charles Ackers.
- Bedrosian, R. 2008. Translator's preface. In: Bedrosian, R., ed. *Eusebius' chronicle*. New Jersey: Robert Bedrosian. pp. i-iii.
- Bell, D. 2008. *Spinoza in Germany from 1670 to the age of Goethe*. London: Institute of Germanic Studies. (Bithell series of dissertations).
- Bellamy, J. 1811. *The ophion: or, the theology of the serpent, and the unity of God*. London: A. J. Valpy.
- Bellamy, J. 1818. *The Holy Bible, newly translated from the original Hebrew: with notes critical and explanatory*. Vol. 1. London: Longman, Hurst, Rees, Orme, and Brown.
- Benisch, A. 1863. *Bishop Colenso's objections to the historical character of the Pentateuch and the book of Joshua*. London: William Allan and Co.
- Bennett, W.H. 1875. *Genesis: introduction; revised version with notes, giving an analysis showing from which of the original documents each portion of the text is taken; index and map*. New York: Henry Frowde. (The New-Century Bible).
- Benson, J. 1811. *The Holy Bible containing the Old and New Testaments*. Vol. 1. London: Thomas Cordeux.
- Bentley, R. 1699. *The folly and unreasonableness of atheism demonstrated from the advantage and pleasure of a religious life, the faculties of humane souls, the structure of animate bodies, & the origin and frame of the world : in eight sermons preached at the lecture founded by ... Robert Boyle, Esquire, in the first year MDCXCII*. 4th ed. London: Printed by I. H. for H. Mortlock
- Bentley, R. 1842. *The correspondence of Richard Bentley, D.D.* Vol. 1 & 2. London: John Murray.
- Bergman, J. 2006. Paley: still relevant. *Journal of Creation*, 20:28-30, 2006.
- Bergman, J. 2011. *The dark side of Charles Darwin: a critical analysis of an icon of science*. Arizona: Master Books.
- Berkeley, G. 1843. Alciphron: or the minute philosopher, in seven dialogues. In: Wright, G.N., ed. *The works of George Berkeley*. Vol. 1. London: Printed for Thomas Tegg. pp. 293-528.
- Berkhof, L. 1976. *Systematic theology*. Edinburgh: The Banner of Truth Trust.

- Berlin, I. 2013. *Three critics of the Enlightenment: Vico, Hamann, Herder*. 2nd ed. Princeton and Oxford: Princeton University Press.
- Bernstein, R.J. 2009. The secular-religious divide: Kant's legacy. *Social Research*, 76 (4):1035-1048, Winter. <https://www.jstor.org/stable/40972200> Date of access: 3 December 2020.
- Berry, A., Cobb, M., Morris, S.C., Coyne, J., Hoekstra, H., Lawrence, P., et al. 2009. (Re)Reading *The Origin*. *Current Biology*, 19 (3):96-104, February. <http://download.cell.com/current-biology/pdf/PIIS0960982208016898.pdf> Date of access: 8 October 2009.
- Bible. 1700. *La sainte Bible. Traduite en François sur la Vulgate*. Bruxelles: François Foppens.
- Bible. 1701. *The Holy Bible containing the Old Testament and the new. King James Version*. London: Charles Bill and Thomas Newcomb.
- Bible. 1769. *The Holy Bible, containing the Old and New Testaments. King James Version*. Oxford: T. Wright and W. Gill.
- Bible. 1791. *The Holy Bible, containing the Old and New Testaments. King James Version*. Massachusetts: Isaiah Thomas.
- Bible. 1873. *The complete domestic Bible, containing the Old and New Testaments. King James Version*. Ontario: J.W. Lyon.
- Bible. 1917. *The Scofield reference Bible. Authorized Version*. New York: Oxford University Press.
- Bible. 2006. *The expositor's study Bible: giant print edition. King James Version*. Louisiana: Jimmy Swaggart Ministries.
- Bible. 2014. *The chronological study Bible. New international version*. Nashville: Thomas Nelson.
- Bietenholz, P.G. 1994. *Historia and fabula: myths and legends in historical thought from antiquity to the modern age*. Leiden: E.J. Brill. (Brill's studies in intellectual history).
- Biot, J.B. 2009. *Life of Sir Isaac Newton*. East Sussex: The Newton Project.
- Birch, T. 1772. The life of the honourable Robert Boyle. In: Birch, T., ed. *The works of the honourable Robert Boyle*. Vol. 1. London: Printed for J. and F. Rivington. pp. vi-ccxxxviii.
- Birrell, T.A. 1963. Introduction. In: Birrell, T.A., ed. *A brief account of the new sect of latitude-men*. Los Angeles: The Augustan Reprint Society. pp. i-iv.
- Bissell, E.C. 1892. *Genesis printed in colors: showing the original sources from which it is supposed to have been compiled*. Connecticut: Belknap & Warfield.
- Blair, A. 1990. Tycho Brahe's critique of Copernicus and the Copernican system. *Journal of the History of Ideas*, 51 (3):355-377, Jul-Sept. <https://www.jstor.org/stable/2709620> Date of access: 28 October 2019.
- Blocher, H. 1984. *In the beginning: the opening chapters of Genesis*. Translated by Preston, D.G. Illinois: Inter-Varsity Press.
- Blount, C. 1683a. *Miracles, no violations of the laws of nature*. London: Printed for Robert Sollers.
- Blount, C. 1683b. *Religio laici written in a letter to John Dryden, Esq.* London: Printed for R. Bentley.
- Blount, C. 1693. *The oracles of reason*. London: s.n.
- Body, C.W.E. 1894. *The permanent value of the book of Genesis: as an integral part of the Christian revelation*. New York: Longmans, Green, and Co.
- Bohlen, P.v. 1855. *Introduction to the book of Genesis*. Vol. 2. Translated by Heywood, J. London: John Chapman.
- Bohlen, P.v. 1862a. *Historical and critical illustrations of the first part of Genesis*. Vol. 1. Translated by Heywood, J. London: Longman, Green, Longman, and Roberts.
- Bohlen, P.v. 1862b. *Historical and critical illustrations of the first part of Genesis*. Vol. 2. Translated by Heywood, J. London: Longman, Green, Longman, and Roberts.
- Bolingbroke, H.S.J. 1967a. *The works of Lord Bolingbroke*. Vol. 2. London: Frank Cass and Company Limited.
- Bolingbroke, H.S.J. 1967b. *The works of Lord Bolingbroke*. Vol. 3. London: Frank Cass and Company Limited.
- Bolingbroke, H.S.J. 1967c. *The works of Lord Bolingbroke*. Vol. 4. London: Frank Cass and Company Limited.
- Bonar, H. 1875. *Earth's morning: or, thoughts on Genesis*. New York: Robert Carter and Brothers.
- Bonnet, C. 1769. *Contemplation de la nature*. Vol. 1. 2nd ed. Amsterdam: Marc-Michel Rey.
- Bonnet, C. 1779. *Traité d'insectologie, ou observations sur les pucerons*. Vol. 1. Neuchâtel: Samuel Fauche. (Œuvres d'histoire naturelle et de philosophie de Charles Bonnet).
- Bonnet, C. 1782. *Contemplation de la nature*. Vol. 3. Hamburg: J.G. Virchaux & Compagnie.

- Bonnet, L. 1839. *The exile from Eden; meditations on the 3rd chapter of Genesis, with exegetical developments*. Translated by Hare, W. London: James Nisbet and Co.
- Boswell, J. 1958. *Boswell's Life of Johnson*. London: Geoffrey Cumberledge, Oxford University Press.
- Bowden, J.W. 1839. First and second reports of the British Association for the Advancement of Science. *The British Critic, and Quarterly Theological Review*, 25:1-48, January.
https://archive.org/details/sim_british-critic-and-quarterly-theological-review_1839-01_25 Date of access: 21 September 2023.
- Bowen, A. & Garnsey, P. 2003. Introduction. In: Bowen, A. & Garnsey P., eds. *Lactantius: divine institutes*. Translated by Bowen, A. & Garnsey P. Liverpool: Liverpool University Press. pp. 1-54.
- Bowler, P.J. 2003. *Evolution: the history of an idea*. California: University of California Press.
- Boyle, F. 2018. China in the Radical Enlightenment context of the English battle of the books. *The Eighteenth Century*, 59 (1):1-19, Spring. <https://www.jstor.org/stable/10.2307/90019768> Date of access: 16 August 2023.
- Boyle, N. 2005. *Sacred and secular scriptures: a Catholic approach to literature*. Indiana: University of Notre Dame Press.
- Boyle, R. 1663. *Some considerations touching the usefulness of experimental naturall philosophy propos'd in familiar discourses to a friend, by way of invitation to the study of it*. Oxford: Printed by Hen. Hall.
- Boyle, R. 1674. *The excellency of theology, compar'd with natural philosophy*. London: Printed by T. N. for Henry Herringman, at the Anchor in the Lower Walk of the New Exchange.
- Boyle, R. 1725. *The philosophical works of the honourable Robert Boyle*. Vol. 2. London: Printed for W. and J. Innys.
- Boyle, R. 1836. *Treatises on the high veneration man's intellect owes to God: on the things above reason; and on the style of the Holy Scriptures*. London: Joseph Rickerby, Sherbourn Lane.
- Boyle, R. 1910. *The sceptical chymist*. London: J.M. Dent & Sons.
- Boyle, R. 1996. *A free enquiry into the vulgarly received notion of nature*. Cambridge: Cambridge University Press.
- Bradlaugh, C. 1870. *Genesis: its authorship & authenticity*. London: Austin & Co. (The Bible: what it is).
- Bradlaugh, C. 1882. *Heresy: its utility and morality*. London: Freethought Publishing Company.
- Brent, A. 1995. *Hippolytus and the Roman church in the third century: communities in tension before the emergence of a monarch-bishop*. Leiden: E.J. Brill. (Supplements to Vigiliae Christianae).
- Brewster, D. 1840. *The life of Sir Isaac Newton*. New York: Harper & Brothers.
- Brewster, D. 1860. *Memoirs of the life, writings, and discoveries of Sir Isaac Newton*. Vol. 1. Edinburgh: Edmonston and Douglas.
- Brock, W.H. 1966. The selection of the authors of the Bridgewater treatises. *Notes and Records of the Royal Society of London*, 21 (2):162-179, December. <https://www.jstor.org/stable/531066> Date of access: 26 March 2022.
- Brock, W.H. 2008. Joseph Priestley, enlightened experimentalist. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 49-79.
- Brooke, J.H. 1981. The natural theology of the geologists: some theological strata. In: Jordanova, L. & Porta R., eds. *Image of the Earth: essays in the history of the environmental sciences*. Oxford: British Society for the History of Science. pp. 53-74.
- Brooke, J.H. 2000. 'Wise men nowadays think otherwise': John Ray, natural theology and the meanings of anthropocentrism. *Notes and Records of the Royal Society of London*, 54 (2):199-213.
<http://www.jstor.org/stable/531966> Date of access: 25 January 2016.
- Brown, A.J. 2014. *The days of creation: a history of Christian interpretation of Genesis 1:1-2:3*. Dorset: Deo Publishing.
- Brown, C. 1990. *From the ancient world to the age of Enlightenment*. Vol. 1. Illinois: InterVarsity Press. (Christianity & Western thought: a history of philosophers, ideas & movements).
- Brown, F., Driver, S.R. & Briggs, C.A. 2000. *The Brown-Driver-Briggs Hebrew and English lexicon*. Massachusetts: Hendrickson publishers.
- Brown, J. 1831. *The self-interpreting Bible, containing the Old and New Testaments*. Edinburgh: Printed for Thomas Ireland.
- Brown, J. 1861. *Horæ subsecivæ*. Edinburgh: Edmonston and Douglas.
- Brown, J.C. 1887. *Centenary memorial of the Rev. John Brown*. Edinburgh: Andrew Elliot.
- Brown, N.M. 2010. *The abacus and the cross: the story of the pope who brought the light of science to the Dark Ages*. New York: Basic Books.

- Brown, T. 1988. The transformation of the Roman Mediterranean, 400-900. In: Holmes, G., ed. *The Oxford illustrated history of Medieval Europe*. Oxford: Oxford University Press. pp. 1-62.
- Browne, E.H. 1873. *Genesis; or, the first book of Moses*. New York: Scribner, Armstrong & Co.
- Browne, J. 1995. *Charles Darwin: voyaging*. Vol. 1. New Jersey: Princeton University Press.
- Browne, J. 2006. *Darwin's Origin of species: a biography*. Great Britain: Atlantic Books.
- Bruno, J. 1713. *Spaccio della bestia trionfante or the expulsion of the triumphant beast*. London: s.n.
- Buckland, W. 1820. *Vindiciæ geologica; or the connexion of geology with religion*. Oxford: Oxford University Press.
- Buckland, W. 1828. *Reliquiæ diluvianæ; or observations on the organic remains contained in caves, fissures, and diluvial gravel, and on other geological phenomena attesting the action of an universal deluge*. London: John Murray.
- Buckland, W. 1837. *Geology and mineralogy considered with reference to natural theology*. Vol. 1. 2nd ed. London: William Pickering. (The Bridgewater Treatises on the power wisdom and goodness of God as manifested in the creation).
- Buckley, A.B. 1876. *A short history of natural science and of the progress of discovery from the time of the Greeks to the present day*. London: John Murray.
- Buckley, M.J. 1987. *At the origins of modern atheism*. New Haven and London: Yale University Press.
- Buffon, G. 1797. *Buffon's natural history: containing a theory of the earth, a general history of man, of the brute creation, and of vegetables, minerals, etc.* Vol. 1. Translated by Anon. London: Printed for the proprietor.
- Buffon, G. 1807a. *Buffon's natural history: containing a theory of the earth, a general history of man, of the brute creation, and of vegetables, minerals, etc.* Vol. 9. Translated by Anon. London: Printed for the proprietor.
- Buffon, G. 1807b. *Buffon's natural history: containing a theory of the earth, a general history of man, of the brute creation, and of vegetables, minerals, etc.* Vol. 4. London: Printed for the proprietor.
- Buffon, G. 2018. *The epochs of nature*. Translated by Zalasiewicz, J., Milon A.-S. & Zalasiewicz M. Kindle edition ed. Chicago and London: University of Chicago Press.
- Buitenwerf, R. 2003. *Book III of the Sibylline oracles and its social setting: with an introduction, translation, and commentary*. Leiden: Brill. (Studia in veteris testamenti pseudepigrapha).
- Bullock, C. 1863. *Bible inspiration; what is is, and what it is not: Dr Colenso's difficulties considered and our Lord's testimony enforced*. London: Wertheim, MacIntosh, and Hun; and Strahan and Co.
- Bunyan, J. 1994. An exposition on the ten first chapters of Genesis, and part of the eleventh. In: Owens, W.R., ed. *The miscellaneous works of John Bunyan*. Oxford: Clarendon Press. pp. 95-277.
- Burgon, J.W. 1886. *The first chapter of Genesis: a reply and a postscript*. London: Mildmay Mission to the Jews Printing Office.
- Burnet, T. 1726a. *The sacred theory of the earth: containing an account of the original of the earth, and of all the general changes which it hath already undergone, or is to undergo, till the consummation of all things*. Vol. 1. 6th ed. London: Printed for J. Hooke.
- Burnet, T. 1726b. *The sacred theory of the earth: containing an account of the original of the earth, and of all the general changes which it hath already undergone, or is to undergo, till the consummation of all things*. Vol. 2. London: Printed for J. Hooke.
- Burnet, T. 1736. *Archeologiae philosophicae: or, the ancient doctrine concerning the originals of things, written in Latin: to which is added Burnet's theory of the visible world by way of commentary on his own theory of the earth, being the second part of his archiologiae philosophicae*. London: Printed and sold by J. Fisher.
- Burnet, T. 2008. Correspondence with Thomas Burnet. Keynes Ms. 106. 13 January 1681. Cambridge: King's College. pp. 1-7. (The Newton Project).
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00014> Date of access: 7 April 2016.
- Burroughs, W.K. 1848. *Lectures on the book of Genesis*. Dublin: Purdon, Brothers.
- Bush, G. 1838. *Notes, critical and practical on the book of Genesis*. Vol. 1. New York: Ivison, Phinney & Company.
- Bush, G. 1845. *Anastasis: or the doctrine of the resurrection of the body rationally and scripturally considered*. New York & London: Wiley and Putnam.
- Butel, C. 2000. The history of the rise of materialism in Western society. *Journal of Creation*, 14 (3):16-23, December.
- Butterfield, H. 1957. *The origins of modern science 1300-1800*. New York: The Free Press.
- Cajori, F. 1894. *A history of mathematics*. New York: Macmillan and Co.
- Calinger, R. 1979. Kant and Newtonian science: the pre-critical period. *Isis*, 70 (3):348-362, September.
<https://www.jstor.org/stable/231373> Date of access: 20 November 2019.

- Calvin, J. 1847. *Commentaries on the first book of Moses called Genesis*. Vol. 1. Translated by King, J. Edinburgh: Edinburgh Printing Company.
- Calvin, J. 2006. *Institutes of Christian religion*. Vol. 2. Translated by Battles, F.L. Kentucky: Westminster John Knox Press.
- Campbell, G. 2010. *Bible: the story of the King James Version*. Oxford: Oxford University Press.
- Candlish, R.S. 1868. *The book of Genesis expounded in a series of discourses*. Vol. 1. Edinburgh: Adam and Charles Black.
- Cannon, W. 1960. The problem of miracles in the 1830's. *Victorian Studies*, 4 (1):4-32, September.
<https://www.jstor.org/stable/3825795> Date of access: 6 March 2020.
- Cannon, W.F. 1961. The impact of uniformitarianism: two letters from John Herschel to Charles Lyell, 1836-1837. *Proceedings of the American Philosophical Society*, 105 (3):301-314, June 27.
<https://www.jstor.org/stable/985457> Date of access: 6 March 2020.
- Carnegie, A. 1905. *James Watt*. New York: Doubleday, Page & Company.
- Carozzi, A.V. 1964. Preface and editor's introduction. In: Carozzi, A.V. & Lamarck J.B., eds. *Hydrogeology*. Illinois: University of Illinois. pp. v-vi, 1-11.
- Carozzi, A.V. 1968. Editor's introduction and footnotes. In: Carozzi, A.V., ed. *Tellamed: or conversations between an Indian philosopher and a French missionary on the diminution of the sea*. Urbana, Chicago, London: University of Illinois. pp. 1-53, 237-403.
- Carroll, W. 1706. *A dissertation upon the tenth chapter of the fourth book of Mr Locke's essay, concerning humane understanding*. London: J. Matthews.
- Case, S. 2018. *Making stars physical: the astronomy of Sir John Herschel*. Pittsburgh: University of Pittsburgh Press.
- Caspar, M. 1993. *Kepler*. New York: Dover Publications.
- Cassirer, E. 1981. *Kant's life and thought*. Translated by Haden, J. New Haven and London: Yale University Press.
- Cave, A. 1888. *The inspiration of the Old Testament inductively considered*. London: Congregational Union of England and Wales.
- Center, P.R. 2015. *The future of world religions: population growth projections, 2010-2050*. Washington, D.C.
- Chadwick, H. 2009. *Augustine of Hippo: a life*. Oxford: Oxford University Press.
- Chaisson, E. 2005. *Epic of evolution: seven ages of the cosmos*. New York: Columbia University Press.
- Chalmers, T. 1816. *The evidence and authority of the Christian revelation*. Hartford: Sheldon & Goodrich.
- Chalmers, T. 1817. *A series of discourses on the Christian revelation, viewed in connection with the modern astronomy*. Glasgow: James Hedderwick.
- Chalmers, T. 1836a. *On natural theology*. Vol. 1. Glasgow: William Collins. (The works of Thomas Chalmers).
- Chalmers, T. 1836b. *On the miraculous and internal evidences of the Christian revelation, and the authority of its records*. Vol. 3. Glasgow: William Collins. (The works of Thomas Chalmers).
- Chalmers, T. 1836c. *Tracts and essays on religious & economical subjects*. Vol. 12. Glasgow: William Collins. (The works of Thomas Chalmers).
- Chambers, R. 1845. *Vestiges of the natural history of creation*. 4th ed. London: John Churchill.
- Chambers, W. 1872. *Memoir of Robert Chambers with autobiographic reminiscences of William Chambers*. Edinburgh and London: W. & R. Chambers.
- Chapman, H.H. & Rodgers, Z. 2016. Introduction. In: Chapman, H.H. & Rodgers Z., eds. *A companion to Josephus*. West Sussex: John Wiley & Sons. pp. 1-10.
- Charleton, W. 1652. *The darknes of atheism dispelled by the light of nature a physico-theological treatise*. London: Printed by J. F. for William Lee.
- Charleton, W. 1682. *The harmony of natural and positive divine laws*. London: Printed for Walter Kettilby.
- Chase, F.H. 1999. Introduction. In: Chase, F.H., ed. *Saint John of Damascus: writings*. Washington, D.C.: The Catholic University of America Press. pp. v-xxxviii. (The Fathers of the Church: a new translation).
- Chavalas, M.W. 1993. The historian, the believer, and the OT: a study in the supposed conflict of faith and reason. *Journal of the Evangelical Theological Society*, 36 (2):145-162, June.
<https://nwulib.nwu.ac.za/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=rft&AN=ATLA0000867970> Date of access: 19 July 2019.

- Chenu, M.-D. 1997. 'The masters of the theological "science"'. In: Chenu, M.-D.T., J.; Little, L.K. . ed. *Nature, man, and society in the twelfth century: essays on new theological perspectives in the Latin west*. Toronto: University of Toronto Press. pp. 270-309.
- Cheyne, A.C. 1985. Introduction: Thomas Chalmers: then and now. In: Cheyne, A.C., ed. *The practical and the pious: essays on Thomas Chalmers (1780-1847)*. Edinburgh: The Saint Andrew Press. pp. 9-30.
- Cheyne, T.K. 1893. *Founders of Old Testament criticism*. London: Methuen & Co.
- Child, J.M. 1916. Introduction. In: Child, J.M., ed. *The geometrical lectures of Isaac Barrow*. Chicago and London: The Open Court Publishing Company. pp. 1-32.
- Chisholm, H., ed. 1910a. Isaac Barrow. In: *The Encyclopædia Britannica: a dictionary of arts, sciences, literature and general information*. 11th ed. Cambridge: Cambridge University Press.
- Chisholm, H., ed. 1910b. De Wette, Wilhelm Martin Leberecht. In: *The Encyclopædia Britannica: a dictionary of arts, sciences, literature and general information*. 11th ed. Cambridge: Cambridge University Press.
- Chisholm, H., ed. 1910c. Hrabanus Maurus Magnentius. In: *The Encyclopædia Britannica: a dictionary of arts, sciences, literature and general information*. 11th ed. Cambridge: Cambridge University Press.
- Chisholm, H., ed. 1910d. Gesenius, Heinrich Friedrich Wilhelm. In: *The Encyclopædia Britannica: a dictionary of arts, sciences, literature and general information*. 11th ed. Cambridge: Cambridge University Press.
- Christie, R.C. 1895. Vanini in England. *The English Historical Review*, 10 (38):238-265, April.
<https://www.jstor.org/stable/547786> Date of access: 5 April 2019.
- Chrysostom, J. 1990. *Saint John Chrysostom: homilies on Genesis 18-45*. Translated by Hill, R.C. Washington, D.C.: The Catholic University of America Press. (Fathers of the Church: a new translation).
- Chrysostom, J. 1999. *Saint John Chrysostom: homilies on Genesis 1-17*. Vol. 74. Translated by Hill, R.C. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Church, R.W. 1894. To Dr Asa Gray: Whatley, 28th March 1861. In: Church, M.C., ed. *Life and letters of Dean Church*. London: MacMillan and Co. pp. 156-158.
- Churchill, J. 1851. Review of *Vestiges of the natural history of creation*. *The Christian Observer*, 51 (165):599-610, September.
- Clark, J.F.M. 2006. History from the ground up: bugs, political economy, and God in Kirby and Spence's Introduction to entomology (1815–1856). *Isis*, 97 (1):28-55, March.
<https://www.jstor.org/stable/10.1086/501099> Date of access: 30 March 2022.
- Clarke, A. 1843. *The Holy Bible, containing the Old and New Testaments: Genesis to Deuteronomy*. Vol. 1. New York: G. Lane & P.P. Sandford.
- Clarke, S. 1706. *A discourse concerning the unchangeable obligations of natural religion, and the truth and certainty of the Christian revelation*. London: W. Botham.
- Clarke, S. 1728. *A discourse concerning the attributes of God, the obligations of natural religion, and the truth and certainty of the Christian revelation*. 7th ed. London: Printed by W. Botham.
- Clarke, S. 1738. *The works of Samuel Clarke*. Vol. 3. London: Printed for John and Paul Knapton.
- Clement. 1867. The miscellanies; or stromata. In: Wilson, W., ed. *The writings of Clement of Alexandria*. Vol. 1. Edinburgh: T & T Clark. pp. 347-470. (Ante-Nicene Christian Library: translations of the writings of the fathers down to A.D. 325).
- Clement. 1869. The miscellanies. In: Wilson, W., ed. *The writings of Clement of Alexandria*. Vol. 2. Translated by Wilson, W. Edinburgh: T & T Clark. pp. 1-542. (Ante-Nicene Christian Library: translations of the writings of the fathers down to A.D. 325).
- Close, F. 1826. *The book of Genesis considered and illustrated, in a series of historical discourses*. London: J. Hatchard and Son.
- Clouse, R.G. 1974. John Napier and apocalyptic thought. *The Sixteenth Century Journal*, 5 (1):101-114, April.
<https://www.jstor.org/stable/2539589> Date of access: 29 October 2019.
- Cobban, A. 1960. *In search of humanity: the role of the Enlightenment in modern history*. New York: George Braziller.
- Cockburn, W. 1845. *The Bible defended against the British Association*. 5th ed. London: Whittaker and Co.
- Cohen, I.B. 1960. Newton in light of recent scholarship. *Isis*, 51 (4):489-514, December.
<http://www.jstor.org/stable/228609> Date of access: 20 August 2020.
- Cohen, I.B. 1971. *Introduction to Newton's 'Principia'*. Cambridge: The University Press.
- Cohen, I.B. 1985. *Revolution in science*. Massachusetts: Belknap Press of Harvard University Press.

- Cohen, I.B. 1987. The Newtonian Scientific Revolution and its intellectual significance. *Bulletin of the American academy of arts and sciences*, 41 (3):16-42, December. <http://www.jstor.org/stable/3823825> Date of access: 13 May 2016.
- Cole, H. 1834. *Popular geology subversive of divine revelation!: a letter to the Rev. Adam Sedgwick*. London: Hatchard and Son.
- Colman, B. 1735. *A brief dissertation on the three first chapters of Genesis*. Boston: S. Kneeland and T. Green.
- Colenso, J.W. 1862. *The Pentateuch and book of Joshua critically examined*. 2nd ed. London: Longman, Green Longman, Roberts & Green.
- Coleridge, S.T. 1895. *Letters of Samuel Taylor Coleridge*. Vol. 1. Boston and New York: Houghton, Mifflin and Company.
- Coleridge, S.T. 1966. *Collected letters of Samuel Taylor Coleridge: 1801-1806*. Vol. 2. Oxford: Clarendon Press.
- Colerus, J. 1706. *The life of Benedict de Spinoza*. London: D. L. .
- Coles, P. & Lucchin, F. 2002. *Cosmology: the origin and evolution of cosmic structure*. 2nd ed. West Sussex: John Wiley & Sons.
- Collier, B. & MacLachlan, J. 1988. *Charles Babbage and the engines of perfection*. New York: Oxford University Press.
- Collins, J.R. 2007. Silencing Thomas Hobbes: the Presbyterians and Leviathan. In: Springborg, P., ed. *The Cambridge companion to Hobbes's Leviathan*. Cambridge: Cambridge University Press. pp. 476-499.
- Conant, T.J. 1868. *The book of Genesis*. New York: American Bible Union.
- Condorcet, M. 1795. *Outlines of an historical view of the progress of the human mind: being a posthumous work of the late M. de Condorcet*. London: Printed for J. Johnson.
- Condorcet, M. 2012. *Condorcet: political writings*. Cambridge: Cambridge University Press.
- Conduitt, J. 2004. Notes on Newton's character. Keynes Ms. 130.07. c. 1727-8. Cambridge: King's College. p. 18. (The Newton Project). <http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00169> Date of access: 12 April 2016.
- Cook, A. 1998. *Edmond Halley: charting the heavens and the seas*. Oxford: Clarendon Press.
- Cook, D.J. 2008. Leibniz on creation: a contribution to his philosophical theology. In: Dascal, M., ed. *Leibniz: what kind of rationalist?* New York: Springer. pp. 449-460. (Logic, epistemology, and the unity of science).
- Cooper, T. 1806. Appendix, no. 6: a review of Dr Priestley's theological works, with occasional extracts, expressive of his sentiments and opinions, and observations on his character and conduct as a Christian minister. In: Priestley, J., ed. *Memoirs of Dr Joseph Priestley*. Vol. 2. Northumberland: John Binns. pp. 482-824.
- Copernicus. 1993. On the revolution of the heavenly spheres. In: *Great books of the western world*. Vol. 15. Translated by Wallis, C.G. Chicago: Encyclopaedia Britannica, Inc. pp. 497-838. (Great books of the western world).
- Copleston, F. 1993. *A history of philosophy: late medieval and renaissance philosophy*. Vol. 3. New York: Doubleday.
- Corsi, P. 1988. *The age of Lamarck: evolutionary theories in France*. Translated by Mandelbaum, J. Berkeley: University of California Press.
- Cottret, B. 1997. Death of a philosopher: Bolingbroke's last trick. In: Cottret, B., ed. *Bolingbroke's political writings: the conservative Enlightenment*. Great Britain: MacMillan Press Ltd. pp. 1-17. (Studies in Modern History).
- Courtois, S., Werth, N., Panné, J.-L., Paczkowski, A., Bartošec, K. & Margolin, J.-L. 1999. *The black book of communism: crimes, terror, repression*. Translated by Murphy, J. & Kramer M. Cambridge, Massachusetts: Harvard University Press.
- Cranston, M. 1957. *John Locke: a biography*. New York: Macmillan.
- Creed, J.M. & Smith, J.S.B. 2013. *Religious thought in the eighteenth century*. Cambridge: Cambridge University Press.
- Crofton, D. 1857. *Genesis and geology*. Boston: Phillips, Sampson and Company.
- Cromartie, A. 2003. *Sir Matthew Hale 1609-1676: law, religion and natural philosophy*. Cambridge: Cambridge University Press.
- Cumming, J. 1854. *Sabbath morning readings on the Old Testament*. Boston: John P. Jewett and Company.
- Cumming, J. 1863. *Moses right, and Bishop Colenso wrong: being popular lectures on the Pentateuch*. New York: John Bradburn.

- Cuninghame, W. 1802. *Twelve letters on the evidences of the Christian religion*. Serampore: Oriental Star.
- Cupitt, D. 1988. *The sea of faith: Christianity in change*. Cambridge: Cambridge University Press.
- Cushing, M.P. 1914. *Baron d'Holbach: a study of eighteenth century radicalism in France*. New York: The New Era Printing Company.
- Custance, A.C. 1978. *Science and faith*. Grand Rapids: Zondervan. (The doorway papers).
- Cuvier, G. & Thouars, A.D. 1846. Notice of Ray. In: Lankester, E., ed. *Memorials of John Ray*. London: Printed for the Ray Society. pp. 93-108.
- Cuvier, G. 1831. *A discourse on the revolutions of the surface of the globe, and the changes thereby produced in the animal kingdom*. Philadelphia: Carey & Lea.
- Cuvier, G. 1836. Biographical memoir of M. de Lamarck. *The Edinburgh New Philosophical Journal*, 20:1-22, April. <https://archive.org/details/edinburghnewphil20edin/page/n3/mode/2up> Date of access: 5 February 2020.
- Cuvier, G. 1854. *The animal kingdom, arranged after its organisation; forming a natural history of animals*. London: William S. Orr & Co.
- Cuvier, G. 1997a. Extract from a work on the species of quadrupeds of which the bones have been found in the interior of the earth; addressed to savants and amateurs of the sciences, by G. Cuvier, member of the Institute, professor at the Collège de France and at the Panthéon central school, etc. In: Rudwick, M.J.S., ed. *Georges Cuvier, fossil bones, and geological catastrophes*. Chicago: University of Chicago Press. pp. 45-58.
- Cuvier, G. 1997b. Memoir on the almost complete skeleton of a little quadruped of the opossum genus, found in the plaster stone near Paris. In: Rudwick, M.J.S., ed. *Georges Cuvier, fossil bones, and geological catastrophes*. Chicago: University of Chicago Press. pp. 69-73.
- Cuvier, G. 1997c. Course at the Lycée in year XIII [1804 -5], on geology. In: Rudwick, M.J.S., ed. *Georges Cuvier, fossil bones, and geological catastrophes*. Chicago: University of Chicago Press. pp. 84-86.
- Cuvier, G. 1997d. Preliminary discourse. In: Rudwick, M.J.S., ed. *Georges Cuvier, fossil bones, and geological catastrophes*. Chicago: University of Chicago Press. pp. 183-252.
- Cuvier, G. 1997e. Historical report on the progress of geology since 1789, and on its present state. In: Rudwick, M.J.S., ed. *Georges Cuvier, fossil bones, and geological catastrophes*. Chicago: University of Chicago Press. pp. 115-126.
- Cuvier, G., Jameson, R. & Mitchill, S.L. 1818. *Essay on the theory of the earth*. New York: Kirk & Mercein.
- Cyril. 2018. *St. Cyril of Alexandria: glaphyra on the Pentateuch: Genesis*. Vol. 1. Translated by Lunn, N.P. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Daguerre, L. 1839. *An historical and descriptive account of the various processes of the daguerreotype and the diorama*. London: Mc Lean.
- Dahm, J.J. 1970. Science and apologetics in the early Boyle lectures. *Church History*, 39 (2):172-186, June. <http://www.jstor.org/stable/3163385> Date of access: 26 Feb 2016.
- Dalrymple, G.B. 2004. *Ancient earth, ancient skies: the age of the earth and its cosmic surroundings*. Stanford: Stanford University Press.
- Damascene, J. 1999. The orthodox faith. In: Chase, F.H., ed. *Saint John of Damascus: writings*. Translated by Chase, F.H. Washington, D.C.: The Catholic University of America Press. pp. 165-406. (The Fathers of the Church: a new translation).
- Dana, J.D. 1856. *Science and the Bible: a review of "The six days of creation" of Prof. Tayler Lewis*. Andover: Warren F. Draper.
- Dana, J.D. 1875. *The geological story briefly told: an introduction to geology for the general reader and for beginners in the science*. New York and Chicago: Ivison, Blakeman, Taylor, and Company.
- Dana, J.D. 1890. *The genesis of the heaven and the earth*. Hartford: The Student Publishing co.
- Darwin, C. 1861. *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. 3rd ed. London: John Murray.
- Darwin, C. 1991. To John Frederick William Herschel 11 [November 1859]. In: Burkhardt, F. & Smith S., eds. *The correspondence of Charles Darwin: 1858-1859*. Vol. 7. 1st ed. Cambridge: Cambridge University Press. pp. 370-371.
- Darwin, C. 1993. To Baden Powell: 18 January [1860]. In: Burkhardt, F., ed. *The correspondence of Charles Darwin: 1860*. Vol. 8. Cambridge: Cambridge University Press. pp. 39-40.
- Darwin, C. 1994. To the Rev. Dr. Temple. In: Burkhardt, F., ed. *The correspondence of Charles Darwin: 1861*. Vol. 9. Cambridge: Cambridge University Press. pp. 418-419.

- Darwin, C. 2014. To Karl Marx 1 October 1873. In: Burkhardt, F. & Secord J.A., eds. *The correspondence of Charles Darwin*. Vol. 21. Cambridge: Cambridge University Press. p. 154.
- Darwin, C.R. 1859. *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. London: John Murray.
- Darwin, C.R. 1872. *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. 6th ed. London: John Murray.
- Darwin, C.R. 1882. *The formation of vegetable mould, through the action of worms*. New York: D. Appleton & Company.
- Darwin, C.R. 1887a. *The life and letters of Charles Darwin, including an autobiographical chapter*. Vol. 2. London: John Murray.
- Darwin, C.R. 1887b. *The life and letters of Charles Darwin, including an autobiographical chapter*. Vol. 3. London: John Murray.
- Darwin, C.R. 1887c. *The life and letters of Charles Darwin*. Vol. 1. London: John Murray.
- Darwin, C.R. 1903a. *More letters of Charles Darwin*. Vol. 1. London: John Murray.
- Darwin, C.R. 1903b. *More letters of Charles Darwin*. Vol. 2. London: John Murray.
- Darwin, C.R. 1958. *The autobiography of Charles Darwin 1809-1882: with the original omissions restored*. London: Collins.
- Darwin, E. 1794. *Zoonomia; or the laws of organic life*. Vol. 1. London: Printed for J. Johnson.
- Darwin, E. 1800. *Phytologia; or the philosophy of agriculture and gardening*. London: T. Bensley.
- Darwin, E. 1803a. *The temple of nature; or, the origin of society: a poem, with philosophical notes*. London: T. Bensley.
- Darwin, E. 1803b. Additional notes. In: *The temple of nature; or, the origin of society: a poem, with philosophical notes*. London: T. Bensley. pp. 1-124.
- Darwin, E. 1806. *The loves of the plants*. Vol. 2. London: T. Bensley. (The poetical works of Erasmus Darwin).
- Darwin, E. 1807. The economy of vegetation: a poem with philosophical notes. In: *The botanic garden: a poem, in two parts*. New York: T. & J. Swords. pp. i-xvii; 1-278.
- Davidson, J.P. 2000. Historical point of view: fish tales: attributing the first illustration of a fossil shark's tooth to Richard Verstegan (1605) and Nicolas Steno (1667). *Proceedings of the Academy of Natural Sciences of Philadelphia*, 150:329-344. <http://www.jstor.org/stable/4065077> Date of access: 24 February 2017.
- Davidson, P. 1863. *The Pentateuch vindicated from the objections and misrepresentations of Bishop Colenso*. Edinburgh: Andrew Elliot.
- Davies, B. & Evans, G.R. 1998. Introduction. In: Davies, B. & Evans G.R., eds. *Anselm of Canterbury: the major works*. Oxford: Oxford University Press. pp. vii-xxiii.
- Davies, B. 1993. *The thought of Thomas Aquinas*. Oxford: Clarendon Press.
- Davies, T.A. 1874. *Genesis disclosed: the discovery of a stupendous error which changes the entire nature of the account of the creation of mankind*. New York: G.W. Carleton & Co.
- Davies, T.T. 1857. *Cosmogony, or the mysteries of creation*. New York: Presentation copy.
- Davis, J.D. 1894. *Genesis and semitic tradition*. New York: Charles Scribner's Sons.
- Dawkins, R. 1986. *The blind watchmaker*. England: Longman, Scientific & Technical.
- Dawkins, R. 2009. Accidents of Life. *New Statesman*, 138:66-67, 2009.
- De Foigny, G. 1693. *A new discovery of Terra incognita Australis, or, the southern world, by James Sadeur, a Frenchman, who being cast there by a shipwreck, lived 35 years in that country and gives a particular description of the manners, customs, religion, laws, studies and wars of those southern people, and of some animals peculiar to that place: with several other rarities*. Translated by Authority, P. London: Printed for John Dunton.
- De Wette, W.M.L. 1867. *A critical and historical introduction to the canonical Scriptures of the Old Testament*. Vol. 1. Translated by Parker, T. 4th ed. Boston: Horace B. Fuller.
- Dean, D.R. 1992. *James Hutton and the history of geology*. Ithaca and London: Cornell University Press.
- Delitzsch, F. 1852. *Die Genesis*. Leipzig: Dörfpling und Franke.
- Delitzsch, F. 1888. *A new commentary on Genesis*. Vol. 1. Translated by Taylor, S. Edinburgh: T. & T. Clark. (Clark's foreign theological library).
- Deluc, J. 1809. *An elementary treatise on geology: determining fundamental points in that science, and containing an examination of some modern geological systems, and particularly of the Huttonian theory of the earth*. Translated by Fite, H.D.L. London: Printed for F.C. and J. Rivington.

- Deluc, J. 1831. *Letters on the physical history of the earth, addressed to Professor Blumenbach: containing geological and historical proofs of the divine mission of Moses*. London: Gilbert and Rivington.
- Dennett, D.C. 1996. *Darwin's dangerous idea: evolution and the meanings of life*. New York: Penguin Books.
- Dennett, D.C. 2007. *Breaking the spell: religion as a natural phenomenon*. New York: Penguin Books.
- Denton, W. 1872. *Irreconcilable records; or Genesis and geology*. Boston: William Denton.
- Derham, W. 1723. *Physico-theology: or a demonstration of the being and attributes of God, from his works of creation*. 6th ed. London: Printed for W. and J. Innys.
- Derham, W. 1846. Select remains and life of Ray. In: Lankester, E., ed. *Memorials of John Ray*. London: Printed for the Ray Society. pp. 7-56.
- Derksen, S. 2012. Manuscript notes in books from the Vossius collection. In: Jorink, E. & Miert D.V., eds. *Isaac Vossius (1618-1689), between science and scholarship*. Leiden: Brill. pp. 255-280. (Brill's studies in intellectual history).
- Descartes, R. 1911a. Discourse on method. In: Haldane, E.S. & Ross G.R.T., eds. *The philosophical works of Descartes*. Vol. 1. Translated by Haldane, E.S. & Ross G.R.T. Cambridge: Cambridge University Press. pp. 79-130.
- Descartes, R. 1911b. Meditations on first philosophy. In: Haldane, E.S. & Ross G.R.T., eds. *The philosophical works of Descartes*. Vol. 1. Translated by Haldane, E.S. & Ross G.R.T. Cambridge: Cambridge University Press. pp. 133-199.
- Descartes, R. 1991. *The correspondence*. Vol. 3. Translated by Cottingham, J., Stoothoff R., Murdoch D. & Kenny A. Cambridge: Cambridge University Press. (The philosophical writings of Descartes).
- Descartes, R. 2004. *The world and other writings*. Translated by Gaukroger, S. Cambridge: Cambridge University Press.
- Devlin, K. 2008. *The unfinished game: Pascal, Fermat, and the seventeenth-century letter that made the world modern*. New York: Basic Books.
- Dickinson, H.W. & Jenkins, R. 1989. *James Watt and the steam engine: the memorial volume prepared for the committee of the Watt centenary commemoration at Birmingham 1919*. London: Encore Editions.
- Diderot, D. 1778a. Encyclopédie. In: Diderot, D. & d'Alembert J.-B.L.R., eds. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. 3rd ed. Geneva: Jean-Léonard Pellet. pp. 361-410.
- Diderot, D. 1778b. Spinosiste. In: Diderot, D. & d'Alembert J.-B.L.R., eds. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. 3rd ed. Geneva: Jean-Léonard Pellet. p. 656.
- Diderot, D. 1831. La promenade du sceptique, ou les allées. In: Grimm, F.M., ed. *Mémoires, correspondance et ouvrages inédits de Diderot*. Vol. 4. Paris: Paulin. pp. 241-382.
- Diderot, D. 1841. *Thoughts on religion*. London: J. Watson.
- Diderot, D. 1916. *Diderot's early philosophical works*. Translated by Jourdain, M. Chicago and London: The Open Court Publishing Company.
- Diderot, D. 1999. Thoughts on the interpretation of nature. In: Adams, D., ed. *Thoughts on the interpretation of nature and other philosophical works*.
- Diderot, D. 2007. Spinozist Translated by Eden, M. In: *The encyclopedia of Diderot & d'Alembert: collaborative translation project*. University of Michigan Library: Michigan. p. 474.
- Diderot, D. 2018. *The skeptic's walk*. Translated by Watson, K. s.l.: Kirk Watson.
- Didymus. 2016. *Didymus the Blind: commentary on Genesis*. Translated by Hill, R.C. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Dillmann, A. 1875. *Die Genesis: für die dritte auflage nach Dr August Knobel neu bearbeitet*. Leipzig: S. Hirzel.
- Dillmann, A. 1882. *Die Genesis: erklärt*. Leipzig: S. Hirzel.
- Dillmann, A. 1897. *Genesis critically and exegetically expounded*. Vol. 1. Translated by Stevenson, W.B. Edinburgh: T. & T. Clark.
- Dimock, H. 1804. *Critical and explanatory notes on Genesis, Exodus, Isaiah, Jeremiah, Ezekiel, Daniel, and the Minor Prophets*. London: C. and W. Galabin.
- Dircks, W.H. 1888. Introduction: Lord Herbert. In: *The autobiography of Edward, Lord Herbert of Cherbury: edited, with an introduction, by Will H. Dircks*. London: Walter Scott. pp. vii-xlvii.
- Dixon, C.S. 2010. *Protestants: a history from Wittenberg to Pennsylvania 1517-1740*. West Sussex: Wiley-Blackwell.
- Dod, B.G. 1997. Aristoteles latinus. In: Kretzmann, N., Kenny A. & Pinborg J., eds. *The Cambridge history of later medieval philosophy*. Cambridge: Cambridge University Press. pp. 45-79.
- Dodd, W. 1770. *A commentary on the books of the Old and New Testament*. Vol. 1. London: Printed for R. Davis.

- Dods, M. 1854. *The book of Genesis*. New York: A.C. Armstrong and Son.
- Doremus, R.O. 1893. Thoughts suggested by Professor Dewar's discoveries. *The North American Review*, 156 (438):543-551, May. <http://www.jstor.org/stable/25103130> Date of access: 21 November 2016.
- Doughty, J. 1892. *The parable of creation: being a presentation of the spiritual sense of the Mosaic narrative as contained in the first chapter of Genesis*. San Francisco: Swedenborg Library and Tract Society.
- D'Oyly, G. & Mant, R. 1817. *The Holy Bible according to the authorized version; with notes, explanatory and practical*. Vol. 1. Oxford: Clarendon Press.
- Drake, E.T. & Komar, P.D. 1983. Speculations about the earth: the role of Robert Hooke and others in the 17th century. *Earth Sciences History*, 2 (1):11-16. <http://www.jstor.org/stable/24135720> Date of access: 4 August 2017.
- Draper, J.W. 1875. *History of the conflict between religion and science*. New York: D. Appleton and Company.
- Drew, G.S. 1863. *Bishop Colenso's examination of the Pentateuch examined*. London: Bell and Daldy.
- Driver, S.R. 1904. *The book of Genesis: with introduction and notes*. 1st ed. London: Methuen & Co.
- Driver, S.R. 1916. *The book of Genesis: with introduction and notes*. 10th ed. London: Methuen & Co. Ltd.
- Drummond, A.L. 1966. Alexander Geddes 1737-1802: Roman Catholic priest and higher critic in the age of reason. *Historical Magazine of the Protestant Episcopal Church*, 35 (1):73-85, March. <https://www.jstor.org/stable/42991034> Date of access: 2 July 2020.
- Duboisée de Ricquebourg, M. 2011. *Origin of species or specious origins: a Reformed presuppositional apology to Darwin's Origin of species and Descent of man*. South Africa: North-West University. (Dissertation - MTh).
- Duboisée de Ricquebourg, M. 2020. Isaac Newton: friend or foe to biblical creation? *Journal of Creation*, 34 (3):122-128, December. https://dl0.creation.com/articles/p137/c13759/j34-3_122-128.pdf Date of access: 20 October 2023.
- Duboisée de Ricquebourg, M. 2021. Kant's religion of reason and the reinterpretation of Genesis 1-3. *Journal of Creation*, 35 (1):48-53, April. https://dl0.creation.com/articles/p149/c14991/j35_1_48-53.pdf Date of access: 20 October 2023.
- Dunn, G.D. 2004. *Tertullian*. London and New York: Routledge. (The Early Church Fathers).
- Dupree, A.H. 1988. *Asa Gray: American botanist, friend of Darwin*. Baltimore and London: The John Hopkins University Press.
- Dupuis, C.F. 1872. *The origin of all religious worship*. New Orleans: C.C.W. Müller.
- Durant, W. & Durant, A. 1965. *The age of Voltaire: a history of civilization in Western Europe from 1715 to 1756, with special emphasis on the conflict between religion and philosophy*. New York: Simon and Schuster. (The story of civilization).
- Dwight, T. 1823. *Travels in New-England and New-York*. Vol. 2. London: Printed for William Baynes and Son, and Ogle, Duncan, & Co. Paternoster Row.
- Dybikowski, J. 2008. Joseph Priestley, metaphysician and philosopher of religion. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 80-112.
- Dyer, J. 2023 Commentaries on Genesis. *Best commentaries: rotten tomatoes for biblical studies*. <https://bestcommentaries.com/genesis/> Date of access: 27 April 2023.
- Edgar, W. & Oliphant, K.S. 2009. Irenaeus: introductory note. In: Edgar, W. & Oliphant K.S., eds. *Christian apologetics: past and present*. Vol. 1. Illinois: Crossway. pp. 83-87.
- Edison, T.A. 1925. Introduction. In: Weyde, W.M.V.D., ed. *The life and works of Thomas Paine*. Vol. 1. New York: Thomas Paine National Historical Association. pp. vii-ix.
- Elliot, H. 1963. Introduction. In: Elliot, H., ed. *Zoological philosophy: an exposition with regard to the natural history of animals*. New York and London: Hafner Publishing Company. pp. xvii-xcii.
- Engelland, H. 1965. Introduction. In: Manschreck, C.L., ed. *Melanchthon on Christian doctrine: loci communes 1555*. Translated by Manschreck, C.L. New York: Oxford University Press. pp. xxv-xlii.
- Ephrem. 1990. *Hymns on Paradise*. Translated by Brock, S. New York: St. Vladimir's Seminary Press.
- Ephrem. 1994. Commentary on Genesis: commentary of Ephrem on the first book of the Torah. In: Matthews, E.H., Mcvey K. & Amar J.P., eds. *St. Ephrem the Syrian: selected prose works*. Translated by Matthews, E.H. Washington, D.C.: The Catholic University of America Press. pp. 67-213. (The Fathers of the Church).
- Espinasse, M. 1958. The decline and fall of restoration science. *Past & Present*, 14:71-89, November. <http://www.jstor.org/stable/650093> Date of access: 15 July 2017.

- Essig, E.O. 1965. *A history of entomology*. New York and London: Hafner Publishing Company.
- Eusebius. 1875. *Eusebi: chronicon liber prior*. Vol. 1. Translated by Schoene, A., Petermann J.H., Pearse R. & Smith A. Berolini: Weidmannos.
- Eusebius. 2005. *Eusebius Pamphili: ecclesiastical history (books 6-10)*. Translated by Deferrari, R.J. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Evans, W. 1916. *The book of Genesis*. New York: Fleming H. Revell Company.
- Exell, J.S. 1885. Homiletical commentary on the book of Genesis. In: Exell, J.S. & Leale T.H., eds. *The preacher's complete homiletical commentary on the Old Testament*. London: Richard D. Dickinson. pp. 1-160.
- Eyles, V.A. 1970. Introduction. In: White, G.W., ed. *James Hutton's system of the earth, 1785; theory of the earth, 1788; observations on granite, 1794; together with Playfair's biography of Hutton*. Connecticut: Hafner Publishing Company. pp. xi-xxiii. (Contributions to the history of geology).
- Faguet, É. 1907. *A literary history of France*. London: T. Fisher Unwin.
- Fairchild, H.L. 1887. *A history of the New York Academy of Sciences formerly the Lyceum of Natural History*. New York: Herman LeRoy Fairchild.
- Fakhry, M. 2008. *Averroes: his life, works and influence*. Oxford: Oneworld.
- Fauré-Fremiet, E. 1966. Les origines de L'Académie des Sciences de Paris. *Notes and Records of the Royal Society of London*, 21 (1):20-31, June. <https://www.jstor.org/stable/530815> Date of access: 25 September 2023.
- Fee, G.D. & Stuart, D. 1982. *How to read the Bible for all it's worth*. Grand Rapids: Zondervan.
- Feingold, M. 1990. *Before Newton: the life and times of Isaac Barrow*. Cambridge: Cambridge University Press.
- Feld, E. 1989. Spinoza the Jew. *Modern Judaism*, 9 (1):101-119, February. <https://www.jstor.org/stable/1396435> Date of access: 16 October 2023.
- Filmer, R. 1685. *Patriarcha: or the natural power of kings*. London: Printed for R. Chiswel, W. Hensman, M. Gilliflower, and G. Wells.
- Finger, S. & Piccolino, M. 2011. *The shocking history of electric fishes: from ancient epochs to the birth of modern neurophysiology*. Oxford: Oxford University Press.
- Finocchiaro, M.A. 1989. Introduction. In: Finocchiaro, M.A., ed. *The Galileo affair: a documentary history*. Berkeley: University of California Press. p. 382.
- Fischer, K. 2016. Vitalism in America: Elihu Palmer's radical religion in the early republic. *The William and Mary Quarterly*, 73 (3):501-530, July. <http://www.jstor.org/stable/10.5309/willmaryquar.73.3.0501> Date of access: 21 August 2020.
- Fitzpatrick, M. 2008. Joseph Priestley, political philosopher. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 113-143.
- Fitzpatrick, T.J. 1911. *Rafinesque: a sketch of his life with bibliography*. Des Moines: The Historical Department of Iowa.
- Fleming, J. 1826. The geological deluge, as interpreted by Baron Cuvier and Professor Buckland, inconsistent with the testimony of Moses and the phenomena of nature. *The Edinburgh Philosophical Journal*, 14 (28):205-239, April.
- Flood, D.T. 1977. William Petty and 'the Double Bottom'. *Dublin Historical Record*, 30 (3):96-110, June. <http://www.jstor.org/stable/30082568> Date of access: 15 Feb 2016.
- Foner, E. 1981. *Tom Paine and revolutionary America*. London: Oxford University Press.
- de Fontenelle, B. 1739. Sur des os d'elephants trouves sous terre. In: Fontenelle, B.D., ed. *Histoire de l'academie royale des sciences: 1727*. Paris: De l'Imprimerie Royale. pp. 1-4.
- de Fontenelle, B. 1754. De l'existence de Dieu. In: *Œuvres de monsieur de Fontenelle*. Vol. 2. Amsterdam: Aux dépens de la Compagnie. pp. 151-158.
- de Fontenelle, B. 1803. *Conversations on the plurality of worlds*. London: J. Cundee.
- de Fontenelle, B. 1971. L'origine des fables. In: Fellows, O.E. & Torrey N.L., eds. *The age of enlightenment: an anthology of French literature*. 2nd ed. New York: Appleton-Century-Crofts. pp. 60-63.
- de Fontenelle, B. 1975. Of the origin of fables. In: Feldman, B. & Richardson R.D., eds. *The rise of modern mythology 1680-1860*. Translated by Feldman, B. & Richardson R.D. Bloomington: Indiana University Press. pp. 10-18.
- Foote, G.W. 1889. *Darwin on God*. London: Progressive Publishing Company.
- Ford, A. 2007. *James Ussher: theology, history, and politics in early-modern Ireland and England*. Oxford: Oxford University Press.

- Ford, B.J. 2000. Shining through the centuries: John Ray's life and legacy. A report of the meeting 'John Ray and his successors'. *Notes and Records of the Royal Society of London*, 54 (1):5-22, January. <http://www.jstor.org/stable/532054> Date of access: 7 March 2017.
- Förster, E. 1998. Introduction. In: Förster, E., ed. *Opus postumum*. Cambridge: Cambridge University Press. pp. xv-lv.
- Fowle, W.H. 1863. *A few remarks on Bishop Colenso on the Pentateuch*. London: Joseph Masters.
- Fowler, F.W. 1862. *An answer to Bishop Colenso on the Pentateuch*. London: Simpkin, Marshall, and Co.
- Fox, A. 2009. Sir William Petty, Ireland, and the making of a political economist, 1653-87. *The Economist History Review*, 62 (2):388-404, May. <http://www.jstor.org/stable/20542917> Date of access: 15 Feb 2016.
- Frame, J.M. 1995. *Cornelius Van Til: an analysis of his thought*. New Jersey: Presbyterian and Reformed Publishing Company.
- Frame, J.M. 2010. *The doctrine of the word of God*. New Jersey: P&R Publishing Company.
- Frame, J.M. 2015. *A history of western philosophy and theology* 1st ed. New Jersey: P&R Publishing.
- Francis, P. & Dise, N. 1997. *Atmosphere, earth and life*. Bletchley: Open University.
- Franklin, B. 1904. *The works of Benjamin Franklin*. Vol. 1. New York and London: G.P. Putnam's Sons.
- Franklin, B. 1961. *The papers of Benjamin Franklin: January 6, 1706 through December 31, 1734*. Vol. 1. New Haven: Yale University Press.
- Franklin, B. 2004. *The autobiography and other writings on politics, economics, and virtue*. Cambridge: Cambridge University Press.
- French, R.S. 1979. Elihu Palmer, radical deist, radical republican: a reconsideration of American free thought. In: Runte, R., ed. *Studies in eighteenth-century culture*. Wisconsin: The University of Wisconsin Press. pp. 87-108. (American Society for Eighteenth-Century Studies).
- Fripp, E.I. 1892. *The composition of the book of Genesis*. London: David Nutt.
- Froude, J.A. 1871. *Short studies on great subjects*. New York: Charles Scribner and Company.
- Fuller, A. 1836. *Expository discourses on the book of Genesis*. London: Thomas Tegg and Son.
- Fuller, J.G.C.M. 2005. A date to remember: 4004 BC. *Earth Sciences History*, 24 (1):5-14. <https://www.jstor.org/stable/24136843> Date of access: 21 October 2022.
- Fulton, J.F. 1960. The honourable Robert Boyle, F.R.S. (1627-1692). *Notes and Records of the Royal Society of London*, 15:119-135, July. <http://www.jstor.org/stable/531032> Date of access: 20 January 2017.
- Galilei, G. 1957. Letter to the Grand Duchess Christina. In: Drake, S., ed. *Discoveries and opinions of Galileo*. Translated by Drake, S. New York: Anchor Books. pp. 173-216.
- Galilei, G. 1970. *Dialogo sopra i due massimi sistemi del mondo, tolemaico e copernicano*. Vol. 110. Torino, G. Einaudi. (Nuova universale Einaudi).
- Galilei, G. 1989. Galileo to Castelli (21 December 1613). In: Finocchiaro, M.A., ed. *The Galileo affair: a documentary history*. Vol. 1. Berkeley: University of California Press. pp. 49-54.
- Galli, M. & Olsen, T. 2000. *131 Christians everyone should know*. Nashville: Holman Bible Publishers.
- Gange, D. 2013. *Dialogues with the dead: Egyptology in British culture and religion 1822-1922*. Oxford: Oxford University Press.
- Garbett, E. 1863. *The Pentateuch and its authority: a review of "The Pentateuch and book of Joshua critically examined by the right Rev. John William Colenso, D.D., Bishop of Natal"*. 2nd ed. London: Published at the "Record" office.
- Gassendi, P. & Thill, O. 2002. *The life of Copernicus (1473-1543): the man who did not change the world*. Virginia: Xulon Press.
- Gaukroger, S. 2010. *The collapse of mechanism and the rise of sensibility: science and the shaping of modernity, 1680-1760*. Oxford: Oxford University Press.
- Gay, P. 1966. *The Enlightenment: an interpretation: the rise of modern paganism*. Vol. 1. New York: Knopf.
- Geddes, A. 1786. *Prospectus of a new translation of the Holy Bible*. Glasgow: R. Faulder.
- Geddes, A. 1792. *The Holy Bible, or the books accounted sacred by Jews and Christians; otherwise called the books of the old and new covenants: faithfully translated from corrected texts of the originals with various readings, explanatory notes, and critical remarks*. Vol. 1. London: J. Davis.
- Geddes, A. 1796. *A sermon, preached before the University of Cambridge*. London: Printed for G. Kearsley.
- Geddes, A. 1800. *Critical remarks on the Hebrew Scriptures: corresponding with a new translation of the Bible*. Vol. 1. London: Davis, Wilks and Taylor.
- Geisler, N.L. & Nix, W.E. 1986. *A general introduction to the Bible*. Chicago: Moody Publishers.
- Gentry, K.L. 2016. *As it is written: dismantling the framework hypothesis*. Arizona: Master Books.

- Gerlach, K.F.O.v. 1860. *Commentary on the Pentateuch*. Translated by Downing, H. Philadelphia: Smith, English & Co.
- Gertz, J.C. 2007. Jean Astruc and source criticism in the book of Genesis. In: Jarick, J., ed. *Sacred conjectures: the context and legacy of Robert Lowth and Jean Astruc*. New York: T & T Clark. pp. 190-203.
- Gesenius, W., Kautzsch, E., Mitchell, E.C. & Price, I.M. 1893. *Gesenius' Hebrew grammar*. 2nd ed. Boston: Bradley & Woodruff.
- Gibbon, E. 1854. *The history of the decline and fall of the Roman empire*. Vol. 1. Boston: Phillips, Sampson, and Company.
- Gibson, A.B. 1935. Great thinkers: (VI) Descartes. *Philosophy*, 10 (40):428-440, 1935.
<http://www.jstor.org/stable/3746685> Date of access: 8 February 2018.
- Gibson, J.M. 1879. *The ages before Moses: a series of lectures on the book of Genesis*. New York: Anson D.F. Randolph & Company.
- Gilbert, W. 1893. *On the loadstone and magnetic bodies, and on the great magnet the earth*. Translated by Mottelay, P.F. London: Bernard Quaritch.
- Gill, H.V. 1914. Louvain and its university. *The Irish Monthly*, 42 (496):575-582, October.
<http://www.jstor.org/stable/20503633> Date of access: 14 November 2016.
- Gill, J. 1810. *An exposition of the Old Testament: in which are recorded the origin of mankind, of the several nations of the world, and of the Jewish nation in particular*. Vol. 1. London: W. Clowes.
- Gillispie, C.C. 1959. *Genesis and geology*. New York: Harper & Brothers.
- Gillispie, C.C. 1968. Lamarck and Darwin in the history of science. In: Glass, B., Temkin O. & Straus W.L., eds. *Forerunners of Darwin: 1745-1859*. Baltimore: The John Hopkins Press. pp. 265-291.
- Gillispie, C.C. 2000. *Pierre-Simon Laplace 1749-1827: a life in exact science*. New Jersey: Princeton University Press.
- Gilson, E. 1939. *Reason and revelation in the Middle Ages*. New York: Charles Scribner's Sons.
- Gladstone, W.E. 1885. Dawn of creation and of worship; proem to Genesis. In: Gladstone, W.E., ed. *The order of creation: the conflict between Genesis and geology*. New York: The Truth Seeker Company. pp. 5-42, 70-106.
- Glasner, R. 2009. *Averroes' physics: a turning point in medieval natural philosophy*. Oxford: Oxford University Press.
- Glass, B. 1947. Maupertuis and the beginnings of genetics. *The Quarterly Review of Biology*, 22 (3):196-210, September. <https://www.jstor.org/stable/2811480> Date of access: 19 February 2019.
- Gliddon, G.R. 1857. The monogenists and the polygenists; being an exposition of the doctrines of schools professing to sustain dogmatically the unity or the diversity of human races; with an inquiry into the antiquity of mankind upon the earth, viewed chronologically, historically and palaeontologically. In: Nott, J.C. & Gliddon G.R., eds. *Indigenous races of the earth; or new chapters of ethnological enquiry*. Philadelphia: J.B. Lippincott. pp. 402-602.
- GlioZZo, C.A. 1971. The philosophes and religion: intellectual origins of the dechristianization movement in the French Revolution. *Church History*, 40 (3):273-283, September.
<https://www.jstor.org/stable/3163003> Date of access: 9 September 2023.
- Glover, W.B. 1960. God and Thomas Hobbes. *Church History*, 29 (3):275-297, September.
<http://www.jstor.org/stable/3162212> Date of access: 15 February 2018.
- Goethe, J.W.v. 1987. *Schriften zur morphologie*. Vol. 24. Frankfurt am Main: Deutscher Klassiker Verlag. (Bibliothek deutscher Klassiker).
- Goggin, T.A. 1957. Introduction. In: Deferrari, R.J., ed. *Saint John Chrysostom: commentary on Saint John the apostle and evangelist*. New York: Fathers of the Church. pp. vii-xix. (The Fathers of the Church: a new translation).
- Goldenbaum, U. 2011. The public discourse of Hermann Samuel Reimarus and Johann Lorenz Schmidt in the *Hamburgische Berichte von Gelehrten Sachen* in 1736. In: Muslow, M., ed. *Between philology and radical enlightenment: Hermann Samuel Reimarus (1694-1768)*. Leiden: Brill. pp. 75-101. (Brill's studies in intellectual history).
- Goldie, M. 2010. Alexander Geddes at the limits of the Catholic Enlightenment. *The Historical Journal*, 53 (1):61-86, March. <https://www.jstor.org/stable/25643883> Date of access: 2 July 2020.
- Goldingay, J. 2010. *Genesis for everyone: part 1, chapters 1-16*. Louisville: Westminster John Knox Press.
- Goodman, D. 1991-1992. The Hume-Rousseau affair: from private *querelle* to public *procès*. *Eighteenth-Century Studies*, 25 (2):171-201, Winter. <https://www.jstor.org/stable/2738818> Date of access: 26 October 2018.

- Goodrum, M.R. 2002. Atomism, atheism, and the spontaneous generation of human beings: the debate over a natural origin of the first humans in seventeenth-century Britain. *Journal of the History of Ideas*, 63 (2):207-224, April. <http://www.jstor.org/stable/3654194> Date of access: 25 Feb 2016.
- Goodspeed, C. & Welton, D.M. 1909. *The book of Genesis*. Philadelphia: American Baptist Publication Society. (An American commentary on the Old Testament).
- Goodwin, C.W. 1860. Mosaic cosmogony. In: Parker, J.W., ed. *Essays and reviews*. 2nd ed. London: John W. Parker and Son. pp. 207-253.
- Gordon, A. 1895. *Heads of English Unitarian history*. London: Philip Green.
- Gordon, A.R. 1907. *The early traditions of Genesis*. Edinburgh: T. & T. Clark.
- Gould, C.D. & Lincoln, J. 1857. To the reader: a footnote. In: *The testimony of the rocks; or, geology in its bearings on the two theologies, natural and revealed*. Boston: Gould and Lincoln. p. viii.
- Gould, S.J. 1975. Catastrophes and the steady state earth. *Natural History*, 84 (2):14-18.
- Gould, S.J. 1996. *Time's arrow, time's cycle: myth and metaphor in the discovery of geological time*. Cambridge, Massachusetts: Harvard University Press.
- Gould, S.J. 2011a. *Dinosaur in a haystack: reflections in natural history*. London: The Belknap Press of Harvard University Press.
- Gould, S.J. 2011b. *The living stones of Marrakech: penultimate reflections in natural history*. Massachusetts: Harvard University Press.
- Grant, F.W. 1912. *Genesis in the light of the New Testament*. New York: "Our Hope" Publication Office.
- Grant, H. 1990. Geometry and politics: mathematics in the thought of Thomas Hobbes. *Mathematics Magazine*, 63 (3):147-154, June. <http://www.jstor.org/stable/2691132> Date of access: 23 February 2018.
- Grant, R.M. 1947. The Bible of Theophilus of Antioch. *Journal of Biblical Literature*, 66 (6):173-196, June. <https://www.jstor.org/stable/3262178> Date of access: 12 October 2023.
- Graunt, J. 1662. *Natural and political observations mentioned in a following index, and made upon the bills of mortality*. London: Printed by Tho. Roycroft for John Martin, James Allestry, and Tho. Dicas.
- Greaves, R.L. 1985. *Saints and rebels: seven nonconformists in Stuart England*. Georgia: Mercer University Press.
- Green, A. 2015. A portrait of Spinoza as a Maimonidean reconsidered. *Shofar*, 34 (1):81-106, Fall. <https://www.jstor.org/stable/10.5703/shofar.34.1.81> Date of access: 16 October 2023.
- Green, W.H. 1863. *The Pentateuch vindicated from the aspersions of Bishop Colenso*. New York: John Wiley.
- Greene, J.P. 1978. Paine, America, and the "modernization" of political consciousness. *Political Science Quarterly*, 93 (1):73-92, Spring. <https://www.jstor.org/stable/2149051> Date of access: 16 March 2020.
- Greenough, G.B. 1819. *A critical examination of the first principles of geology*. London: Strahan and Spottiswoode.
- Gregory, H.E. 1921. History of geology. *The Scientific Monthly*, 12 (2):97-126, February. <http://www.jstor.org/stable/6362> Date of access: 2 March 2017.
- Gregory. 1917. On the making of man. In: Moore, W. & Wilson H.A., eds. *Select writings and letters of Gregory, Bishop of Nyssa*. Translated by Moore, W. & Wilson H.A. New York: Charles Scribner's Sons. pp. 387-427. (A select library of Nicene and Post-Nicene Fathers of the Christian Church).
- Gregory. 2021. *St. Gregory of Nyssa: on the six days of creation*. Vol. 1. Translated by Orton, R. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: shorter works).
- Greswell, E. 1863. *The objections to the historical character of the Pentateuch, in part I. of Dr Colenso's "Pentateuch and book of Joshua," considered, and shewn to be unfounded*. London: Rivingtons.
- Grew, N. 1672. *The anatomy of vegetables begun with a general account of vegetation founded thereon*. London: Printed for Spencer Hickman.
- Grew, N. 1682. The anatomy of plants, begun with a general account of vegetation. In: *The anatomy of plants with an idea of a philosophical history of plants and several other lectures, read before the Royal Society*. 2nd ed. London: Printed by W. Rawlins. pp. 1-304.
- Grew, N. 1701. *Cosmologia sacra: or a discourse of the universe as it is the creature and kingdom of God*. London: Printed for W. Rogers, S. Smith, and B. Walford.
- Gridley, A.L. 1913. *The first chapter of Genesis as the rock foundation for science and religion*. Boston: The Gorham Press.
- Grigg, R. 2016. Mercator's projection: Mercator, the creationist whose map revolutionized navigation. *Creation*, 38 (1):54-55.

- Grosseteste, R. 1996. *Robert Grosseteste: on the six days of creation*. Translated by Martin, C.F.J. Oxford: Oxford University Press.
- Grote, A.R. 1880. *Genesis 1-11: an essay on the Bible narrative of creation*. New York: Asa K. Butts.
- Grote, S. 2017. *The emergence of modern aesthetic theory: religion and morality in Enlightenment Germany and Scotland*. Cambridge: Cambridge University Press. (Ideas in context).
- Grotius, H. 1805. *The truth of the Christian religion*. Translated by Clarke, J. 12th ed. London: Printed for F. C. and J. Rivington.
- Groves, H.C. 1861. *A commentary on the book of Genesis*. London: MacMillan and Co.
- Gruber, H.E. 1961. Notes & correspondence: Darwin and Das Kapital. *Isis*, 52 (4):582-583, December. <https://www.jstor.org/stable/228651> Date of access: 15 June 2022.
- Guardini, R. 1960. *The conversion of Augustine*. Translated by Briefs, E. Maryland: The Newman Press.
- Guericke, O.v. 2012. *The new (so-called) Magdeburg experiments of Otto von Guericke*. Translated by Ames, M.G.F. Berlin: Springer Science & Business Media.
- Guerlac, H. 1966. *Lavoisier - the crucial year: the background and origin of his first experiments on combustion in 1772*. Ithaca, New York: Cornell University Press.
- Gulyga, A. 1987. *Immanuel Kant: his life and thought*. Translated by Despalatović, M. Boston: Birkhäuser.
- Gunkel, H. 1901. *The legends of Genesis*. Translated by Carruth, W.H. Chicago: The Open Court Publishing Co.
- Gunther, R.T. 1930. *Early science in Oxford: the life and work of Robert Hooke*. Vol. 1. Oxford: Oxford University Press. (Early science in Oxford).
- Gurdon, B. 1723. *The pretended difficulties in natural or reveal'd religion no excuse for infidelity*. 2nd ed. London: Printed for Robert Knaplock.
- Haber, F.C. *The age of the world: Moses to Darwin*. Baltimore: The Johns Hopkins Press.
- Haeckel, E. 1882. *Die naturanschauung von Darwin, Goethe und Lamarck*. Jena: Gustav Fischer.
- Halacy, D. 1970. *Charles Babbage: father of the computer*. New York: Crowell-Collier Press.
- Hale, M. 1677. *The primitive origination of mankind, considered and examined according to the light of nature written*. London: Printed by William Godbid.
- Hall, A.R. 1989. The Leeuwenhoek lecture, 1988. Antoni van Leeuwenhoek 1632-1723. *Notes and Records of the Royal Society of London*, 43 (2):249-273. <http://www.jstor.org/stable/531385> Date of access: 5 Feb 2016.
- Hall, D.W. 2008. A brief overview of the exegesis of Genesis 1-11: Luther to Lyell. In: Mortenson, T. & Ury T.H., eds. *Coming to grips with Genesis: biblical authority and the age of the earth*. Arizona: Master Books. pp. 53-78.
- Hall, E.F. & Brevoort, J.C. 1878. Gerard Mercator: his life and works. *Journal of the American Geographical Society of New York*, 10:163-196. <http://www.jstor.org/stable/196438>.
- Halley, E. 1714-1716. A short account of the cause of the saltness of the ocean, and of the several lakes that emit no rivers; with a proposal, by help thereof, to discover the age of the world. Produced before the Royal-Society by Edmund Halley, R. S. Secr. *Philosophical Transactions (1683-1775)*, 29:296-300. <http://www.jstor.org/stable/103060> Date of access: 15 July 21017.
- Halley, E. 1724-1725. Some considerations about the cause of the universal deluge, laid before the Royal Society, on the 12th of December 1694. By Dr. Edmond Halley, R. S. S. *Philosophical Transactions (1683-1775)*, 33:118-123. <http://www.jstor.org/stable/103752> Date of access: 15 July 2017.
- Halley, E. 1999. Ode on this splendid ornament of our time and our nation, the mathematico-physical treatise by the eminent Isaac Newton. In: Cohen, I.B. & Whitman A., eds. *The Principia: mathematical principles of natural philosophy*. Berkeley: University of California Press. pp. 379-380.
- Halyburton, T. 1798. *Natural religion insufficient; and revealed necessary to man's happiness in his present state*. Edinburgh: Montrose.
- Hamilton, V.P. 1990. *The book of Genesis: chapters 1-17*. Grand Rapids: William B. Eerdmans Publishing Company. (The New International Commentary on the Old Testament).
- Hamilton, W.T. 1852. *The "friend of Moses;" or a defence of the Pentateuch as the production of Moses and an inspired document, against the objections of modern skepticism*. New York: M.W. Dodd.
- Hammersley, R. 2010. *The English republican tradition and eighteenth-century France: between the ancients and the moderns*. Oxford: Oxford University Press. (Studies in Early Modern European History).
- Hannam, J. 2009. *God's philosophers: how the medieval world laid the foundations of modern science*. Retrieved Date of access.

- Hannam, J. 2011. *The genesis of science: how the Christian Middle Ages launched the Scientific Revolution*. Washington, DC: Regnery Publishing.
- Harcourt, W.V. 1839. Address of the president. In: Hervey, T.K., ed. *The Athenaeum: journal of literature, science, and the fine arts*. London: J. Francis. pp. 651-654.
- Harden, C.S. 2010. Translators introduction. In: Glerup, M., ed. *Commentaries on Genesis 1-3*. Illinois: InterVarsity Press. pp. 97-111. (Ancient Christian Texts: commentaries on Genesis 1-3).
- Harris, D.F. 1921. Anthony van Leeuwenhoek the first bacteriologist. *The Scientific Monthly*, 12 (2):150-160, Feb. <http://www.jstor.org/stable/6365> Date of access: 5 Feb 2016.
- Harrison, P. 2005. *'Religion' and the religions in the English Enlightenment*. Cambridge: Cambridge University Press.
- Harrison, P. 2006. The Bible and the emergence of modern science. *Science and Christian belief*, 18:115-132.
- Harrison, P. 2008. Religion, the Royal Society, and the rise of science. *Theology and Science*, 6 (3):255-271. <http://dx.doi.org/10.1080/14746700802206925> Date of access: 19 May 2016.
- Hartley, D. 1834. *Observations on man, his frame, his duty, and his expectations*. 6th ed. London: Printed for Thomas Tegg and Son.
- Harvey, W. *The works of William Harvey*. Translated by Willis, R. London: Printed for the Sydenham Society.
- Hasel, G. 1972. *Old Testament theology: basic issues in the current debate*. Grand Rapids: William B. Eerdmans Publishing Company.
- Häusser, L. 1874. *The period of the reformation: 1517 to 1648*. Translated by Sturge, G. New York: Robert Carter and Brothers.
- Hayward, C.T.R. 1995. Introduction. In: Hayward, C.T.R., ed. *Saint Jerome's Hebrew questions on Genesis*. Oxford: Clarendon Press. pp. 1-27. (Oxford Early Christian Studies).
- Haywood, A.G. 1866. Hugh Miller. *Scott's monthly magazine*, 1 (5):300-313, April.
- Hazen, W.A. 1997. *Inventions: everyday life*. California: Good Year Books.
- Hearne, T. 1915. *Remarks and collections of Thomas Hearne*. Vol. 10. Oxford: Clarendon Press.
- Hearne, T. 1921. *Remarks and collections of Thomas Hearne*. Vol. 11. Oxford: Clarendon Press.
- Heine, H. 2007. *On the history of religion and philosophy in Germany*. Translated by Pollack-Milgate, H. Cambridge: Cambridge University Press. (Cambridge texts in the history of philosophy).
- Heine, R.E. 1981. Introduction. In: Heine, R.E., ed. *Origen: homilies on Genesis and Exodus*. Washington, D.C.: The Catholic University of America Press. pp. 1-43. (The Fathers of the Church: a new translation).
- Henderson, T.F. 1910. Robert Hooke. In: 11th ed. Cambridge: Cambridge University Press. pp. 670-671.
- Henkin, L.J. 1963. *Darwinism in the English novel 1860-1910: the impact of evolution on Victorian fiction*. New York: Russell & Russell.
- Henry, H.A. 1864. *Discourses on the book of Genesis*. San Francisco: H.H. Bancroft and Company.
- Henry, M. 1994. *Matthew Henry's commentary on the whole Bible: new modern edition*. Vol. 1. Massachusetts: Hendrickson Publishers.
- Henry, M., Scott, T. & Doddridge, P. 1835. *The comprehensive commentary on the Holy Bible: Genesis-Judges*. Boston: Shattuck and Company.
- Henry, P. 1839. *An exposition, with practical observations upon the first eleven chapters of the book of Genesis*. London: James Nisbet and Co.
- Herbert, E. 1888. *The autobiography of Edward, Lord Herbert of Cherbury*. London: Walter Scott.
- Herbert, E. 1937. *De veritate*. Translated by Carré, M.H. Bristol: J.W. Arrowsmith Ltd.
- Herbert, D. 2004. *The faces of origins*. Ontario: D&I Herbert Publishing.
- Herbert, D. 2009. *Charles Darwin's religious views: from creationist to evolutionist*. Ontario: Joshua Press.
- Herbert, S. 1991. Charles Darwin as a prospective geological author. *The British Journal for the History of Science*, 24 (2):159-192. <https://www.jstor.org/stable/4027165> Date of access: 14 June 2022.
- Herd, V.A. 2008. *The theology of Isaac Newton*. Oklahoma: University of Oklahoma. (Thesis - PhD).
- Herder, J.G. 1803. *Outlines of a philosophy of the history of man*. Vol. 1. Translated by Churchill, T. 2nd ed. London: Luke Hanford.
- Herder, J.G. 1833a. *The spirit of Hebrew poetry*. Vol. 1. Translated by Marsh, J. Burlington: Edward Smith.
- Herder, J.G. 1833b. *The spirit of Hebrew poetry*. Vol. 2. Translated by Marsh, J. Burlington: Edward Smith.
- Herder, J.G. 2004. *Philosophical writings*. Translated by Forster, M.N. Cambridge: Cambridge University Press.

- Herder, J.G. 2015. *On world history: an anthology*. Translated by Menze, E.A. & Palma M. London and New York: Routledge.
- Herschel, J.F.W. 1830. *A preliminary discourse on the study of natural philosophy*. London: Printed for Longman, Rees, Orme, Brown & Green, etc.
- Herschel, J.F.W. 1833. *A treatise on astronomy*. London: Printed for Longman, Rees, Orme, Brown & Green, etc.
- Herschel, J.F.W. 1867. *Physical geography of the globe*. Edinburgh: Adam and Charles Black.
- Herschel, J.F.W. 1872. *Familiar lectures on scientific subjects*. New York: George Routledge & Sons.
- Herschel, W. 1912. Catalogue of 500 new nebula, nebulous stars, planetary nebulae, and clusters of stars; with remarks on the construction of the heavens. In: Dreyer, J.L.E., ed. *The scientific papers of Sir William Herschel*. Vol. 2. London: The Royal Society and the Royal Astronomical Society. pp. 199-237.
- Hewlett, J. 1812. *The Holy Bible, containing the Old and New Testament, and the Apocrypha, with critical, philological, and explanatory notes*. Vol. 1. London: Printed for Longman, Hurst, Rees, Orme, and Co.
- Hibbert, J. 1834. A brief sketch of the life and writings of Baron d'Holbach. London: James Watson. p. 15. (Bristol Selected Pamphlets).
- Hill, C. 1989. *A tinker and a poor man*. New York: Alfred A. Knopf.
- Hill, M. 1863. *Christ or Colenso?* London: Hamilton, Adams, and Co.
- Hill, R.C. 1999. Introduction. In: Hill, R.C., ed. *Saint John Chrysostom: homilies on Genesis 1-17*. Vol. 74. Washington, D.C.: The Catholic University of America Press. pp. 1-19. (The Fathers of the Church: a new translation).
- Hill, R.C. 2007. Introduction to Theodoret's life and works. In: Hill, R.C. & Petruccione J.F., eds. *Theodoret of Cyrus: the questions of the Octateuch*. Vol. 1. Washington, D.C.: The Catholic University of America Press. pp. xix-lv. (The library of Early Christianity).
- Hill, R.C. 2010. Translator's introduction. In: Glerup, M., ed. *Commentaries on Genesis 1-3*. Illinois: InterVarsity Press. pp. 5-22. (Ancient Christian Texts).
- Hill, R.C. 2016. Introduction. In: Hill, R.C., ed. *Didymus the Blind: commentary on Genesis*. Washington, D.C.: The Catholic University of America Press. pp. 3-22. (The Fathers of the Church: a new translation).
- Hillis, G.K. 2018. Introduction. In: Lunn, N.P. & Hillis G.K., eds. *St. Cyril of Alexandria: glaphyra on the Pentateuch, volume 1*. Washington, D.C.: The Catholic University of America Press. pp. 3-36. (The Fathers of the Church: a new translation).
- Hippolytus. 1888. *Part of the commentary of S. Hippolytus on Daniel*. Translated by Kennedy, J.H. Dublin: Hodges, Figgis & Co.
- Hirschfelder, J.M. 1863. *The Scriptures defended; being a reply to Bishop Colenso's book on the Pentateuch and the book of Joshua*. Toronto: Henry Rowsell.
- Hirschfelder, J.M. 1874. *The creation: being two lectures on the Mosaic account of the creation, as recorded in Genesis 1*. Toronto: Rowsell & Hutchison.
- Hirschfelder, J.M. 1885. *Biblical expositor and people's commentary: historical and critical commentary on the book of Genesis*. Vol. 2. Toronto: Roswell & Hutchison.
- Hitchcock, E. 1839a. The connection between geology and the Mosaic account of the creation. In: Clark, T., ed. *The students' cabinet library of useful tracts*. Vol. 4. Edinburgh: Thomas Clark. pp. 1-100.
- Hitchcock, E. 1839b. The historical and geological deluges compared. In: Clark, T., ed. *The students' cabinet library of useful tracts*. Vol. 4. Edinburgh: Thomas Clark. pp. 231-235.
- Hitchcock, E. 1851. *The religion of geology and its connected sciences*. Glasgow: William Collins.
- Hitchcock, E. 1855. *Elementary geology*. 25th ed. New York: Ivison & Phinney.
- Hitchens, C. 2006. *Thomas Paine's Rights of man: a biography*. New York: Atlantic Monthly Press.
- Hitchens, C. 2007. *God is not great*. New York: Warner Books, Inc.
- Hoare, W.H. 1860. *The veracity of the book of Genesis: with the life and character of the inspired historian*. London: Longman, Green, Longman, and Roberts.
- Hoare, W.H. 1863a. *Letter to Bishop Colenso, wherein his objections to the Pentateuch are examined in detail*. London: Rivingtons.
- Hoare, W.H. 1863b. *The age and authorship of the Pentateuch considered, in further reply to Bishop Colenso*. London: Rivingtons.
- Hobbes, T. 1929. *Hobbes's Leviathan*. Oxford: Clarendon Press.

- Hobbs, W.H. 1916. Foreword: the science of the prodromus of Nicolaus Steno. In: Winter, J.G., ed. *The prodromus of Nicolaus Steno's dissertation*. New York: The MacMillan Company. pp. 169-174.
- Hobson, E.W. 1914. *John Napier and the invention of logarithms, 1614*. Cambridge: University Press.
- Hoffecker, W.A. 2007. Enlightenments and awakenings: the beginnings of modern culture wars. In: Hoffecker, W.A., ed. *Revolutions in Worldview*. New Jersey: P&R Publishing Company. pp. 240-280.
- Hohenheim, T.v. 1929. *Sämtliche werke: medizinische naturwissenschaftliche und philosophische schriften*. Vol. 12. Munich and Berlin: R. Oldenbourg. (Sämtliche werke).
- d'Holbach, B. 1813. *Ecce homo!: a critical enquiry into the history of Jesus Christ; being a rational analysis of the gospels*. London: D.I. Eaton.
- d'Holbach, B. 1868. *The system of nature: or, laws of the moral and physical world*. Translated by Robinson, H.D. Boston: J.P. Mendum.
- d'Holbach, B. 1932a. V. From Baron d'Holbach: à Paris le 7 Juillet 1766. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 2. Oxford: Clarendon Press. pp. 409-411.
- d'Holbach, B. 1932b. XXV. From Baron d'Holbach. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 2. Oxford: Clarendon Press. pp. 439-440.
- Hooke, R. 1665. *Micrographia: or some physiological descriptions of minute bodies made by magnifying glasses with observations and inquiries thereupon*. London: Printed by J. Martyn and J. Allestry.
- Hooke, R. 1705. Lectures and discourses of earthquakes and subterraneous eruptions: explicating the causes of the rugged and uneven face of the earth; and what reasons may be given for the frequent finding of shells and other sea and land petrified substances scattered over the whole terrestrial superficies. In: Waller, R., ed. *The posthumous work of Dr. Robert Hooke*. London: Richard Waller. pp. 277-450.
- Hooker, J.D. 2002. From J.D. Hooker 30 December 1844. In: Pearn, A.M., Burkhardt F., Secord J.A. & Smith S., eds. *The correspondence of Charles Darwin: 1844-1846*. Cambridge: Cambridge University Press. pp. 101-105.
- Hopkinson, J. 1894. Anniversary address: Charles Darwin. *Transactions of the Hertfordshire Natural History Society and Field Club*, 7 (4):101-136, April.
- Horne, T.H. 1828. *An introduction to the critical study and knowledge of the Holy Scriptures*. Vol. 1. London: A. & R. Spottiswoode.
- Horsley, S. 1820. *Biblical criticism on the first fourteen historical books of the Old Testament; and also on the first nine prophetic books*. Vol. 1. Edinburgh: C. Stewart.
- Howorth, H.H. 1907. The origin and authority of the biblical canon according to the continental reformers: Luther and Karlstadt. *The Journal of Theological Studies*, 8 (31):321-365. <http://www.jstor.com/stable/23949115> Date of access: 12 October 2022.
- Hughes, G. 1672. *An analytical exposition of the whole first book of Moses, called Genesis, and of XXIII chap. of his second book, called Exodus*. S.I.: s.n.
- Hughes, M. 1992. Newton, Hermes and Berkeley. *The British Journal for the Philosophy of Science*, 43 (1):1-19, March. <http://www.jstor.com/stable/687882> Date of access: 2 September 2020.
- Humboldt, A.v. 1866a. *Cosmos: a sketch of a physical description of the universe*. Vol. 1. Translated by Otté, E.C. New York: Harper & Brothers.
- Humboldt, A.v. 1866b. *Cosmos: a sketch of a physical description of the universe*. Vol. 4. Translated by Otté, E.C. & Paul B.H. New York: Harper & Brothers.
- Hume, D. 1826. Essay XXI: of national characters. In: *The philosophical works of David Hume*. Vol. 3. Edinburgh: Printed for Adam Black and William Tait. pp. 224-244.
- Hume, D. 1912. *An enquiry concerning human understanding and selections from a treatise on human nature*. Chicago: Open Court Publishing Co.
- Hume, D. 1932a. 195. To the Comtesse de Boufflers: Edinburgh, 1 July, 1762. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 1. Oxford: The Clarendon Press. pp. 361-364.
- Hume, D. 1932b. 196. To Jean-Jacques Rousseau. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 1. Oxford: The Clarendon Press. pp. 364-365.
- Hume, D. 1932c. 351. To Anne-Robert-Jacques Turgot: London, late in September 1766. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 2. Oxford: Clarendon Press. pp. 88-95.
- Hume, D. 1932d. 431. To the Abbé Morellet: London, 10 July, 1769. In: Greig, J.Y.T., ed. *The letters of David Hume*. Vol. 2. Oxford: Clarendon Press. pp. 203-206.
- Hume, D. 1992. *Writings on religion*. Illinois: Open Court.

- Hunt, J. 1870. *Religious thought in England: from the reformation to the end of last century*. Vol. 1. London: Strahan & Co.
- Huntingford, E. 1891. *Popular misconceptions about the first eleven chapters of Genesis*. London: Bickers & Son.
- Huntley, W.B. 1972. David Hume and Charles Darwin. *Journal of the History of Ideas*, 33:457-470, 1972.
- Hutton, J. 1788. The theory of the earth, or an investigation of the laws observable in the composition, dissolution, and the restoration of land upon the globe. *Earth and Environmental Science Transactions of The Royal Society of Edinburgh*, 1 (2):209-304. <https://doi.org/10.1017/S0080456800029227> Date of access: 21 January 2020.
- Hutton, J. 1794a. *An investigation of the principles of knowledge, and of the progress of reason, from sense to science and philosophy*. Vol. 1. Edinburgh: Printed for A. Strahan and T. Cadell.
- Hutton, J. 1794b. *An investigation of the principles of knowledge, and of the progress of reason, from sense to science and philosophy*. Vol. 3. Edinburgh: Printed for A. Strahan and T. Cadell.
- Hutton, J. 1899. *Theory of the earth, with proofs and illustrations*. Vol. 3. London: Geological Society.
- Huxley, T.H. 1894. *Discourses: biological and geological essays*. New York: D. Appleton and Company. (Collected essays).
- Huxley, T.H. 1896. *Darwiniana: essays*. New York: D. Appleton and Company.
- Huxley, T.H. 1897. *Man's place in nature and other anthropological essays*. New York: D. Appleton and Company.
- Huxley, T.H. 1915. *Lay sermons, addresses, and reviews*. New York and London: D. Appleton and Company.
- Ibn Ezra, A. 1988. *Ibn Ezra's commentary on the Pentateuch: Genesis (Bereshit)*. Translated by Strickman, H.N. & Silver A.M. New York: Menorah Publishing Company.
- Ilany, O. 2018. *In search of the Hebrew people: Bible and nation in the German Enlightenment*. Indiana: Indiana University Press.
- Ingram, G.S. 1863. *Bishop Colenso answered by his own concessions and omissions*. London: William Freeman.
- International Council on Biblical Inerrancy (ICBI). 1982. The Chicago statement on biblical hermeneutics. *Journal of the Evangelical Theological Society*, 25 (4):397-401. http://www.etsjets.org/files/JETS-PDFs/25/25-4/25-4-pp397-401_JETS.pdf Date of access: 26 May 2017.
- Irenaeus. 1872. *Five books of Irenaeus, bishop of Lyons: against Heresies*. Translated by Keble, J. Oxford: James Parker and Co.
- Irving, W. 1828. *A history of the life and voyages of Christopher Columbus*. Vol. 1. New York: G & C Carvill.
- Israel, J.I. 2001. *Radical enlightenment: philosophy and the making of modernity 1650-1750*. New York: Oxford University Press.
- Israel, J.I. 2010. The early Dutch and German reaction to the *Tractatus Theologico-Politicus*: foreshadowing the Enlightenment's more general Spinoza reception? In: Melamed, Y.Y. & Rosenthal M.A., eds. *Spinoza's 'theological-political treatise': a critical guide*. Cambridge: Cambridge University Press. pp. 72-100.
- Israel, J.I. 2013. *Enlightenment contested: philosophy, modernity, and the emancipation of man 1670-1752*. Oxford: Oxford University Press.
- Ito, Y. 1988. Hooke's cyclic theory of the earth in the context of seventeenth century England. *The British Journal for the History of Science*, 21 (3):295-314, September. <http://www.jstor.org/stable/4026831> Date of access: 21 February 2017.
- Jackson, A. 1643. *A help for the understanding of the Holy Scripture*. London: Roger Daniel.
- Jackson, I. 2004. Celebrating the life and times of Hugh Miller: Scotland in the early 19th century. *Scottish Journal of Geology*, 40 (1):93-96. <http://sjg.lyellcollection.org/> Date of access: 9 September 2021.
- Jacob, F. 1973. *The logic of life: a history of heredity*. Translated by Spillmann, B.E. New York: Pantheon Books.
- Jacob, M.C. 1976. *The Newtonians and the English Revolution 1689-1720*. New York: Cornell University Press.
- Jacobus, M.W. 1866. *Notes, critical and explanatory, on the book of Genesis: from the covenant to the close*. Vol. 2. New York: Robert Carter & Brothers.
- Jacobus, M.W. 1867. *Notes, critical and explanatory, on the book of Genesis: from the creation to the covenant*. Vol. 1. New York: Robert Carter & Brothers.
- Jameson, R. 1815. Preface. In: Jameson, R., ed. *Essay on the theory of the earth*. Translated by Kerr, R. Edinburgh: Printed for William Blackwood. pp. v-ix.
- Jamieson, R. 1871. *A commentary, critical, experimental, and practical, on the Old and New Testaments: Genesis-Deuteronomy*. Vol. 1. Glasgow: William Collins, Sons, and Company.

- Jamieson, R. 1878. Genesis. In: Jamieson, R., Fausset A.R. & Brown D., eds. *A commentary, critical and explanatory, on the Old and New Testaments*. Vol. 1. Hartford: The S.S. Scranton Company. pp. 17-47.
- Janiak, A. 2015. The book of nature, the book of Scripture. *The New Atlantis*, 44:95-103, Winter. <http://www.jstor.org/stable/43551429> Date of access: 4 August 2017.
- Janosik, D.J. 2016. *John of Damascus: first apologist to the Muslims: the Trinity and Christian apologetics in the early Islamic period*. Oregon: Pickwick Publications.
- Jefferson, T. 1903a. *The writings of Thomas Jefferson*. Vol. 15. Washington, D.C.: The Thomas Jefferson Memorial Association.
- Jefferson, T. 1903b. *The writings of Thomas Jefferson*. Vol. 14. Washington, D.C.: The Thomas Jefferson Memorial Association.
- Jefferson, T. 1903c. *The writings of Thomas Jefferson*. Vol. 13. Washington, D.C.: The Thomas Jefferson Memorial Association.
- Jefferson, T. 1904. *The life and morals of Jesus of Nazareth*. Washington: Government Printing Office.
- Jennings, D. 1766. *An introduction to the use of the globes, and the orrery: also the application of astronomy to chronology*. London: Printed for J. Nourse, J. Oswald and J. Buckland.
- Jerome. 1892. Lives of illustrious men. In: Schaff, P. & Wace H., eds. *Theodoret, Jerome, Gennadius, Rufinus: historical writings, etc.: a select library of the Nicene and Post-Nicene fathers of the Christian Church*. Vol. 3. Translated by Richardson, E.C. New York: Christian Literature Company. pp. 359-384. (Nicene and Post-Nicene Fathers).
- Jerome. 1995. *Saint Jerome's Hebrew questions on Genesis*. Translated by Hayward, C.T.R. Oxford: Clarendon Press. (Oxford Early Christian Studies).
- Jerome. 1996. Heironymi Chronicon: a translation of Jerome's continuation of Eusebius' Chronicle from AD 327 to 379. In: Donalson, M.D., ed. *A translation of Jerome's Chronicon with historical commentary*. Translated by Donalson, M.D. New York: Edwin Mellen Press. pp. 39-57.
- Jerome. 1999. *On illustrious men*. Translated by Halton, T.P. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Jervis, J.J.-W. 1852. *Bereshit: Genesis elucidated*. London: Samuel Bagster and Sons.
- Jeske, J. 1986. Cotton Mather: physico-theologian. *Journal of the History of Ideas*, 47 (4):583-594, Oct-Dec. <http://www.jstor.org/stable/2709719> Date of access: 22 Feb 2016.
- Jewish Association for the Diffusion of Religious Knowledge. 1865. *A Jewish reply to Dr Colenso's criticism on the Pentateuch*. London: Trübner & Co.
- Johnson, E.A.J. 1931. Nehemiah Grew: a forgotten mercantilist. *The American Economic Review*, 21 (3):463-480, September. <http://www.jstor.org/stable/1811805> Date of access: 26 May 2016.
- Jolley, N. 1984. *Leibniz and Locke: a study of the new essays on human understanding*. New York: Clarendon Press.
- Jones, F.N. 2019. *The chronology of the Old Testament: a return to the basics*. 21st ed. Arizona: Master Books.
- Jones, J.C. 1897. *Primeval revelation: studies in Genesis I-VIII*. New York: American Tract Society.
- Jones, W.T. 1969. *A history of western philosophy: Kant to Wittgenstein and Sartre*. 2nd ed. New York: Harcourt, Brace & World, Inc.
- Jorink, E. & Miert, D.v. 2012. Introduction. The challenger: Isaac Vossius and the European world of learning. In: Jorink, E. & Miert D.V., eds. *Isaac Vossius (1618-1689), between science and scholarship*. Leiden: Brill. pp. 1-13. (Brill's studies in intellectual history).
- Jorink, E. 2008. "Horrible and blasphemous": Isaac La Peyrère, Isaac Vossius and the emergence of radical biblical criticism in the Dutch republic. In: Meer, J.M.V.D. & Mandelbrote S., eds. *Nature and Scripture in the Abrahamic religions: up to 1700*. Vol. 2. Leiden: Brill. pp. 429-450. (Brill's series in church history).
- Josephus. 1961. *Jewish antiquities, books I-IV*. Vol. 4. Translated by Thackeray, H.S.J. London: William Heinemann. (The Loeb Classical Library).
- Jukes, A. 1855. *The six days: or, the various stages of the work of God, being notes on Genesis 1*. London: William Yapp.
- Jukes, A. 1858. *The types of Genesis briefly considered as revealing the development of human nature*. London: Longman, Brown, Green, Longmans, and Roberts.
- Kalisch, M.M. 1858. *A historical and critical commentary on the Old Testament, with a new translation: Genesis*. London: Longman, Brown, Green, Longmans, and Roberts.
- Kamesar, A. 1993. *Jerome, Greek scholarship, and the Hebrew Bible*. Oxford: Clarendon Press.

- Kant, I. 1989. Conjectures on the beginning of human history. In: Reiss, H., ed. *Political writings*. Translated by Nisbet, H.B. Cambridge: Cambridge University Press. pp. 221-234.
- Kant, I. 1992. The only possible argument in support of a demonstration of the existence of God (1763). In: Walford, D. & Meerbote R., eds. *Theoretical philosophy, 1755-1770*. Translated by Walford, D. Cambridge: Cambridge University Press. pp. 107-201.
- Kant, I. 1998a. Religion within the boundaries of mere reason. In: Wood, A. & Giovanni G.D., eds. *Religion within the boundaries of mere reason and other writings*. Translated by Wood, A. & Giovanni G.D. Cambridge: Cambridge University Press. pp. 31-191.
- Kant, I. 1998b. "This fellow was quite black... a clear proof that what he said was stupid". In: Eze, E.C., ed. *Race and the Enlightenment: a reader*. Massachusetts: Blackwell Publishers Inc. pp. 38-64.
- Kant, I. 1998c. *Opus postumum*. Translated by Förster, E. & Rosen M. Cambridge: Cambridge University Press.
- Kant, I. 1999. An answer to the question: what is enlightenment? In: Gregor, M.J., ed. *Practical philosophy*. Translated by Gregor, M.J. Cambridge: Cambridge University Press. pp. 11-22.
- Kant, I. 2001a. The conflict of the faculties. In: Wood, A.W. & Giovanni G.D., eds. *Religion and rational theology*. Translated by Gregor, M.J. & Anchor R. Cambridge: Cambridge University Press. pp. 233-327.
- Kant, I. 2001b. Lectures on the philosophical doctrine of religion (1817). In: Wood, A.W. & Giovanni G.D., eds. *Religion and rational theology*. Translated by Wood, A.W. Cambridge: Cambridge University Press. pp. 335-451.
- Kant, I. 2002. Prolegomena to any future metaphysics that will be able to come forward as science In: Allison, H. & Heath P., eds. *Theoretical philosophy after 1781*. Translated by Hatfield, G. Cambridge: Cambridge University Press. pp. 29-169.
- Kant, I. 2007a. *Critique of pure reason*. Translated by Smith, N.K. 2nd ed. London: Palgrave Macmillan.
- Kant, I. 2007b. On the use of teleological principles in philosophy. In: Zöllner, G. & Loudon R.B., eds. *Anthropology, history, and education*. Translated by Zöllner, G. Cambridge: Cambridge University Press. pp. 195-218.
- Kant, I. 2007c. *Critique of judgement*. Translated by Meredith, J.C. Oxford: Oxford University Press.
- Kant, I. 2008. *Universal natural history and theory of the heavens or an essay on the constitution and the mechanical origin of the entire structure of the universe based on Newtonian principles*. Translated by Johnston, I. Arlington: Richer Resources Publications.
- Kant, I. 2012a. Universal natural history and theory of the heavens or essay on the constitution and the mechanical origin of the whole universe according to Newtonian principles. In: Watkins, E., ed. *Natural science*. Translated by Reinhardt, O. Cambridge: Cambridge University Press. pp. 182-308.
- Kant, I. 2012b. Physical geography. In: Watkins, E., ed. *Natural science*. Translated by Reinhardt, O. Cambridge: Cambridge University Press. pp. 434-679.
- Kant, I. 2015. *Critique of practical reason*. Cambridge: Cambridge University Press. (Cambridge texts in the history of philosophy).
- Kardel, T. & Maquet, P. 2018. Steno as bishop (1677–1686): summary of “Gustav Scherz, Niels Stensen, vol. 2”. In: Kardel, T. & Maquet P., eds. *Nicolaus Steno: biography and original papers of a 17th century scientist*. 2nd ed. Germany: Springer. pp. xlvii-xlix.
- Karrow, R.W. 2000. Commentary [on Gerardus Mercator]. In: *Gerardus Mercator: atlas sive cosmographica meditationes de fabrica mundi et fabricati figura*. Octavo, The Lessing J. Rosenwald Collection, Library of Congress. pp. 1-20.
- Katz, D.S. 1993. Isaac Vossius and the English biblical critics 1670-1689. In: Popkin, R.H. & Vanderjagt A., eds. *Scepticism and irreligion in the seventeenth and eighteenth centuries*. Vol. 37. Leiden: E. J. Brill. pp. 142-184. (Brill's Studies in Intellectual History).
- Kay, M. 2007. On literary theorists' approach to Genesis 1: part 1. *Journal of Creation*, 21 (2):71-76, August. <https://creation.com/article/5169/> Date of access: 30 January 2020.
- Kelly, J.N.D. 1995. *Golden mouth: the story of John Chrysostom - ascetic, preacher, bishop*. New York: Cornell University Press.
- Kelly, J.N.D. 2007. *Early Christian doctrines*. New York: Prince Press.
- Kemp, C. 2017. Dewey's Darwin and Darwin's Hume. *The Pluralist*, 12 (2):1-26. <https://www.jstor.org/stable/10.5406/pluralist.12.2.0001> Date of access: 10 May 2022.
- Kendall, C.B. 2008. Introduction. In: Kendall, C.B., ed. *Bede: on Genesis*. Liverpool: Liverpool University Press. pp. 1-61. (Translated texts for historians).

- Kennedy, A. 2008. Historical perspectives in the mind of Joseph Priestley. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 172-202.
- Kennicott, B. 1747. *Two dissertations: the first on the tree of life in paradise, with some observations on the creation and fall of man; the second on the oblations of Cain and Abel*. Oxford: Printed at the Theatre.
- Kepler, J. 1596. *Prodromus dissertationum cosmographicarum: continens mysterium cosmographicum, de admirabili proportione orbium coelestium, deque causis coelorum numeri, magnitudinis, motuumque periodicorum genuinis & proprijs ... addita est*. Georgius Gruppenbachius.
- Kepler, J. 1951. *Johannes Kepler: life and letters*. Translated by Baumgardt, C. New York: Philosophical Library.
- Kepler, J. 1981. *Mysterium cosmographicum: the secret of the universe*. Translated by Duncan, A.M. New York: Abaris Books. (Janus series).
- Kepler, J. 1997. *The harmony of the world*. Vol. 209. Translated by Aiton, E.J., Duncan A.M. & Field J.V. Philadelphia: American Philosophical Society.
- Kestemont, M., Karsdorp, F., de Bruijn, E., Driscoll, M., Kapitan, K.A., Ó Macháin, P., et al. 2022. Forgotten books: the application of unseen species models to the survival of culture. *Science*, 375 (6582):765-769. <https://www.science.org/doi/abs/10.1126/science.abl7655>.
- Keynes, J.M. 1978. Newton, the man. In: Johnson, E. & Moggridge D., eds. *The collected writings of John Maynard Keynes*. Cambridge: Royal Economic Society. pp. 363-374.
- Kidd, C. 2006. *The forging of races: race and Scripture in the protestant Atlantic world, 1600–2000*. Cambridge: Cambridge University Press.
- Kidd, J. 1833. *On the adaptation of external nature to the physical condition of man: principally with reference to the supply of his wants, and the exercise of his intellectual faculties*. Philadelphia: Carey, Lea & Blanchard. (The Bridgewater Treatises).
- Kidder, R. 1694. *A commentary on the five books of Moses: with a dissertation concerning the author or writer of the said books; and a general argument to each of them*. Vol. 1. London: J. Heptinstall.
- Kidner, D. 1967. *Genesis: an introduction and commentary*. England & Illinois: Inter-Varsity Press.
- Kilcullen, J. & Kukathas, C. 2005. Introduction. In: Kilcullen, J. & Kukathas C., eds. *A philosophical commentary on these words of the gospel, Luke 14.23, "Compel them to come in, that my house may be full"*. Indianapolis: Liberty Fund. pp. ix-xxii. (Natural law and enlightenment classics).
- Kiley, M.M. 1985. Thomas Paine: American founder and political scientist. *Biography*, 8 (1):51-67, Winter. <https://www.jstor.org/stable/23539022> Date of access: 16 March 2020.
- King, J. 1847. Translator's preface. In: King, J., ed. *Commentaries on the first book of Moses called Genesis*. Vol. 1. Edinburgh: Edinburgh Printing Company. pp. v-xix.
- King, L. 1858. *The life and letters of John Locke*. London: Henry G. Bohn.
- King, W. 1726. The battle royal: a ballad. In: Nichols, J., ed. *The original works of William King*. Vol. 1. London: Printed for the editor. pp. 221-222.
- King-Hele, D. 1968. *The essential writings of Erasmus Darwin*. London: MacGibbon & Kee.
- King-Hele, D. 1977. *Doctor of revolution: the life and genius of Erasmus Darwin*. London: Faber & Faber.
- King-Hele, D. 1988. Erasmus Darwin, man of ideas and inventor of words. *Notes and Records of the Royal Society of London*, 42 (2):149-180, July. <https://www.jstor.org/stable/531355> Date of access: 14 May 2022.
- Kipp, P.E. 1893. *Is Moses scientific? First chapter of Genesis tested by latest discoveries of science*. New York: Fleming H. Revell Company.
- Kirby, W. 1835. *On the power, wisdom and goodness of God as manifested in the creation of animals and in their history, habits and instincts*. Vol. 1. London: William Pickering. (The Bridgewater Treatises).
- Kirwan, R. 1978. *Geological essays*. New York: Arno Press. (History of geology).
- Kitto, J. 1855. *The pictorial Bible: being the Old and New Testaments*. Vol. 1. London: W. and R. Chambers.
- Klauber, M.I. 1993. Between protestant orthodoxy and rationalism: fundamental articles in the early career of Jean LeClerc. *Journal of the History of Ideas*, 54 (4):611-636, October. <http://www.jstor.org/stable/2709826> Date of access: 14 July 2017.
- Klaver, J.M.I. 1997. *Geology and religious sentiment: the effect of geological discoveries on English society and literature between 1829 and 1859*. Leiden: Brill. (Brill's studies in intellectual history).
- Klepper, D.C. 2007. *The insight of unbelievers: Nicholas of Lyra and Christian reading of Jewish text in the Later Middle Ages*. Philadelphia: University of Pennsylvania Press.

- Knobel, A. 1852. *Die Genesis*. Leipzig: Weidmann'sche Buchhandlung. (Kurzgefasstes exegetisches handbuch zum alten testament).
- Knox, E.M. 1907. *Bible lessons for schools: Genesis*. London: MacMillan and Co.
- Koestler, A. 1959. *The sleepwalkers: a history of man's changing vision of the universe*. New York: The Macmillan Company.
- Korab-Karpowicz, W.J. 2010. *A history of political philosophy: from Thucydides to Locke*. New York: Global Scholarly Publications.
- Kors, A.C. 1976. *D'Holbach's coterie: an enlightenment in Paris*. New Jersey: Princeton University Press.
- Kortholti, C. 1680. *De Tribus impostoribus magnis liber*. Kiloni: Literis et sumptibus J. Reumanni.
- Kozhamthadam, J. 2002. The religious foundations of Kepler's science. *Revista Portuguesa de Filosofia*, 58 (4):887-901. <http://www.jstor.org/stable/40337726>.
- Krause, E. 1879. *Erasmus Darwin*. Translated by Dallas, W.S. London: John Murray.
- Kreeft, P. 2009. *Socrates meets Kant: the father of philosophy meets his most influential modern child*. San Francisco: Ignatius Press.
- Kroner, R. 1948. The year 1800 in the development of German Idealism. *The Review of Metaphysics*, 1 (4):1-31, June. <https://www.jstor.org/stable/20123107> Date of access: 17 November 2022.
- Kuehn, C.A. & Baggarly, J.D. 2007. Introduction. In: Kuehn, C.A. & Baggarly J.D., eds. *Anastasius of Sinai: hexameron*. Roma: Pontificio Istituto Orientale. pp. xiii-lxxxii. (Orientalia Christiana Analecta).
- Kuehn, M. 2002. *Kant: a biography*. Cambridge: Cambridge University Press.
- Kuhn, T.S. 1996. *The structure of scientific revolutions*. Chicago: The University of Chicago Press.
- Kurtz, J.H. 1857. *The Bible and astronomy; an exposition of the biblical cosmology, and its relations to natural science*. Translated by Simonton, T.D. Lindsay & Blakiston.
- Kurtz, J.H. 1860. *Manual of sacred history: a guide to the understanding of the divine plan of salvation according to its historical development*. Translated by Schaeffer, C.F. 6th ed. Philadelphia: Lindsay & Blakiston.
- Kurtz, J.H. 1870. *History of the Old Covenant: the Bible and astronomy*. Vol. 1. Translated by Edersheim, A. 2nd ed. Edinburgh: T & T Clark. (Clark's foreign theological library).
- La Peyrère, I. 1655. *A theological system upon the presupposition, that men were before Adam the first part*. London: s.n.
- Lactantius. 2003. *Lactantius: divine institutes*. Translated by Bowen, A. & Garnsey P. Liverpool: Liverpool University Press. (Translated texts for historians).
- Lalande, J. 1803. Critical account of the life and writings of the author. In: Lande, J.D.L., ed. *Conversations on the plurality of worlds*. London: J. Cundee. pp. iii-ix.
- Lamarck, J.B. 1933. *The Lamarck manuscripts at Harvard*. Cambridge: Harvard University Press.
- Lamarck, J.B. 1963. *Zoological philosophy: an exposition with regard to the natural history of animals*. Translated by Elliot, H. New York and London: Hafner Publishing Company.
- Lamarck, J.B. 1964. *Hydrogeology*. Translated by Carozzi, A.V. Illinois: University of Illinois.
- Lambe, P.J. 1985. Biblical criticism and censorship in ancien régime France: the case of Richard Simon. *The Harvard Theological Review*, 78 (1/2):149-177. <http://www.jstor.org/stable/1509597> Date of access: 20 July 2017.
- Lamont, A. 1998. John Ray: founder of biology and devout Christian. *Creation*, 21 (1):51-53. <http://creation.com/john-ray-founder-of-biology-and-devout-christian> Date of access: 25 January 2016.
- Lane, E.W. 1860. *The genesis of the earth and of man: or the history of creation, and the antiquity and races of mankind considered on biblical and other grounds*. Edinburgh: Williams and Norgate.
- Lange, J.P. 1869. *Genesis, or the first book of Moses*. Translated by Lewis, T. & Gosman A. 4th ed. New York: Charles Scribner & Co. (A commentary on the Holy Scriptures: critical, doctrinal, and homiletical).
- Langford, J.J. 1992. *Galileo, science, and the church*. Michigan: University of Michigan Press.
- Laplace, P.-S. 1829. *Mécanique céleste*. Vol. 1. Translated by Bowditch, N. Boston: Isaac R. Butts.
- Laplace, P.-S. 1830a. *The system of the world*. Vol. 1. Translated by Harte, H.H. Dublin: The university press.
- Laplace, P.-S. 1830b. *The system of the world*. Vol. 2. Translated by Harte, H.H. Dublin: The university Press.
- Laplace, P.-S. 1834. *Mécanique céleste*. Vol. 3. Translated by Bowditch, N. Boston: Isaac R. Butts.
- Laplace, P.-S. 1995. *Philosophical essay on probabilities*. Translated by Dale, A.I. New York: Springer-Verlag. (Sources in the history of mathematics and physical sciences).
- Larson, E.J. 2004. *Evolution: the remarkable history of a scientific theory*. New York: Modern Library Edition.

- Le Clerc, J. 1690. *Five letters concerning the inspiration of the Holy Scriptures*. Translated by Locke, J. Oxford: Ann Arbor, MI.
- Le Clerc, J. 1696. *Twelve dissertations out of Le Clerc's Genesis*. Translated by Brown, T. London: R. Baldwin.
- Le Clerc, J. 1710. *Genesis sive Mosis propheta liber primus*. 2nd ed. Amsterdam: Apud Henricum Schelte.
- Le Clerc, J. 1979a. 1570. Jean Le Clerc to Locke, 25 November/5 December 1692 (1541, 1600). In: De Beer, E.S., ed. *The correspondence of John Locke: letters 1242-1701*. Vol. 4. Oxford: Oxford University Press. pp. 585-586.
- Le Clerc, J. 1979b. 1600. Jean Le Clerc to Locke, 7/17 February 1693 (1570, 1621). In: De Beer, E.S., ed. *The correspondence of John Locke: letters 1242-1701*. Vol. 4. Oxford: Oxford University Press. pp. 635-636.
- Le Clerc, J. 1979c. 1637. Jean Le Clerc to Locke, 6/16 June 1693 (1623, 1641). In: De Beer, E.S., ed. *The correspondence of John Locke: letters 1242-1701*. Vol. 4. Oxford: Oxford University Press. pp. 689-691.
- Le Clerc, J. 1987. Jean Le Clerc (Grenoble) a Philippus van Limborch (Amsterdam), 6 dicembre 1681. In: Sina, M. & Sina M.G., eds. *Epistolario: le corrispondenze letterarie, scientifiche ed erudite dal rinascimento all'età moderna*. Vol. 1. Florence: Leo S. Olschki.
- Lefanu, W.R. 1971. The versatile Nehemiah Grew. *Proceedings of the American Philosophical Society*, 115 (6):502-506. <http://www.jstor.org/stable/985843>.
- Leibniz, G.W. 2007. *Theodicy: essays on the goodness of God, the freedom of man and the origin of evil*. Translated by Huggard, E.M. South Carolina: BiblioBazaar.
- Leibniz, G.W. 2008. Leibniz to Abbé Claude Nicaise. In: Gerhardt, C.I., ed. *Die philosophischen schriften von Gottfried Wilhelm Leibniz*. Vol. 2. Translated by Strickland, L. Berlin: Weidmann. pp. 589-591.
- Leith, J.H. 1978. *Assembly at Westminster: Reformed theology in the making*. Atlanta: John Knox Press.
- Leithart, P.J. 2007. Medieval theology and the roots of modernity. In: Hoffecker, W.A., ed. *Revolutions in Worldview*. New Jersey: P&R Publishing Company. pp. 140-177.
- Leland, J. 1754. *A view of the principal deistical writers that have appeared in England in the last and present century; with observations upon them, and some account of the answers that have been published against them*. London: Printed for B. Dod.
- Letham, R. 1999. "In the space of six days": the days of creation from Origen to the Westminster Assembly. *Westminster Theological Journal*, 61:149-174.
- Leu, U.B. 2015. Swiss mountains and English scholars: Johann Jakob Scheuchzer's relations to the Royal Society. *Huntington Library Quarterly*, 78 (2):329-348, Summer. <https://www.jstor.org/stable/10.1525/hlq.2015.78.2.329> Date of access: 18 June 2021.
- Leveille, N.P. 2011. Copernicus, Galileo, and the Church: science in a religious world. *Inquiries Journal/Student Pulse*, 3 (5):1-2. <http://www.inquiriesjournal.com/a?id=1675> Date of access: 25 October 2019.
- Levitin, D. 2012. From sacred history to the history of religion: paganism, Judaism, and Christianity in European historiography from Reformation to 'Enlightenment'. *The Historical Journal*, 55 (4):1117-1160, December. <https://www.jstor.org/stable/23352193> Date of access: 6 July 2023.
- Lewis, C.S. 1955. *Surprised by joy: the shape of my early life*. New York: Harcourt, Brace & World.
- Lewis, E. 2001. Walter Charleton and early modern eclecticism. *Journal of the History of Ideas*, 62 (4):651-664, October. <http://www.jstor.org/stable/3654332> Date of access: 25 Feb 2016.
- Lewis, R. 2011. William Petty's anthropology: religion, colonialism, and the problem of human diversity. *Huntington Library Quarterly*, 74 (2):261-288, June. <http://www.jstor.org/stable/10.1525/hlq.2011.74.2.261> Date of access: 15 Feb 2016.
- Lightfoot, J. 1684. A chronicle of the times, and the order of the texts of the Old Testament. In: Bright, G., ed. *The works of the reverend and learned John Lightfoot D.D.* Vol. 1. London: W.R. pp. 1-147.
- Lincoln, B. 2002. Isaac Newton and Oriental Jones on myth, ancient history, and the relative prestige of peoples. *History of Religions*, 42 (1):1-18, August. <http://www.jstor.org/stable/3176382> Date of access: 6 October 2017.
- Lindberg, D.C. & Numbers, R.L. 1986. Beyond war and peace: a reappraisal of the encounter between Christianity and science. *Church History*, 55 (3):338-354, September. <https://www.jstor.org/stable/3166822> Date of access: 28 October 2019.
- Lindberg, D.C. & Numbers, R.L. 1986. Beyond war and peace: a reappraisal of the encounter between Christianity and science. *Church History*, 55 (3):338-354, September. <https://www.jstor.org/stable/3166822> Date of access: 12 March 2022.

- Linné, C. 1802. *A general system of nature, through the three grand kingdoms of animals, vegetables, and minerals, systematically divided into their several classes, orders, genera, species, and varieties, with their habitations, manners, economy, structure, and peculiarities*. Vol. 1. London: Printed for Lackington, Allen, and Co.
- Linné, C. 1806. *A general system of nature, through the three grand kingdoms of animals, vegetables, and minerals, systematically divided into their several classes, orders, genera, species, and varieties, with their habitations, manners, economy, structure, and peculiarities*. Vol. 7. London: Dewick & Clarke.
- Lints, R. 2007. The age of intellectual iconoclasm: the nineteenth century revolt against theism. In: Hoffecker, W.A., ed. *Revolutions in Worldview*. New Jersey: P&R Publishing Company. pp. 281-317.
- Lion, H. 1922. Essai sur les oeuvres politiques & morales du Baron d'Holbach (suite). *Annales révolutionnaires*, 14 (4):265-280, July-August. <https://www.jstor.org/stable/41921382> Date of access: 26 February 2019.
- Livingstone, D.N. 2008. *Adam's ancestors: race, religion, and the politics of human origins*. Baltimore: The John Hopkins University Press.
- Locke, J. 1812a. The reasonableness of Christianity, as delivered in the Scriptures. In: *The works of John Locke*. Vol. 7. 11th ed. London: Printed for W. Otridge. pp. 1-158.
- Locke, J. 1812b. A second vindication of the reasonableness of Christianity. In: *The works of John Locke*. Vol. 7. 11th ed. London: Printed for W. Otridge. pp. 191-424.
- Locke, J. 1821. *Two treatises of government*. London: Printed for Whitmore and Fenn.
- Locke, J. 1824. Some familiar letters between Mr. Locke and several of his friends: Mr Locke to Mr Molyneux, Oates, 22 Feb 1696-7. In: Knaller, G. & Dean T.A., eds. *The works of John Locke*. Vol. 8. 12th ed. London: C. and J. Rivington and Partners. pp. 395-400.
- Locke, J. 1836. *An essay concerning human understanding*. 27th ed. London: Printed for T. Tegg and Son.
- Lodwick, F. 2011. *On language, theology, and utopia*. Oxford: Oxford University Press.
- Lohr, C.H. 1997. The medieval interpretation of Aristotle. In: Kretzmann, N., Kenny A. & Pinborg J., eds. *The Cambridge history of later medieval philosophy*. Cambridge: Cambridge University Press. pp. 80-98.
- Lombard, P. 1971. *Sententiae in IV libris distinctae: liber I et II*. Vol. 1. Grottaferrata, Rome: Collegii S. Bonaventurae ad Claras Aquas.
- Lombard, P. 2011. *The sentences - book 2: on creation*. Translated by Silano, G. Toronto: Pontifical Institute of Mediaeval Studies. (Saint Michael's College Mediaeval Translations).
- Long, E. 1774. *The history of Jamaica*. Vol. 2. London: Printed for Lowndes.
- Long, J.E. 1905. *Natural theology and Genesis*. Ithaca: Gratiot County Herald.
- Longman III, T. 2013. *Old Testament survey*. 5th ed. Grand Rapids: Baker Academic.
- Lössl, J. 2019. Commentaries. In: Blowers, P.M. & Martens P.W., eds. *Early Christian biblical interpretation*. Oxford: Oxford University Press. pp. 171-186.
- Lovejoy, A.O. 2001. *The great chain of being: a study of the history of an idea*. Cambridge: Harvard University Press.
- Lowndes, W.T. 1834. *The bibliographer's manual of English literature*. Vol. 2. London: William Pickering.
- Luther, M. 1858. *The creation: a commentary on the first five chapters of Genesis*. Edinburgh: T. & T. Clark.
- Luther, M. 1915a. The papacy at Rome: an answer to the celebrated Romanist at Leipzig (1520). In: Jacobs, H.E., ed. *Works of Martin Luther*. Vol. 1. Philadelphia: A. J. Holman Company. pp. 337-394.
- Luther, M. 1915b. *Conversations with Luther*. Translated by Smith, P. & Gallinger H.P. New York: The Pilgrim Press.
- Luther, M. 1916. An open letter to the Christian nobility of the German nation concerning the reform of the Christian estate (1520). In: Jacobs, H.E., ed. *Works of Martin Luther*. Vol. 2. Philadelphia: A. J. Holman Company. pp. 55-164.
- Luther, M. 1958. *Lectures on Genesis: chapters 1-5*. Translated by Schick, G.V. Saint Louis: Concordia Publishing House. (Luther's works).
- Luther, M. 1960. *Lectures on Genesis: chapters 6-14*. Translated by Schick, G.V. Saint Louis: Concordia Publishing House. (Luther's works).
- Luther, M. 2006. Disputation against scholastic theology. In: Atkinson, J., ed. *Luther: early theological works*. Translated by Atkinson, J. Kentucky: Westminster John Knox Press. pp. 251-273. (The library of Christian classics).

- Lyell, C. 1827. [Review of] *Memoir on the geology of central France; including the volcanic formations of Auvergne, the Velay, and the Vivarais, with a volume of maps and plates*. By G.P. Scrope, FRS, FGS. *Quarterly Review*, 36 (82):437-483, October.
- Lyell, C. 1830. *Principles of geology, being an attempt to explain the former changes of the Earth's surface, by reference to causes now in operation*. Vol. 1. London: John Murray.
- Lyell, C. 1832. *Principles of geology, being an attempt to explain the former changes of the earth's surface, by reference to causes now in operation*. Vol. 2. London: John Murray.
- Lyell, C. 1833. *Principles of geology, being an attempt to explain the former changes of the earth's surface, by reference to causes now in operation*. Vol. 3. London: John Murray.
- Lyell, C. 1881. *Life, letters and journals of Sir Charles Lyell, Bart.* Vol. 1. London: John Murray.
- Lyttle, C. 1935. Lord Herbert of Cherbury, apostle of ethical theism. *Church History*, 4 (4):247-267.
<http://www.jstor.org/stable/3159995> Date of access: 24 May 2018.
- MacArthur, J. 2008. Foreword. In: Mortenson, T. & Ury T.H., eds. *Coming to grips with Genesis: biblical authority and the age of the earth*. Arizona: Master Books. pp. 9-13.
- Macaulay, T.B. 1953. *Macaulay's history of England: from the accession of James II*. Vol. 3. London: J.M. Dent & Sons.
- MacCulloch, J. 1831. *A system of geology, with a theory of the earth and an explanation of its connexion with the sacred records*. Vol. 1. London: Longman, Rees, Orme, Brown, etc.
- MacDonald, D. 1856. *Creation and the fall: a defence and exposition of the first three chapters of Genesis*. Edinburgh: Thomas Constable and Co.
- Macfarquhar, C. & Gleig G., eds. 1797. *Encyclopædia Britannica*. 3rd ed. Vol. 13. Edinburgh: A. Bell and C. Macfarquhar.
- Macfarquhar, C. & Tytler J., eds. 1778. Astronomy. In: *Encyclopædia Britannica; or, a dictionary of arts and sciences*. 2nd ed. Edinburgh: Printed for J. Balfour and Co. W. Gordon, etc.
- Mackintosh, C.H. 1863. *Notes on the book of Genesis*. Philadelphia: Henry Longstreth.
- Maclaurin, C. 1748. *An account of Sir Isaac Newton's philosophical discoveries in four books*. London: Patrick Murdoch.
- MacPherson, J. 1958. *The Westminster Confession of Faith*. Edinburgh: T & T Clark.
- Maddox, R.L. & Vickers, J.E. 2010. Introduction. In: Maddox, R.L. & Vickers J.E., eds. *The Cambridge companion to John Wesley*. Cambridge: Cambridge University Press. pp. 1-9.
- de Maillet, B. & Le Mascrier, J.B. 1750. *Telliamed: or, discourses between an Indian philosopher and a French missionary, on the diminution of the sea, the formation of the earth, the origin of men and animals*. London: Printed for T. Osborne.
- de Maillet, B. 1968. *Telliamed: or conversations between an Indian philosopher and a French missionary on the diminution of the sea*. Translated by Carozzi, A.V. Urbana, Chicago, London: University of Illinois Press.
- Maimonides, M. 1951. *The guide for the perplexed*. Translated by Friedlander, M. 2nd ed. London: Routledge & Kegan Paul.
- Maimonides, M. 2002. *The guide for the perplexed*. Translated by Friedländer, M. 2nd ed. Illinois: Varda Books.
- Mandelbrote, S. 1993. 'A duty of the greatest moment': Isaac Newton and the writing of biblical criticism. *The British Journal for the History of Science*, 26 (3):281-302, September.
<http://www.jstor.org/stable/4027399> Date of access: 4 August 2017.
- Mandelbrote, S. 2004. *Burnet, Thomas (c. 1635-1715)*. Vol. 8. Oxford: Oxford University Press. pp. 929-932.
- Mandelbrote, S. 2012. Isaac Vossius and the Septuagint. In: Jorink, E. & Miert D.V., eds. *Isaac Vossius (1618-1689), between science and scholarship*. Leiden: Brill. pp. 85-117. (Brill's studies in intellectual history).
- Manenschijn, G. & Vriend, J. 1997. "Jesus Is the Christ": the political theology of "Leviathan". *The Journal of Religious Ethics*, 25 (1):35-64, Spring. <http://www.jstor.org/stable/40018068> Date of access: 10 February 2018.
- Mann, J.H. 1863. *The Pentateuch and writings of Moses defended against the attacks of Dr Colenso*. London: James Nisbet & Co.
- Manschreck, C.L. 1965. Preface. In: Manschreck, C.L., ed. *Melanchthon on Christian doctrine: loci communes 1555*. Translated by Manschreck, C.L. New York: Oxford University Press. pp. vii-xxiv.
- Manuel, F.E. 1965. *The Enlightenment*. New Jersey: Prentice-Hall, Inc.

- Manuel, F.E. 1974. *The religion of Isaac Newton*. Oxford: Oxford University Press.
- Marsak, L.M. 1959. Bernard de Fontenelle: the idea of science in the French Enlightenment. *Transactions of the American Philosophical Society, New Series*, 49 (7):1-64. <https://www.jstor.org/stable/1005860>
Date of access: 17 June 2020.
- Marshall, P. 2017. *1517: Martin Luther and the invention of the Reformation*. Oxford: Oxford University Press.
- Martin, C.F.J. 1996. Introduction. In: Martin, C.F.J., ed. *Robert Grosseteste: on the six days of creation*. Oxford: Oxford University Press. pp. vii-ix.
- Martinich, A.P. 1999. *Hobbes: a biography*. Cambridge: Cambridge University Press.
- Martyr, J. 1948. *Writings of Saint Justin Martyr*. New York: Christian Heritage. (The Fathers of the Church).
- Marx, K. & Engels, F. 1908. *Manifesto of the communist party*. New York: New York Labor News Co.
- Le Mascrier, J.B. 1750. Preface. In: De Maillet, B. & Le Mascrier J.B., *Telliamed: or, discourses between an Indian philosopher and a French missionary, on the diminution of the sea, the formation of the earth, the origin of men and animals*. London: Printed for T. Osborne. pp. ix-xlv.
- Mason, L. 1915. *Genesis A: translated from the old English*. New York: Henry Holt and Company.
- Masson, I. 1927. *Three centuries of chemistry: phases in the growth of a science*. London: Ernest Benn.
- Mathews, E.G. 1994. General introduction. In: Mathews, E.H., Mcvey K. & Amar J.P., eds. *St. Ephrem the Syrian: selected prose works*. Washington, D.C.: The Catholic University of America Press. pp. 3-56. (The Fathers of the Church).
- Matteucci, M. 1970. *History of the motor car*. New York: Crown publishers.
- Matthews, K.A. 1996. *Genesis 1-11:26: an exegetical and theological exposition of Holy Scripture*. Vol. 1A. Nashville: Broadman & Holman Publishers. (New American Commentary).
- Maupertuis, P.L. 1768. *Système de la nature*. In: *Œuvres de Maupertuis*. Vol. 2. Lyon: Jean-Marie Bruyset. pp. 135-184.
- Mayr, E. 1972. The nature of the Darwinian revolution. *Science*, 176 (4038):981-989, June.
<http://www.jstor.org/stable/1734085> Date of access: 6 July 2017.
- Mayr, E. 1982. *The growth of biological thought: diversity, evolution, and inheritance*. Cambridge: Belknap Press of Harvard University Press.
- Mayr, E. 2000. Darwin's influence on modern thought. *Scientific American*, 283 (1):78-83, July.
<https://www.jstor.org/stable/26058792> Date of access: 10 August 2018.
- McBeth, H.L. 1987. *The Baptist heritage*. Nashville: Broadman Press.
- McCabe, J. 1920. *A biographical dictionary of modern rationalists*. London: Watts & Co.
- McCalla, A. 2006. *The creationist debate: the encounter between the Bible and the historical mind*. London: T & T Clark International.
- McCaul, A. 1864. *An examination of Bp Colenso's difficulties with regard to the Pentateuch*. London: Rivingtons.
- McGann, J.J. 1986. The idea of an indeterminate text: Blake's Bible of Hell and Dr. Alexander Geddes. *Studies in Romanticism*, 25 (3):303-324, Fall. <https://www.jstor.org/stable/25600606> Date of access: 2 July 2020.
- McIntosh, J.S. 1912. *A study of Augustine's versions of Genesis*. Chicago: The University of Chicago Press.
- McIntyre, D.B. 1999. James Hutton's Edinburgh: a précis. In: Craig, G.Y. & Hull J.H., eds. *James Hutton: present and future*. London: The Geological Society. pp. 1-12. (Geological Society Special Publications).
- McKee, D.R. 1944. Isaac de la Peyrère, a precursor of eighteenth-century critical deists. *PMLA*, 59 (2):456-485, June. <http://www.jstor.com/stable/459339> Date of access: 15 August 2023.
- McKeown, J. 2008. *Genesis*. Grand Rapids: William B. Eerdmans Publishing Company. (The Two Horizons Old Testament Commentary).
- McLynn, N.B. 1994. *Ambrose of Milan: church and court in a Christian capital*. Berkeley and Los Angeles: University of California Press.
- McMorris, N. 1989. *The natures of science*. London and Ontario: Associated University Press.
- McPhee, J. 1998. *Annals of the former world*. New York: Farrar, Straus and Giroux.
- Mellman, I. & Warren, G. 2000. The road taken: past and future foundations of membrane traffic. *Cell*, 100 (1):99-112, January. [https://doi.org/10.1016/S0092-8674\(00\)81687-6](https://doi.org/10.1016/S0092-8674(00)81687-6) Date of access: 8 June 2022.
- Mendham, J. 1840. *An index of prohibited books, by command of the present pope, Gregory XVI, in 1835; being the latest specimen of the literary policy of the Church of Rome*. London: Duncan and Malcolm.

- Mercator, G. 1592. *Evangelicae historiae quadripartita monas, sive harmonias quatuor evangelistarum: in qua singuli integri, in confusi, impermixti & soli legi possunt, & rursus ex omnibus una vniversalis & continua historia ex tempore formari*. Duysburgi Clivorum.
- Mercator, G. 2000. Atlas sive cosmographicae meditationes de fabrica mundi et fabricati figura In: Karrow, R.W., ed. *Gerardus Mercator: atlas sive cosmographicae meditationes de fabrica mundi et fabricati figura* Translated by Sullivan, D. Octavo, The Lessing J. Rosenwald Collection, Library of Congress. pp. 1-416.
- Meredith, A. 2003. *Gregory of Nyssa*. London and New York: Routledge. (The Early Church Fathers).
- Merriam, D.F. 1992. Linnaeus' 1734 Dalaresa and his geological observations. *Transactions of the Kansas Academy of Science*, 95 (3/4):211-223, October. <https://www.jstor.org/stable/3627927> Date of access: 1 July 2023.
- Merton, R.K. 1938. Science, technology and society in seventeenth century England. *Osiris*, 4:360-632. <http://www.jstor.org/stable/301533> Date of access: 22 June 2016.
- Meslier, J. 1864a. *Le testament de Jean Meslier*. Vol. 1. Amsterdam: A la Librairie étrangère, raison R.C. Meijer.
- Meslier, J. 1864b. *Le testament de Jean Meslier*. Vol. 2. Amsterdam: A la Librairie étrangère, raison R.C. Meijer.
- Meslier, J. 2018a. *A memoir: A.K.A. "The Testament" Jean Meslier 1729*. Vol. 4. Translated by Watson, K. s.l.: Kirk Watson.
- Meslier, J. 2018b. *A memoir: A.K.A. "The Testament" Jean Meslier 1729*. Translated by Watson, K. s.l.: Kirk Watson.
- Meyer, L. 2005. *Philosophy as the interpreter of Holy Scripture (1666)*. Translated by Shirley, S. Milwaukee: Marquette University Press.
- Miller, D.L. 2014. The indispensability of theories of myth for biblical studies: a response to Robert Segal. In: Callender, D.E., ed. *Myth and scripture: contemporary perspectives on religion, language, and imagination*. Atlanta: SBL Press. pp. 285-289.
- Miller, E.F. 2009. *The influence of Gesenius on Hebrew lexicography*. New Jersey: Gorgias press. (Analecta Gorgiana).
- Miller, H. 1849. *Foot-prints of the Creator: or, the asterolepis of stromness*. London: Johnstone and Hunter.
- Miller, H. 1857. *The testimony of the rocks; or, geology in its bearings on two theologies, natural and revealed*. Boston: Gould and Lincoln.
- Miller, H. 1864. *Edinburgh and its neighbourhood: geological and historical with the geology of the bass rock*. Edinburgh: Adam & Charles Black.
- Miller, H. 1873. *The headship of Christ and the rights of the Christian people*. 7th ed. Edinburgh: William P. Nimmo.
- Milner, J. 1694. *A defence of Arch-bishop Usher against Dr Cary and Dr Isaac Vossius, together with an introduction concerning the uncertainty of chronology*. Cambridge: Printed by J. Hayes for Benj. Tooke.
- Milner, T. 1857. *The gallery of nature; or wonders of the earth and the heavens*. Vol. 1. 3rd ed. Boston: Caleb Wright.
- Milton, J.R. 2011. Locke's publications in the bibliothèque universelle et historique. *British Journal for the History of Philosophy*, 19 (3):451-472, May. <http://nwulib.nwu.ac.za/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=60828118> Date of access: 2 August 2018.
- Mintz, S.I. 2010. *The hunting of Leviathan: seventeenth-century reactions to the materialism and moral philosophy of Thomas Hobbes*. Cambridge: Cambridge University Press.
- Mitchell, H.G. 1901. *The world before Abraham: according to Genesis I-XI with an introduction to the Pentateuch*. Boston and New York: Houghton, Mifflin and Company.
- Mitchell, H.G. 1909. *Genesis*. New York: The MacMillan Company. (The Bible for home and school).
- Mitchill, S.L. 1803. Introduction to the American edition. In: Darwin, E., *Zoonomia; or the laws of organic life*. Boston: D. Carlisle. pp. xv-xxix.
- Mitchill, S.L. 1826. *A discourse on the character and services of Thomas Jefferson, more especially as a promoter of natural and physical science*. New York: G. & C. Carvill.
- Molyneux, W. 1824. Some familiar letters between Mr Locke, and several of his friends: Mr Molyneux to Mr Locke, Dublin, Jan 5, 1696-7. In: Knaller, G. & Dean T.A., eds. *The works of John Locke*. Vol. 8. 12th ed. London: C. and J. Rivington and Partners. pp. 392-393.

- Monin, E. 1918. Appendix. In: Payne, W.H., ed. *Rousseau's Émile or treatise on education*. Translated by Payne, W.H. New York and London: D. Appleton and Company. p. 316. (International Education Series).
- Monro, S.K. & Crosbie, A.J. 1999. The dynamic earth project and the next millennium. In: Craig, G.Y. & Hull J.H., eds. *James Hutton: present and future*. London: The Geological Society. pp. 157-167. (Geological Society Special Publications).
- Moody, M.E. 1982. "A man of a thousand": the reputation and character of Henry Ainsworth, 1569/70-1622. *Huntington Library Quarterly*, 45 (3):200-214, Summer.
<https://www.jstor.org/stable/3817295> Date of access: 18 October 2022.
- Mook, J.R. 2008. The church fathers on Genesis, the flood, and the age of the earth. In: Mortenson, T. & Ury T.H., eds. *Coming to grips with Genesis: biblical authority and the age of the earth*. Arizona: Master Books. pp. 23-51.
- Moore, V.F. 1899. The psychology of Hobbes and its sources. *The American Journal of Psychology*, 11 (1):49-66, October. <http://www.jstor.org/stable/1412728> Date of access: 23 February 2018.
- Morgan, D.T. 2000. Benjamin Franklin: champion of generic religion. *The Historian*, 62 (4):723-729, Summer. <https://www.jstor.org/stable/24451268> Date of access: 23 January 2020.
- Morgenstern, J. 1919. *A Jewish interpretation of the book of Genesis*. Ohio: The Union of American Hebrew Congregations.
- Morley, H. 1869. *Palissy the potter: the life of Bernard Palissy, of Saintes*. London: Cassell, Petter, and Galpin.
- Morley, H. 1888. Introduction. In: *Essays on mankind and political arithmetic*. London: Cassell & Company. pp. 5-18.
- Morris, H.M. 2012. *Men of science, men of God: great scientists of the past who believed the Bible*. Arizona: Master Books.
- Morrow, J.L. 2011. "Leviathan" and the swallowing of Scripture: the politics behind Thomas Hobbes' early modern biblical criticism. *Christianity and Literature*, 61 (1):33-54, Autumn.
<http://www.jstor.org/stable/44315127> Date of access: 12 February 2018.
- Morrow, J.L. 2017. The acid of history: La Peyrère, Hobbes, Spinoza, and the separation of faith and reason in modern biblical studies. *The Heythrop Journal*, 58 (2):169-180, March.
<http://onlinelibrary.wiley.com/doi/10.1111/heyj.12278/full> Date of access: 9 March 2018.
- Mortenson, T. 2004. *The great turning point*. Arizona: Master Books.
- Mosshammer, A.A. 1979. *The Chronicle of Eusebius and Greek chronographic tradition*. Lewisburg: Bucknell University Press.
- Mossner, E.C. 2001. *The life of David Hume*. 2nd ed. Oxford: Clarendon Press.
- Mottelay, P.F. 1893. Biographical memoir. In: *On the loadstone and magnetic bodies, and on the great magnet the earth*. London: Bernard Quaritch. pp. ix-xxvii.
- Moulton, F.R. 1941. Robert Boyle, 1627-1691. *The Scientific Monthly*, 53 (4):380-382, October.
<http://www.jstor.org/stable/17643> Date of access: 20 January 2017.
- Moulton, R.G. 1898. *The modern reader's Bible: Genesis*. New York: The MacMillan Company.
- Mountfield, D. 1862. *Two hundred years ago: an account of the ejection of the Puritans from the church of England*. 2nd ed. London: Kent & Co.
- Mueller-Vollmer, K. 1990. Herder and the formation of an American national consciousness during the early republic. In: Mueller-Vollmer, K., ed. *Herder today: contributions from the international Herder conference, November 5-8, 1987, Stanford, California*. Berlin: Walter de Gruyter. pp. 415-430.
- Murchison, R.I. 1834. *Outline of the geology of the neighbourhood of Cheltenham*. Cheltenham: Henry Davies.
- Murchison, R.I. 1839. *The Silurian system, founded on geological researches*. London: John Murray.
- Murdin, P. 2008. *Full meridian of glory: perilous adventures in the competition to measure the earth*. New York: Springer Science & Business Media.
- Murphey, J. 1850. *Creation; or the Bible and geology consistent: together with the moral design of the Mosaic history*. New York: Robert Carter & Brothers.
- Murphy, J.G. 1873. *A critical and exegetical commentary on the book of Genesis*. Boston: Estes and Lauriat.
- Murphy, L.F. 1976. Prologue of Martin Luther to the Sentences of Peter Lombard (1509): the clash of philosophy and theology. *Archiv für Reformationsgeschichte*, 67:54-75.
<https://nwulib.nwu.ac.za/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=rft&AN=ATLA0000761410> Date of access: 18 July 2019.
- Muslow, M. 2011. Preface. In: Muslow, M., ed. *Between philology and radical enlightenment: Hermann Samuel Reimarus (1694-1768)*. Leiden: Brill. pp. vii-viii. (Brill's studies in intellectual history).

- Nadler, S. 2018. *Spinoza: a life*. Cambridge: Cambridge University Press.
- Nahkola, A. 2007. The memoirs of Moses and the genesis of method in biblical criticism: Astruc's contribution. In: Jarick, J., ed. *Sacred conjectures: the context and legacy of Robert Lowth and Jean Astruc*. New York: T & T Clark. pp. 204-219.
- Napier, J. 1593. *A plaine discovery of the whole revelation of Saint John*. Edinburgh: Robert Walde-grane.
- Napier, M. 1834. *Memoirs of John Napier of Merchiston: his lineage, life, and times, with a history of the invention of logarithms*. Edinburgh: William Blackwood.
- Nashe, T. 1883-1884. Pierce Penilesse his supplication to the diuell. In: Grosart, A.B., ed. *The complete works of Thomas Nashe*. Vol. 2. London: Printed by Hazell, Watson, and Viney. pp. 1-137.
- Needler, B. 1655. *Expository notes, with practical observations; towards the opening of the five first chapters of the first book of Moses called Genesis*. London: T.R. & E.M.
- Neeley, K.A. 2003. *Mary Somerville: science, illumination, and the female mind*. Cambridge: Cambridge University Press.
- Newman, J.R. 1954. Laplace. *Scientific American*, 190 (6):76-81, June.
<https://www.jstor.org/stable/10.2307/24943547> Date of access: 13 January 2020.
- Newton, B.W. 1864. *Remarks on "Mosaic cosmogony," being the fifth of the 'Essays and reviews'.* London: Houlston and Wright.
- Newton, I. 1687. *Philosophiæ naturalis principia mathematica*. 1st ed. London: Streater, Joseph.
- Newton, I. 1728. *The chronology of ancient kingdoms amended*. London: Printed for J. Tonson in the Strand, and J. Osborn and T. Longman in Pater-Noster Row.
- Newton, I. 1730. *Opticks: or a treatise of the reflections, refractions, inflections and colours of light*. 4th ed. London: Printed for William Innys.
- Newton, I. 1831. *Observations upon the prophecies of Daniel*. Translated by Borthwick, P. London: James Nisbet and T. Stevenson.
- Newton, I. 1846. *Newton's Principia: the mathematical principles of natural philosophy*. Translated by Motte, A. 1st American edition ed. New York: Daniel Adee.
- Newton, I. 1858. Letters from Sir Isaac Newton. In: King, L., ed. *The life and letters of John Locke*. London: Henry G. Bohn. pp. 217-229.
- Newton, I. 1999. *The principia: mathematical principles of natural philosophy*. Translated by Cohen, I.B. & Whitman A. Berkeley: University of California Press.
- Newton, I. 2001. Draft chapters of a treatise on the origin of religion and its corruption. Yahuda Ms. 41. early 1690s. Jerusalem: National Library of Israel. University of Sussex. p. 47. (The Newton Project). <http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00077> Date of access: 26 April 2016.
- Newton, I. 2002a. Seven statements on religion. Keynes Ms. 6. post-1710. Cambridge: King's College. p. 1. (The Newton Project).
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00006> Date of access: 7 April 2016.
- Newton, I. 2002b. Irenicum, or ecclesiastical polity tending to peace. Keynes Ms. 3. December. Cambridge: King's College. p. 40. (The Newton Project).
<http://www.newtonproject.ox.ac.uk/view/texts/normalized/THEM00003> Date of access: 5 August 2020.
- Newton, I. 2002c. Treatise on Revelation (Section 1). Yahuda Ms. 9.1. mid-late 1680s. Jerusalem: National Library of Israel. University of Sussex. p. 51. (The Newton Project).
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00216> Date of access: 29 April 2016.
- Newton, I. 2002d. The original of monarchies. Keynes Ms. 146. 1701-2. Cambridge: King's College. p. 30. (The Newton Project).
<http://www.newtonproject.ox.ac.uk/view/texts/normalized/THEM00040> Date of access: 2 September 2020.
- Newton, I. 2002e. A short schem of the true religion. Keynes Ms. 7. post-1710. Cambridge: King's College. p. 4. (The Newton Project).
<http://www.newtonproject.ox.ac.uk/view/texts/normalized/THEM00007> Date of access: 2 September 2020.
- Newton, I. 2006. *The third book of Opticks (1718)*. Retrieved Date of access,
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/NATP00051>.

- Newton, I. 2007. Original letter from Isaac Newton to Richard Bentley, dated 10 December 1692. 189.R.4.47, 4A-5. 10 December 1692. Cambridge: Trinity College Library. Cambridge University. (The Newton Project).
<http://www.newtonproject.ox.ac.uk/view/texts/normalized/THEM00254> Date of access: 5 October 2017.
- Newton, I. 2008. Correspondence with Thomas Burnet. Keynes Ms. 106. 13 January 1681. Cambridge: The Newton Project. King's College. pp. 8-12. (The Newton Project).
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00014> Date of access: 7 April 2016.
- Newton, I. 2012. Miscellaneous notes and extracts on the Temple, the Fathers, prophecy, Church history, doctrinal issues, etc. Yahuda Ms. 14. October. Jerusalem: National Library of Israel. University of Sussex. p. 220 ff. (The Newton Project).
<http://www.newtonproject.sussex.ac.uk/view/texts/normalized/THEM00057> Date of access: 26 April 2016.
- Newton, I. 2013. Of the Chronology of the first ages of the Greeks & Latines. Yahuda Ms. 26.2. post-1710. Jerusalem: National Library of Israel. p. 39. (The Newton Project).
<http://www.newtonproject.ox.ac.uk/view/texts/normalized/THEM00406> Date of access: 2 September 2020.
- Newton, I., Hall, A.R. & Hall, M.B. 1962. *Unpublished scientific papers of Isaac Newton: a selection from the Portsmouth Collection in the university library, Cambridge*. Translated by Hall, A.R. & Hall M.B. Cambridge: Cambridge University Press.
- Nisbet, E. 1881. *The science of the day and Genesis*. New York: W.B. Smith & Co.
- Noll, M. 2004. Lincoln's God. *The Journal of Presbyterian History* (1997-), 82 (2):77-88, Summer.
<https://www.jstor.org/stable/23336454> Date of access: 31 March 2020.
- Noll, M.A. 1997. Thomas Chalmers (1780-1847) in North America (Ca. 1830-1917). *Church History*, 66 (4):762-777, December. <https://www.jstor.org/stable/3169213> Date of access: 13 August 2021.
- Norlind, W. 1953. Copernicus and Luther: a critical study. *Isis*, 44 (3):273-276, 1953.
<https://www.jstor.org/stable/227094> Date of access: 18 October 2018.
- O'Connor, R. 2007. *The earth on show: fossils and the poetics of popular science, 1802-1856*. Chicago and London: The University of Chicago Press.
- Oden, T.C. 1987. *Classic pastoral care*. Vol. 4. Grand Rapids: Baker Books.
- Onfray, M. 2011. *In defence of Atheism: the case against Christianity, Judaism and Islam*. London: Profile Books.
- Orange, A.D. 1975. The idols of the theatre: the British Association and its early critics. *Annals of Science*, 32 (3):277-294. <http://dx.doi.org/10.1080/00033797500200291> Date of access: 21 September 2023.
- Origen. 1936. *Origen on first principles*. Translated by Butterworth, G.W. London: Society for promoting Christian knowledge.
- Origen. 1953. *Origen: contra Celsum*. Translated by Chadwick, H. Cambridge: Cambridge University Press.
- Origen. 1981. *Origen: homilies on Genesis and Exodus*. Translated by Heine, R.E. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church: a new translation).
- Orton, R. 2021. Introduction. In: Orton, R., ed. *St. Gregory of Nyssa: on the six days of creation*. Vol. 1. Washington, D.C.: The Catholic University of America Press. pp. 3-38. (The Fathers of the Church: shorter works).
- Osborn, E. 2003. *Irenaeus of Lyons*. Cambridge: Cambridge University Press.
- Osborn, E. 2008. *Clement of Alexandria*. Cambridge: Cambridge University Press.
- Osler, M.J. 1979. Descartes and Charleton on nature and God. *Journal of the History of Ideas*, 40 (3):445-456, July-September. <http://www.jstor.org/stable/2709247> Date of access: 25 Feb 2016.
- Ostlie, D.A. 2022. *Astronomy: the human quest for understanding*. Oxford: Oxford University Press.
- Packard, A.S. 1901. *Lamarck, the founder of evolution: his life and work*. New York, London and Bombay: Longmans, Green and Co.
- Packer, J.I. 1992. Infallible Scripture and the role of hermeneutics. In: Carson, D.A. & Woodbridge H.D., eds. *Scripture and truth*. Grand Rapids: Baker Academic. pp. 321-356.
- Page, J.R. 1863. *The pretensions of Bishop Colenso to impeach the wisdom and veracity of the compilers of the Holy Scriptures considered*. London: Rivingtons.
- Paine, M. 1872. *Physiology of the soul and instinct, as distinguished from materialism*. New York: Harper & Brothers.

- Paine, T. 1859. Miscellaneous letters and essays. In: Mendum, J.P., ed. *The theological works of Thomas Paine*. Boston: J.P. Mendum, Investigator Office. pp. 1-86.
- Paine, T. 1908a. *Life and writings of Thomas Paine*. Vol. 10. New York: Vincent Parke and Company.
- Paine, T. 1908b. *Life and writings of Thomas Paine*. Vol. 4. New York: Vincent Parke and Company.
- Paine, T. 1908c. *Life and writings of Thomas Paine*. Vol. 6. New York: Vincent Parke and Company.
- Paine, T. 1908d. *Life and writings of Thomas Paine*. Vol. 7. New York: Vincent Parke and Company.
- Paine, T. 1955. *Common sense*. New York: Barnes & Noble, Inc.
- Palin, D.A. 2000. Should Herbert of Cherbury be regarded as a 'deist'? *The Journal of Theological Studies*, 51 (1):113-149, April. <http://www.jstor.org/stable/23967742> Date of access: 21 March 2018.
- Palmer, E. 1794. *The examiners examined: being a defence of The age of reason*. New York: Printed for the author.
- Palmer, E. 1806. *Principles of nature; or, a development of the moral causes of happiness and misery among the human species*. 3rd ed. New York: Elihu Palmer.
- Palmer, E. 2011. From Elihu Palmer. In: Oberg, B.B., ed. *The papers of Thomas Jefferson: 1 July to 12 November 1802*. Princeton and Oxford: Princeton University Press. p. 333.
- Pangle, T.L. 1992. A critique of Hobbes's critique of biblical and natural religion in "Leviathan". *Jewish Political Studies Review*, 4 (2):25-57, Fall. <http://www.jstor.org/stable/25834240> Date of access: 14 February 2018.
- Parker, J. 1886. *The book of Genesis*. New York: Funk & Wagnalls. (The people's Bible: discourses upon Holy Scripture).
- Pascal, B. 1910. *Blaise Pascal*. Translated by Troiter, W.F., Booth M.L. & Wight O.W. New York: P. F. Collier & Son.
- Patrick, S. 1695. *A commentary upon the first book of Moses, called Genesis*. London: Rose and Crown.
- Patrick, S. 1846. *A commentary on the historical books of the Old Testament*. Vol. 1. Philadelphia: Carey and Hart. (A critical commentary and paraphrase on the Old and New Testament and the Apocrypha).
- Patrides, C.A. 1971. Raleigh and *The history of the world*: an introduction. In: Patrides, C.A., ed. *Sir Walter Raleigh: the history of the world*. London and Basingstoke: Palgrave Macmillan. pp. 1-39.
- Patterson, E.C. 1969. Mary Somerville. *The British Journal for the History of Science*, 4 (4):311-339, December. <https://www.jstor.org/stable/4025228> Date of access: 14 January 2020.
- Patterson, E.C. 1974. The case of Mary Somerville: an aspect of nineteenth-century science. *Proceedings of the American Philosophical Society*, 118 (3):269-275, June. <https://www.jstor.org/stable/986445> Date of access: 14 January 2020.
- Patton, W.M. 1916. *Israel's account of the Beginnings: contained in Genesis I-XI*. New York: The Pilgrim Press.
- Paul, W. 1852. *Analysis and critical interpretation of the Hebrew text of the book of Genesis*. Edinburgh and London: William Blackwood and Sons.
- Pearson, K. 1929. Laplace. *Biometrika*, 21 (1/4):202-216, December. <https://www.jstor.org/stable/2332557> Date of access: 13 January 2020.
- Pedersen, O. 1985, May 24-27. Galileo's religion. In: Coyne, G.V., Heller M. & Życiński J., redakteurs. The Galileo affair: A meeting of faith and science, Proceedings of the Cracow Conference, 24 to 27 May 1984 organised by Citta del Vaticano. Specola Vaticana.
- Pelikan, J. 1961. Cosmos and creation: science and theology in Reformation thought. *Proceedings of the American Philosophical Society*, 105 (5):464-469, 1961. <https://www.jstor.org/stable/985545> Date of access: 18 October 2018.
- Penn, G. 1822. *A comparative estimate of the mineral and Mosaical geologies*. London: J. Moyes.
- Perce, W.R. 1897. *Genesis and modern science*. New York: James Pott & Co.
- Persell, S.M. 1991. The revival of Buffon in the early third republic. *Biography*, 14 (1):12-24, Winter. <https://www.jstor.org/stable/23539905> Date of access: 3 December 2019.
- Petty, W. 1674. *The discourse made before the Royal Society the 26. of November, 1674, concerning the use of duplicate proportion in sundry important particulars together with a new hypothesis of springing or elastique motions*. London: Printed for Iohn Martyn.
- Petty, W. 1888. *Essays on mankind and political arithmetic*. London: Cassell & Company.
- Petty, W. 1899. Political arithmetick. In: Hull, C.H., ed. *The economic writings of Sir William Petty*. Cambridge: Cambridge University Press. pp. 233-313.
- Petty, W. ca. 1680. Of the scale of creatures. James Marshall and Marie-Louise Osborn Collection. Osborn fb135. Yale University: Yale University Library. Yale University Library. p. 24. (Beinecke Rare Book and Manuscript Library). <https://collections.library.yale.edu/catalog/2022775> Date of access: 26 October 2023.

- Pfizenmair, T.C. 1997. Was Isaac Newton an Arian? *Journal of the History of Ideas*, 58 (1):57-80, Jan. <http://www.jstor.org/stable/3653988> Date of access: 28 March 2016.
- Philo. 1953. *Questions and answers on Genesis*. Translated by Marcus, R. Cambridge, Massachusetts: Harvard University Press. (The Loeb Classical Library).
- Philo. 1981. Allegorical interpretation of Genesis II, III (legum allegoria). In: *Philo*. Vol. 1. Translated by Colson, F.H. & Whitaker G.H. Cambridge, Massachusetts: Harvard University Press. pp. 139-473. (The Loeb Classical Library).
- Philo. 2001. *On the creation of the cosmos according to Moses*. Vol. 1. Translated by Runia, D.T. Leiden: Brill. (Philo of Alexandria Commentary Series).
- Philp, M. 1998. Introduction. In: Philp, M., ed. *Rights of man; common sense; and other political writings*. Oxford: Oxford University Press. pp. vii-xxvii.
- Pike, S. 1815. *Philosophia sacra; or the principles of natural philosophy extracted from divine revelation*. Edinburgh: C. Stewart.
- Pink, A.W. 1922. *Gleanings in Genesis*. Chicago: Moody Press.
- Piper, J. 2006. *Contending for our all: defending truth and treasuring Christ in the lives of Athanasius, John Owen, and J. Gresham Machen*. Illinois: Crossway Books.
- Piper, J. 2017. *Reading the Bible supernaturally: seeing and savoring the glory of God in Scripture*. Wheaton: Crossway.
- Plato. 2008. *Timaus and Critias*. Translated by Waterfield, R. Oxford: Oxford University Press.
- Playfair, J. 1822a. *The works of John Playfair*. Vol. 1. Edinburgh: Printed for Archibald Constable & Co.
- Playfair, J. 1822b. *The works of John Playfair*. Vol. 2. Edinburgh: Printed for Archibald Constable & Co.
- Pogson Smith, W.G. 1929. The philosophy of Hobbes: an essay. In: *Hobbes's Leviathan: reprinted from the edition of 1651*. Oxford: Clarendon Press. pp. vii-xxxi.
- Poole, M. 1853. *Annotations upon the Holy Bible*. Vol. 1. New York: Robert Carter and Brothers.
- Poole, W. 2005. Francis Lodwick's creation: theology and natural philosophy in the early Royal Society. *Journal of the History of Ideas*, 66 (2):245-263, April. <http://www.jstor.org/stable/3654249> Date of access: 4 April 2017.
- Poole, W. 2006. The Genesis narrative in the circle of Robert Hooke and Francis Lodwick. In: Hessayon, A. & Keene N., eds. *Scripture and scholarship in early modern England*. Aldershot: Ashgate. pp. 41-57.
- Poole, W. 2012. Heterodoxy and sinology: Isaac Vossius, Robert Hooke, and the early Royal Society's use of sinology. In: Mortimer, S. & Robertson J., eds. *The intellectual consequences of religious heterodoxy 1600-1750*. Leiden: Brill. pp. 135-153. (Brill's studies in intellectual history).
- Popkin, R.H. 1953. The sceptical crisis and the rise of modern philosophy: II. *The Review of Metaphysics*, 7 (2):307-322, December. <http://www.jstor.org/stable/20123376> Date of access: 21 March 2018.
- Popkin, R.H. 1974. Bible criticism and social science. In: Cohen, R.S. & Wartofsky M.W., eds. *Methodological and historical essays in the natural and social sciences*. Dordrecht-Holland: D. Reidel Publishing Company. pp. 399-360. (Boston studies in the philosophy of science).
- Popkin, R.H. 1976. The pre-Adamite theory in the Renaissance. In: Mahoney, E.P., ed. *Philosophy and humanism: Renaissance essays in honor of Paul Oskar Kristeller*. Leiden: Brill Archive. pp. 50-69.
- Popkin, R.H. 1977. Spinoza and La Peyrère. *The Southwestern Journal of Philosophy*, 8 (3):177-195, Fall. <http://www.jstor.org/stable/43155191> Date of access: 7 April 2017.
- Popkin, R.H. 1978. Did Hume or Rousseau influence the other? *Revue Internationale de Philosophie*, 32 (124/125 (2/3)):297-308. <https://www.jstor.org/stable/23944047> Date of access: 26 October 2018.
- Popkin, R.H. 1987. *Isaac La Peyrère (1596-1676): his life, work, and influence*. Leiden: BRILL. (Brill's studies in intellectual history).
- Popkin, R.H. 2000. Newton, Spinoza and the biblical scholarship of the day. In: Osler, M.J., ed. *Rethinking the scientific revolution*. Cambridge: Cambridge University Press. pp. 297-311.
- Popkin, R.H. 2003. *The history of scepticism: from Savonarola to Bayle*. Oxford: Oxford University Press.
- Popper, K. 2005. *The open society and its enemies: Hegel and Marx*. London: Routledge.
- Porter, J.L. 1863. *Bishop Colenso on the Pentateuch*. Belfast: C. Aitchison.
- Posset, F. 2006. "Sola Scriptura" – Martin Luther's invention? Commemorating the 500th anniversary of the printed edition of the constitutions of the order of St. Augustine in Nuremberg in 1504-1506. *Augustiniana*, 56 (1/2):123-127. <http://www.jstor.org.nwulib.nwu.ac.za/stable/44992790> Date of access: 16 August 2019.

- Powell, B. 1860. On the study of the evidences of Christianity. In: Parker, J.W., ed. *Essays and reviews*. 2nd ed. London: John W. Parker and Son. pp. 94-144.
- Pratt, H.B. 1906. *Studies on the book of Genesis*. Translated by Pratt, H.B. Boston: American Tract Society.
- Preston, T. 1853. *Phraseological notes on the Hebrew text of the book of Genesis*. London: John W. Parker and Son.
- Priehard, J.C. 1813. *Researches into the physical history of man*. London: W. Phillips.
- Priehard, J.C. 1836. *Researches into the physical history of mankind*. Vol. 1. 3rd ed. London: Sherwood, Gilbert and Piper.
- Priestley, J. 1803. *Notes on all the books of Scripture for the use of the pulpit and private families*. Vol. 11. Northumberland: George Smallfield. (The theological and miscellaneous works, etc of Joseph Priestley).
- Priestley, J. 1818. *The theological and miscellaneous works of Joseph Priestley*. Vol. 3. Hackney: George Smallfield.
- Priestley, J. 1820. *The theological and miscellaneous works of Joseph Priestley*. Vol. 17. Hackney: George Smallfield.
- Priestley, J. 1821? Defences of Unitarianism, for the year 1787; containing letters to the Rev Dr Geddes. In: Rutt, J.T., ed. *The theological and miscellaneous works of Joseph Priestley*. Vol. 18. Hackney: G. Smallfield. pp. 425-445.
- Priestley, J. 1822a. *The theological and miscellaneous works of Joseph Priestley*. Vol. 7. Hackney: George Smallfield.
- Priestley, J. 1822b. *The theological and miscellaneous works of Joseph Priestley*. Vol. 21. Hackney: George Smallfield.
- Priestley, J. 1823. Appendix no. IV: letter to the Rev Mr Berington. In: Rutt, J.T., ed. *The theological and miscellaneous works of Joseph Priestley*. Vol. 22. Hackney: G. Smallfield. pp. 527-530.
- Priestley, J. 1832. *The theological and miscellaneous works of Joseph Priestley: life and correspondence (1787-1804)*. Vol. 1 (part 2). Hackney: George Smallfield.
- Priestman, M. 2016. *The poetry of Erasmus Darwin: enlightened spaces, romantic times*. London and New York: Routledge.
- Puknat, S.B. 1958. De Wette in New England. *Proceedings of the American Philosophical Society*, 102 (4):376-395, August. <https://www.jstor.org/stable/985222> Date of access: 19 November 2022.
- Purver, A. 1764. *A new and literal translation of all the books of the Old and New Testament; with notes, critical and explanatory*. Vol. 1. London: W. Richardson and S. Clark.
- Pye-Smith, J. 1839. *On the relation between the Holy Scriptures and some parts of geological science*. London: Jackson and Walford.
- Pye-Smith, J. 1855. *The relation between the Holy Scriptures and some parts of geological science*. 5th ed. London: Jackson and Walford.
- Quarry, J. 1866. *Genesis and its authorship: two dissertations*. London: Williams and Norgate.
- Rafinesque, S. 1838. *Genius and spirit of the Hebrew Bible*. Philadelphia: Printed for the Eleutherium of Knowledge and Central University of Illinois.
- Rainy, R. 1878. *The Bible and criticism: four lectures*. London: Hodder and Stoughton.
- Rajendran, C.P. 2009. Celebrating the book and the author: Charles Darwin and his times. *Current Science*, 96:854-856, 2009.
- Ralegh, W. 1820. *The history of the world*. Vol. 1. Edinburgh: Printed for Archibald Constable and Co.
- Ralegh, W. 1829. *The history of the world: book 1*. Oxford: Oxford University Press. (The works of Sir Walter Ralegh).
- Ramachandran, A. 2015. *The worldmakers: global imagining in early modern Europe*. Chicago: University of Chicago Press.
- Ramsay, F.P. 1911. *An interpretation of Genesis*. New York: The Neale Publishing Company.
- Ramsey, A. 1900. *Genesis and near science*. California: s.n.
- Rappaport, R. 1991. Fontenelle interprets the earth's history. *Revue d'histoire des sciences*, 44 (3/4):281-300, July-December. <https://www.jstor.org/stable/23632863> Date of access: 10 June 2020.
- Ray, J. 1673. *Observations topographical, moral, & physiological made in a journey through part of the low-countries, Germany, Italy, and France with a catalogue of plants not native of England, found spontaneously growing in those parts, and their virtues*. London: Printed for John Martyn.
- Ray, J. 1713. *Three physico-theological discourses*. London: Printed for William Innys.
- Ray, J. 1719. *A persuasive to a holy life: from the happiness which attends it both in this world, and in the world to come*. London: W. and J. Innys.
- Ray, J. 1743. *The wisdom of God manifested in the works of the creation*. London: W. Innys.

- Redpath, H.A. 1905. *Modern criticism and the book of Genesis*. London: Society for promoting Christian knowledge.
- Redwood, J.A. 1974. Charles Blount (1654-93), Deism, and English free thought. *Journal of the History of Ideas*, 35 (3):490-498, July-September. <https://www.jstor.org/stable/2708796> Date of access: 10 August 2018.
- Reed, J. 2008. St Hutton's hagiography. *Journal of Creation*, 22:121-127, 2008.
- Reed, J.A. 1873. The later life and religious sentiments of Abraham Lincoln. *Scribner's monthly: an illustrated magazine for the people*, 6 (1):333-343, May.
- Reed, N.T. 1934. *The philosophical background of Sir Walter Raleigh's history of the world*. Ann Arbor: Northwestern University. (Thesis - PhD).
- Rees, G. 2002. Reflections on the reputation of Francis Bacon's philosophy. *Huntington Library Quarterly*, 65 (3/4):379-394. <http://www.jstor.org/stable/3817980> Date of access: 21 November 2016.
- Reidy, M.S., Kroll, G. & Conway, E.M. 2007. *Exploration and science: social impact and interaction*. California: ABC-CLIO.
- Reimarus, H.S. 1879. *Fragments from Reimarus consisting of brief critical remarks on the object of Jesus and his disciples as seen in the New Testament*. Translated by Lessing, G.E. London and Edinburgh: Williams and Norgate.
- Rendell, E.D. 1852. *The antediluvian history, and narrative of the flood; as set forth in the early portions of the book of Genesis*. Boston: Otis Clapp.
- Repcheck, J. 2009. *The man who found time: James Hutton and the discovery of the earth's antiquity*. New York: Basic Books.
- Reventlow, H.G. 1985. *The authority of the Bible and the rise of the modern world*. Translated by Bowden, J. Philadelphia: Fortress Press.
- Richardson, J. 1655. *Choice observations and explanations upon the Old Testament containing in them many remarkable matters, either not taken notice of, or mistaken by most, which are additional to the large annotations made by some of the Assembly of Divines: to which are added some further and larger observations of his upon the whole book of Genesis*. London: T.R. and E.M.
- Rickey, V.F. 1987. Isaac Newton: man, myth, and mathematics. *The College Mathematics Journal*, 18 (5):362-389, November. <http://www.jstor.org/stable/2686962> Date of access: 26 April 2016.
- Ritchie, S. 2017. *The reformist ideas of Samuel Johnson*. Newcastle: Cambridge Scholars Publishing.
- Robbins, F.E. 1912. *The hexaemeral literature: a study of the Greek and Latin commentaries on Genesis*. Chicago: University of Chicago. (Thesis - PhD).
- Robertson, F.W. 1883. *Notes on Genesis*. London: Kegan Paul, Trench, & Co.
- Robinson, E. 1843. Biographical notices of Gesenius and Nordheimer. In: Robinson, E., ed. *Bibliotheca Sacra: or tracts and essays on topics connected with biblical literature and theology*. New York and London: Wiley and Putnam. pp. 361-390.
- Roger, J. 1997. *Buffon: a life in natural history*. Translated by Bonnefoi, S.L. Ithaca and London: Cornell University Press.
- Rogers, G.A.J. 2006. John Locke: conservative radical. In: Lund, R.D., ed. *The margins of orthodoxy: heterodox writing and cultural response, 1660-1750*. Cambridge: Cambridge University Press. pp. 97-116.
- Rogers, J.M. 2017. *Didymus the Blind and the Alexandrian Christian reception of Philo*. Atlanta: SBL Press. (Studia Philonica Monographs).
- Rogerson, J.W. 2007. Keil, Carl Friedrich (1807-1888), and Franz Delitzsch (1813-1890). In: Mckim, D.K., ed. *Dictionary of major biblical interpreters*. Illinois: InterVarsity Press. pp. 606-609.
- Rogow, A.A. 1986. *Thomas Hobbes: radical in the service of reaction*. New York: W. W. Norton & Company.
- Roper, R.C. 1944. Thomas Paine: scientist-religionist. *The Scientific Monthly*, 58 (2):101-111, February. <https://www.jstor.org/stable/18087> Date of access: 16 March 2020.
- Rosemann, P.W. 2004. *Peter Lombard*. Oxford: Oxford University Press.
- Rosen, E. 1951. Galileo and the telescope. *The Scientific Monthly*, 72 (3):180-182, March. <https://www.jstor.org/stable/20225> Date of access: 28 October 2019.
- Rosen, E. 1958. Galileo's misstatements about Copernicus. *Isis*, 49 (3):319-330, September. <http://www.jstor.org/stable/226939> Date of access: 29 September 2016.
- Rosenmüller, J.G. 1776. *Antiquissima telluris historia à Mose: Gen. I. descripta*. Ulm: Jo. Conradi Wohleri.
- Rosenthal, A. 1951. The history of calculus. *The American Mathematical Monthly*, 58 (2):75-86. <http://www.jstor.org/stable/2308368> Date of access: 25 January 2016.

- Ross, J.F. 2003. Thomas Aquinas, *summa theologiae* (ca. 1273): Christian wisdom explained philosophically In: Gracia, J.J.E., Gregory M. Reichberg & Schumacher B.N., eds. *The classics of western philosophy: a reader's guide*. Oxford: Blackwell Publishing. pp. 143-166.
- Rossi, P. 2001. *The birth of modern science*. Oxford: Wiley-Blackwell.
- Rousseau, J.-J. 1761. *A discourse upon the origin and foundation of the inequality among mankind*. London: Printed for R. and J. Dodsley, in Pallmall.
- Rousseau, J.-J. 1910. Profession of faith of a Savoyard vicar. In: Eliot, C.W., ed. *French and English philosophers: Descartes, Rousseau, Voltaire, Hobbes*. New York: P.F. Collier & Son. pp. 245-321.
- Rubinstein, E. 2012. Science academies in the 21st century: can they address the world's challenges in novel ways? *Treballs de la Societat Catalana de Biologia*, 63:387-400.
<https://revistes.iec.cat/index.php/TSCB/article/view/73746.001> Date of access: 22 September 2023.
- Rudavsky, T.M. 2010. *Maimonides*. Chichester: Wiley-Blackwell.
- Rudwick, M.J.S. 1963. The foundation of the Geological Society of London: its scheme for co-operative research and its struggle for independence. *The British Journal for the History of Science*, 1 (4):325-355, December. <http://www.jstor.org/stable/4024906> Date of access: 28 October 2016.
- Rudwick, M.J.S. 1976. Charles Lyell speaks in the lecture theatre. *The British Journal for the History of Science*, 9 (2, Lyell Centenary Issue: Papers Delivered at the Charles Lyell Centenary Symposium, London, 1975):147-155, July. <http://www.jstor.org/stable/4025802> Date of access: 6 July 2017.
- Rudwick, M.J.S. 1997. *Georges Cuvier, fossil bones, and geological catastrophes: new translations and interpretations of the primary texts*. Chicago: University of Chicago Press.
- Rudwick, M.J.S. 2005. *Bursting the limits of time: the reconstruction of geohistory in the age of revolution*. Chicago & London: The University of Chicago Press.
- Rufinus, T. 2016. *Rufinus of Aquileia: history of the church*. Translated by Amidon, P.R. Washington, D.C.: The Catholic University of America Press. (The Fathers of the Church).
- Rumford, G.B. 1992. *Thomas Scott's 'The force of truth': a diplomatic edition from the first and final editions with introduction and notes*. Ontario: Wilfrid Laurier University. (Thesis - MA).
- Runia, D.T. 1993. *Philo in early Christian literature: a survey*. Assen: Van Gorcum. (Compendia Rerum Iudaicarum ad Novum Testamentum, section III: Jewish traditions in early Christian literature).
- Runia, D.T. 2001. Commentary. In: Sterling, G.E., ed. *Philo of Alexandria: on the creation of the cosmos according to Moses*. Leiden: Brill. pp. 98-403.
- Rupke, N.A. 1983. *The great chain of history: William Buckland and the English school of geology (1814-1849)*. Oxford: Clarendon Press.
- Ruse, M. 1977. William Whewell and the argument from design. *The Monist*, 60 (2):244-268, April.
<https://www.jstor.org/stable/27902475> Date of access: 17 March 2022.
- Ruse, M. 1999. *The Darwinian Revolution: science red in tooth and claw*. Chicago: University of Chicago Press.
- Ruse, M. 2000. Saving Darwinism from the Darwinians. *National Post*: p. B1, B3, B7, 13 May.
- Ruse, M. 2006. *The evolution-creation struggle*. Massachusetts: Harvard University Press.
- Russell, B. 2008. *The history of western philosophy*. New York: Simon & Schuster, Inc.
- Ryle, H.E. 1912. *The early narratives of Genesis: a brief introduction to the study of Genesis I-XI*. London: MacMillan and Co.
- Sailhamer, J.H. 2011. *Genesis unbound: a provocative look at the creation account*. Colorado: Dawson Media.
- Sainte-Beuve, C.A. 1834. *Volupté*. Brussels: J.P. Meline.
- Salkeld, J. 1617. *A treatise of Paradise and the principall contents thereof*. London: Edward Griffin.
- Salmon, G. 1877. *Africanus, Julius*. Vol. 4. London: John Murray. pp. 53-57.
- Salmon, G. 1892. The commentary of Hippolytus on Daniel. *Hermathena*, 8 (18):161-190.
<https://www.jstor.org/stable/23036535> Date of access: 17 August 2022.
- Sander, K. 2002. Ernst Haeckel's ontogenetic recapitulation: irritation and incentive from 1866 to our time. *Annals of Anatomy - Anatomischer Anzeiger*, 184 (6):523-533, November.
<https://www.sciencedirect.com/science/article/pii/S0940960202800929>.
- Sanford, V. 1932. Blaise Pascal. Born at Clermont-Ferrand, June 17, 1623. Died in Paris, August 19, 1662. *The Mathematics Teacher*, 25 (4):229-231. <http://www.jstor.org/stable/27951437> Date of access: 4 Feb 2016.
- Savage, J.J. 1961. Introduction. In: Savage, J.J., ed. *Saint Ambrose: hexameron, paradise, and Cain and Abel*. Washington, D.C.: The Catholic University of America Press. pp. v-xi. (The Fathers of the Church: a new translation).

- Savile, B.W. 1863. *Bishop Colenso's objections to the veracity of the Pentateuch: an examination*. London: William Freeman.
- Scaliger, J.J. 1658. Canonum isagogicorum: chronologia. In: *Thesaurus temporum: Eusebii Pamphili Caesarea Palaestinae Episcopi, Chronicorum canonum omnimoda historiae libri duo*. Amstelodami: Joannem Janssonium. pp. 278-350.
- Schaeffer, F.A. 2007. *Escape from reason*. Illinois: InterVarsity Press.
- Schaff, D.S. 1910. *History of the Christian church: the Middle Ages*. Vol. 5. New York: Charles Scribner's Sons.
- Schaff, P. 1891. *History of the Christian church: Nicene and Post-Nicene Christianity*. Vol. 3. 3rd ed. New York: Charles Scribner's Sons.
- Schaper, J. 2013. The question of a 'biblical theology' and the growing tension between 'biblical theology' and a 'history of the religion of Israel': from Johann Philipp Gabler to Rudolf Smend, sen. In: Sæbø, M., ed. *Hebrew Bible / Old Testament: the history of its interpretation*. Vol. 3. Connecticut: Vandenhoeck & Ruprecht. pp. 625-650.
- Schodde, G.H. 1889. The targums. *The Old Testament Student*, 8 (7):262-266, March. <https://www.jstor.org/stable/3156531> Date of access: 18 October 2022.
- Schofield, R.E. 1966. The Lunar Society of Birmingham: a bicentenary appraisal. *Notes and Records of the Royal Society of London*, 21 (2):144-161, December. <https://www.jstor.org/stable/531065> Date of access: 14 May 2022.
- Schroeder, H.J. *Canons and decrees of the Council of Trent: original text with English translation*. St Louis & London: B. Herder Book Co.
- Schwartz, D.B. 2015. "Our Rabbi Baruch": Spinoza and radical Jewish Enlightenment. In: Joskowicz, A. & Katz E.B., eds. *Secularism in question*. Pennsylvania: University of Pennsylvania Press. pp. 25-47.
- Schweitzer, A. 1956. *The quest of the historical Jesus: a critical study of its progress from Reimarus to Wrede*. London: Adam & Charles Black.
- Scofield, R.E. 2004. *The enlightened Joseph Priestley: a study of his life and work from 1773 to 1804*. Pennsylvania: The Pennsylvania State University Press.
- Scott, J. 1753. *Notes and observations upon the first three chapters of Genesis*. London: Printed for the author.
- Scott, T. 1852. *The Holy Bible; containing the Old and New Testaments*. Vol. 1. London: Wertham and Macintosh.
- Scott, T., Henry, M. & Jenks, W. 1835. *The comprehensive commentary on the Holy Bible; containing the text according to the authorised version; Scott's marginal references; Matthew Henry's commentary, condensed, but retaining every useful thought; the practical observations of Rev. Thomas Scott, D.D. with extensive explanatory, critical, and philological notes, selected from Scott, Doddridge ... and many other writers on the Scriptures. The whole designed to be a digest ... of the best Bible commentaries*. Boston: Fessenden and Co.; Shattuck and Co.
- Scott, W.A. 1863. *Moses and the Pentateuch: a reply to Bishop Colenso*. London: William Freeman.
- Scrope, G.P. 1825. *Considerations on volcanos*. London: W. Phillips.
- Scrope, G.P. 1858. *The geology and extinct volcanos of central France*. London: John Murray.
- Scrope, G.P. 1862. *Volcanos: the character of their phenomena*. London: Longman, Green, Longmans, and Roberts.
- Secord, J.A. 2000. *Victorian sensation: the extraordinary publication, reception, and secret authorship of Vestiges of the natural history of creation*. Chicago and London: The University of Chicago Press.
- Sedgwick, A. 1825. On diluvial formations. *Annals of philosophy*, 10 (1):18-37, July.
- Sedgwick, A. 1830. Proceedings of the geological society. *The philosophical magazine, or annals of chemistry, mathematics, astronomy, natural history, and general science*, 7 (43):289-315, February.
- Sedgwick, A. 1831. Address to the Geological Society, delivered on the evening of the 18th of February 1831, by the Rev. Professor Sedgwick, M.A. F.R.S. &c. on retiring from the president's chair. *Proceedings of the geological society of London*, 1 (20):281-316, February.
- Sedgwick, A. 1835. *Discourse on the studies of the university*. 4th ed. Cambridge: John Smith.
- Sedgwick, A. 1845. Review of Vestiges of the natural history of creation. *The Edinburgh Review*, 82 (165):1-85, July.
- Sedgwick, A. 1890. *The life and letters of the Reverend Adam Sedgwick*. Vol. 2. Cambridge: Cambridge University Press.
- Sedgwick, A. 1860. Objections to Mr Darwin's theory of the origin of species. *The Spectator*, 33 (1656):285-286, March.

- Seeskin, K. 2005. Introduction. In: Seeskin, K., ed. *The Cambridge companion to Maimonides*. Cambridge: Cambridge University Press. pp. 1-9.
- Serjeantson, R.W. 2001. Herbert of Cherbury before deism: the early reception of the *de veritate*. *Seventeenth Century*, 16 (2):217-238.
<http://nwulib.nwu.ac.za/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=6078542> Date of access: 24 May 2018.
- Severian. 2010. Homilies on creation and fall. In: Glerup, M., ed. *Commentaries on Genesis 1-3*. Translated by Hill, R.C. Illinois: InterVarsity Press. pp. 23-94. (Ancient Christian Texts).
- Shapin, S. 1998. *The Scientific Revolution*. Chicago and London: The University of Chicago Press.
- Shapin, S. 2008. *The Scientific Revolution*. Chicago: University of Chicago Press.
- Shaw, W.A. 1897. *Salkeld, John*. Vol. 50. London: Smith, Elder & Co. pp. 201-202.
- Shelley, B. 1982. *Church history in plain language*. Texas: Word Books.
- Shields, C. 2007. *Aristotle*. London and New York: Routledge.
- Shipton, C.K. 1935. A plea for puritanism. *The American Historical Review*, 40 (3):460-467, April.
<http://www.jstor.org/stable/1838903> Date of access: 18 Feb 2016.
- Shuckford, S. 1753. *The creation and fall of man: a supplemental discourse to the preface of the first volume of the sacred and profane history of the world connected*. London: Printed for J. and R. Tonson and S. Draper.
- Sibley, A. 2014. Adam as the protoplast - views from the early church in response to the archetypal view. *Journal of Creation*, 28 (3):86-91. http://creation.com/images/pdfs/tj/j28_3/j28_3_86-91.pdf
 Date of access: 30 August 2022.
- Sibley, A. 2018. Deep time in 18th-century France - part 1: a developing belief. *Journal of Creation*, 32 (3):85-92, April. <https://creation.com/deep-time-in-18th-century-france-1> Date of access: 18 June 2020.
- Sibley, A. 2019. Orang-outang or *Homo sylvestris*: ape-men before Darwin. *Journal of Creation*, 33 (1):65-72.
https://dl0.creation.com/articles/p130/c13060/j33_2_65-72.pdf Date of access: 1 July 2023.
- Sibley, A. 2020. The French connection: western belief in 'deep time' first appeared in 17th and 18th century France. *Creation*, 42 (2):53-55, April. <https://creation.com/creation-magazine-422-contents> Date of access: 10 June 2020.
- Sibthorp, R.W. 1835. *The book of Genesis*. London: R.B. Seeley and W. Burnside.
- Siegfried, C. 1867. *Spinoza als kritiker und ausleger des Alten Testaments*. Naumburg: Heinrich Sieling.
- Silver, A.M. 1988. Preface. In: Silver, A.M. & Strickman H.N., eds. *Ibn Ezra's commentary on the Pentateuch: Genesis (Bereshit)*. New York: Menorah Publishing Company. pp. vii-ix.
- Sime, J. 1897. The drama of creation. *The Expositor*, 5 (6):309-320.
- Simon, R. 1682. *A critical history of the Old Testament*. London: Walter Davis.
- Simpson, D. 1808. *A plea for religion and the sacred writings*. 5th ed. London: Printed for W. Baynes.
- Skinner, J. 1910. *A critical and exegetical commentary on Genesis*. New York: Charles Scribner's Sons.
- Slavitt, D. 2012. Give way to God, or the dying Christ - Pierre de Fermat. *Mathematical Intelligencer*, 34 (2):3-5.
<http://nwulib.nwu.ac.za/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=76273667> Date of access: 25 January 2016.
- Sloane, H. 1739. Memoire sur les dents et autres ossemens de l'elephant, trouves dans terre. In: de Fontenelle, B., ed. *Histoire de l'academie royale des sciences: 1727*. Paris: De l'Imprimerie Royale. pp. 305-334.
- Slotkin, J.S. 1965. *Readings in early anthropology*. Vol. 9. New York: Routledge. (Theory of anthropology).
- Smellie, W., ed. 1771a. Astronomy. In: *Encyclopædia Britannica; or, a dictionary of arts and sciences*. 1st ed. Edinburgh: Printed for A. Bell and C. Macfarquhar. pp. 434-500.
- Smellie, W., ed. 1771b. Deluge. In: *Encyclopædia Britannica; or, a dictionary of arts and sciences*. 1st ed. Edinburgh: Printed for A. Bell and C. Macfarquhar. p. 414.
- Smend, R. 2007. Jean Astruc: a physician as a biblical scholar. In: Jarick, J., ed. *Sacred conjectures: the context and legacy of Robert Lowth and Jean Astruc*. New York: T & T Clark. pp. 157-173.
- Smith III, J.D. 1988. The pilgrimage of James Smith (1798-1871): Scottish infidel, southern evangelist, and Lincoln's Springfield pastor. *American Presbyterians*, 66 (3):147-156, Fall.
<https://www.jstor.org/stable/23330515> Date of access: 1 April 2020.
- Smith, A. 1811a. The history of astronomy. In: Black, J. & Hutton J., eds. *The works of Adam Smith, LL.D.* Vol. 5. London: Printed for T. Cadell and W. Davies. pp. 53-190.

- Smith, A. 1811b. Considerations concerning the first formation of languages, and the different genius of original and compounded languages. In: Black, J. & Hutton J., eds. *The works of Adam Smith*, LL.D. Vol. 5. London: Printed for T. Cadell and W. Davies. pp. 1-48.
- Smith, A. 1911. *The wealth of nations*. Vol. 3. New York: P.F. Collier & Son.
- Smith, A. 1987. *The correspondence of Adam Smith*. Indianapolis: LibertyClassics.
- Smith, C.F. 1896. *Richardson, John (1580-1654)*. Vol. 48. New York: Macmillan and Co. p. 228.
- Smith, G. 1876. *The Chaldean account of Genesis*. New York: Scribner, Armstrong & Co.
- Smith, G.H. 1979. *Atheism: the case against God*. New York: Prometheus Books.
- Smith, J. 1843. *The Christian's defence, containing a fair statement, and impartial examination of the leading objections urged by infidels against the antiquity, genuineness, credibility and inspiration of the Holy Scriptures*. Vol. 1. Cincinnati: J.A. Smith.
- Smith, J.E. 1846. The life of John Ray, M.A. F.R.S. In: Lankester, E., ed. *Memorials of John Ray*. London: Printed for the Ray Society. pp. 63-86.
- Smith, J.E. 1996. Thomas Paine and The age of reason's attack on the Bible. *The Historian*, 58 (4):745-761, Summer. <https://www.jstor.org/stable/24451908> Date of access: 30 March 2020.
- Smith, J.M.P. 1903. Heinrich Ewald and the Old Testament. *The Biblical World*, 22 (6):407-415, December. <https://www.jstor.org/stable/3140804> Date of access: 23 June 2023.
- Snobelen, S.D. & Stewart, L. 2003. Making Newton easy: William Whiston in Cambridge and London. In: Knox, K.C. & Noakes R., eds. *From Newton to Hawking: a history of Cambridge University's Lucasian professors of mathematics*. Cambridge: Cambridge University Press. pp. 135-170.
- Snobelen, S.D. 1999. Isaac Newton, heretic: the strategies of a Nicodemite. *The British Journal for the History of Science*, 32:381-419.
- Snobelen, S.D. 2004a. Isaac Newton and Apocalypse Now: a response to Tom Harpur's "Newton's strange bedfellows". Canada: University of King's College.
- Snobelen, S.D. 2004b. Lust, pride, and ambition: Isaac Newton and the devil. In: Force, J.E. & Hutton S., eds. *Newton and Newtonianism: new studies*. New York: Kluwer Academic Publishers. pp. 155-181.
- Snobelen, S.D. 2004c. *Whiston, William (1667-1752)*. Vol. 58. Oxford: Oxford University Press. pp. 502-506.
- Snobelen, S.D. 2008. "Not in the language of astronomers": Isaac Newton, the Scriptures, and the hermeneutics of accommodation. In: Meer, J.M.V.D. & Mandelbrote S.H., eds. *Interpreting nature and Scripture in the Abrahamic religions: history of a dialogue*. Vol. 1. Leiden: Brill. pp. 491-530.
- Snobelen, S.D. 2010. The theology of Isaac Newton's Principia Mathematica : a preliminary survey. *Neue Zeitschrift für Systematische Theologie Und Religionsphilosophie*, 52 (4):377-412. <https://isaacnewtonstheology.files.wordpress.com/2013/06/theology-of-the-principia.pdf> Date of access: 5 May 2016.
- Snyder, L.J. 2011. *The philosophical breakfast club: four remarkable friends who transformed science and changed the world*. New York: Broadway Paperbacks.
- Socrates. 1890. The ecclesiastical history of Socrates Scholasticus. In: Zenos, A.C., ed. *Socrates, Sozomenus: church histories*. New York: The Christian Literature Company. pp. 1-178. (A select library of Nicene and Post-Nicene Fathers of the Christian church).
- Somerville, M. 1831. *Mechanism of the heavens*. London: John Murray.
- Somerville, M. 1834. *On connexion of the physical sciences*. London: John Murray.
- Somerville, M. 1855. *Physical geography*. Philadelphia: Blanchard and Lea.
- Sozomen. 1846. *Ecclesiastical history: a history of the church in nine books, from A.D. 324 to A.D. 440*. London: Samuel Bagster and Sons.
- Spade, P.V. 2006. Ockham's nominalist metaphysics: some main themes. In: Spade, P.V., ed. *The Cambridge companion to Ockham*. Cambridge: Cambridge University Press. pp. 100-117.
- Spencer, H. 1891. *Essays: political, scientific, & speculative*. Vol. 1. London: Williams and Norgate.
- Spinoza, B. 1891a. A theologico-political treatise. In: *The chief works of Benedict de Spinoza*. Vol. 1. Translated by Elwes, R.H.M. Revised ed. London: George Bell and Sons. pp. 1-278.
- Spinoza, B. 1891b. The ethics. In: Elwes, R.H.M., ed. *The chief works of Benedict de Spinoza*. Vol. 2. Translated by Elwes, R.H.M. London: George Bell and Sons. pp. 43-271.
- Sprat, T. 1734. *The history of the Royal Society of London, for the improving of natural knowledge*. London: Printed for J. Knapton, J. Walthoe, etc.
- Spurgeon, C.H. 1856. *Sermons of the Rev. C. H. Spurgeon, of London*. New York: Sheldon, Blakeman and Company.

- Spurgeon, C.H. 1857. *Sermons of Rev. C.H. Spurgeon*. Vol. 2. New York: Funk & Wagnalls Company. (Memorial Library).
- Spurgeon, C.H. 1876. *Commenting and commentaries: lectures addressed to the students of the Pastor's College, Metropolitan Tabernacle*. New York: Sheldon & Company.
- Spurgeon, C.H. 1886. Hideous discovery: July 25th, 1886. In: *The Metropolitan Tabernacle Pulpit: sermons preached and revised by C.H. Spurgeon, during the year 1886*. Vol. 32. London: Passmore & Alabaster. pp. 397-408.
- Stachiewicz, W.M. 1972. Copernicus and his work: a biographical sketch. *The Polish Review*, 17 (4):62-81, Autumn. <http://www.jstor.org/stable/25777090> Date of access: 29 September 2016.
- Stackhouse, T. 1733. *A new history of the Holy Bible, from the beginning of the world to the establishment of Christianity*. Vol. 1. London: T. Payne.
- Stackhouse, T. 1795. *A new history of the Holy Bible, from the beginning of the world to the establishment of Christianity*. Vol. 1. Glasgow: Joseph Galbraith.
- Stark, R. 2003. *For the glory of God: how monotheism led to reformations, science, witch-hunts, and the end of slavery*. New Jersey: Princeton University Press.
- Stark, R. 2016. *Bearing false witness: debunking centuries of anti-Catholic history*. Pennsylvania: Templeton Press.
- Stearns, M.B. 1947. Protestant theology since 1700. *Bibliotheca Sacra*, 104 (416):188-226, October-December.
- Steenbakkers, P. 2010. Spinoza in the history of biblical scholarship. In: Bod, R., Maat J. & Weststeijn T., eds. *The making of the humanities: early modern Europe*. Vol. 1. Amsterdam: Amsterdam University Press. pp. 313-325.
- Steno, N. 1916. Translation of the *prodromus* with explanatory notes. In: Winter, J.G., ed. *The prodromus of Nicolaus Steno's dissertation*. Translated by Winter, J.G. New York: The MacMillan Company. pp. 205-277.
- Steno, N. 1969. *Geological papers*. Translated by Pollock, A.J. Denmark: Odense University Press.
- Stephen, J. 1863. *Bishop Colenso on the Pentateuch quoted and examined*. Aberdeen: Robert Walker.
- Stephen, L. 1886. Burnet, Thomas (1635?-1715). In: Stephen, L., ed. *Dictionary of national biography*. New York: MacMillan and Co. pp. 408-410.
- Sterling, G.E. 2001. General introduction. In: Sterling, G.E., ed. *Philo of Alexandria: on the creation of the cosmos according to Moses*. Vol. 1. Leiden: Brill. pp. ix-xiv.
- Stewart, D. & Minto, W. 1787. *An account of the life, writings, and inventions of John Napier of Merchiston*. Perth: R. Morison.
- Stillingfleet, E. 1709. *Origines sacrae: or, a rational account of the grounds of natural and reveal'd religion*. Vol. 2. 8th ed. London: Printed for Henry and George Mortlock.
- Stokley, J. 1964. Bright stars now prominent. *The Science News-Letter*, 85 (4):58-59, January. <https://www.jstor.org/stable/3947346> Date of access: 28 October 2019.
- Stone, J.L. 1863. *Reply to Bishop Colenso's attack upon the Pentateuch*. San Fransisco: Bell & Lampman.
- Storr, A. 1985. Isaac Newton. *British Medical Journal (Clinical Research Edition)*, 291 (6511):1779-1784, Dec 21-28. <http://www.jstor.org/stable/29521701> Date of access: 22 April 2016.
- Stott, R. 2012. *Darwin's ghosts: the secret history of evolution*. New York: Spiegel & Grau.
- Stott, R. 2013. *Darwin's ghosts: in search of the first evolutionists*. London: Bloomsbury.
- Strathmann, E.A. 1940. The "history of the world" and Raleigh's skepticism. *Huntington Library Quarterly*, 3 (3):265-287, April. <http://www.jstor.org/stable/3816047> Date of access: 26 July 2018.
- Strauss, E. 1975. Sir William Petty. *British Medical Journal*, 1 (5948):30-32, Jan 4. <http://www.jstor.org/stable/20471579> Date of access: 15 Feb 2016.
- Strickland, L. 2011. Taking Scripture seriously: Leibniz and the Jehoshaphat problem. *The Heythrop Journal*, 52 (1):40-51. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2265.2010.00613.x> Date of access: 11 December 2020.
- Stuermann, W.E. 1960-1961. Benedict Spinoza: a pioneer in biblical criticism. *Proceedings of the American Academy for Jewish Research*, 29:133-179. <http://www.jstor.org/stable/3622488> Date of access: 20 July 2017.
- Stukeley, W. 2004. Revised memoir of Newton. MS/142. c. 1752. London: The Newton Project. Royal Society Library. p. 80. (The Newton Project). <http://www.newtonproject.sussex.ac.uk/view/texts/normalized/OTHE00001> Date of access: 12 April 2016.

- Stump, E. 2001. Introduction. In: Stump, E. & Kretzmann N., eds. *The Cambridge companion to Augustine*. Cambridge: Cambridge University Press. pp. 1-7.
- Suess, E. 1904. *The face of the earth (Das antlitz der Erde)*. Vol. 1. Translated by Sollas, H.B.C. Oxford: Clarendon Press.
- Sutcliffe, E.F. 1935. The Venerable Bede's knowledge of Hebrew. *Biblica*, 16 (3):300-306.
<https://www.jstor.org/stable/42617594> Date of access: 8 July 2019.
- Sutton, C.W. 1899. *Walker, George (1581?-1651)*. Vol. 59. London: Smith, Elder & Co. pp. 53-54.
- Sutton, M. 2017. *Nullius in verba: Darwin's greatest secret*. Vol. 1. USA: Thinker Books of Thinker Media.
- Sutton, M. 2022. *Science fraud: Darwin's plagiarism of Patrick Matthew's theory*. Great Yarmouth: Curtis Press.
- Sviták, I. 1976. *Baron d'Holbach, philosopher of common sense*. Translated by Veltrusky, J. California: California State University.
- Tanzella-Nitti, G. 2005. The two books prior to the scientific revolution. *Perspectives on Science and Christian Faith*, 57 (3):235-248, September. <http://www.asa3.org/ASA/PSCF/2005/PSCF9-05Tanzella-Nitti.pdf> Date of access: 27 October 2016.
- Taylor, H. 1836. *An attempt to form a system of the creation of our globe, of the planets, and the sun of our system*. Toronto: W.J. Coates.
- Taylor, H. 1840. *An attempt to form a system of the creation of our globe, of the planets, and the sun of our system*. 2nd ed. Quebec: W. Cowan & Son.
- Taylor, N. 1698. *A preservative against Deism, shewing the great advantage of revelation above reason, in the two great points, pardon of sin, and a future state of happiness*. London: Printed for John Lawrence.
- Temple, F. 1860. The education of the world. In: Parker, J.W., ed. *Essays and reviews*. 2nd ed. London: John W. Parker and Son. pp. 1-49.
- Tertullian. 1868. *The five books of Quintus Sept. Flor. Tertullianus against Marcion*. Translated by Holmes, P. Edinburgh: T. & T. Clark. (Ante-Nicene Christian Library: translation of the writings of the fathers down to A.D. 325).
- Tertullian. 1885a. On the pallium. In: Coxe, A.C., ed. *Tertullian, part fourth; Minucius Felix; Commodian; Origen, parts first and second*. Translated by Thelwall, S. Buffalo: The Christian Literature Publishing Company. pp. 5-12. (The Ante-Nicene fathers: translations of the writings of the fathers down to A.D. 325).
- Tertullian. 1885b. On the apparel of women. In: Coxe, A.C., ed. *Tertullian, part fourth; Minucius Felix; Commodian; Origen, parts first and second*. Translated by Thelwall, S. Buffalo: The Christian Literature Publishing Company. pp. 14-25. (The Ante-Nicene fathers: translations of the writings of the fathers down to A.D. 325).
- Tertullian. 1885c. On monogamy. In: Coxe, A.C., ed. *Tertullian, part fourth; Minucius Felix; Commodian; Origen, parts first and second*. Buffalo: The Christian Literature Publishing Company. pp. 59-72. (The Ante-Nicene fathers: translations of the writings of the fathers down to A.D. 325).
- Tertullian. 1920. *Tertullian against Praxeas*. Translated by Souter, A. London: Society for Promoting Christian Knowledge. (Translations of Christian literature: series II).
- Tertullian. 1956. *The treatise against Hermogenes*. Vol. 24. Translated by Waszink, J.H. Westminster: The Newman Press. (The works of the fathers in translation).
- Tertullian. 2004. Against the Jews (Aduersus Iudaeos). In: Dunn, G.D., ed. *Tertullian*. Translated by Dunn, G.D. London and New York: Routledge. pp. 43-73.
- Tertullian. 2008a. Apology. In: Arbesmann, R., ed. *Tertullian, apologetic works and Minucius Felix, Octavius*. Vol. 10. Translated by Arbesmann, R., Daly E.J. & Quain E.A. Washington, D.C.: The Catholic University of America Press. pp. 7-126. (Fathers of the Church: a new translation).
- Tertullian. 2008b. The testimony of the soul. In: Arbesmann, R., ed. *Tertullian, apologetic works and Minucius Felix, Octavius*. Vol. 10. Translated by Arbesmann, R., Daly E.J. & Quain E.A. Washington, D.C.: The Catholic University of America Press. pp. 127-143. (Fathers of the Church: a new translation).
- Thackeray, H.S.J. 1961. Introduction. In: Page, T.E., ed. *Josephus: Jewish antiquities, books I-IV*. Vol. 4. London: William Heinemann. pp. vii-xix.
- Theodoret. 2007. *Theodoret of Cyrus: the questions on the Octateuch*. Translated by Hill, R.C. Washington, D.C.: The Catholic University of America Press. (The library of Early Christianity).
- Theophilus. 1970. *Theophilus of Antioch: ad Autolycom*. Translated by Grant, R.M. Oxford: Clarendon Press.
- Thomas, W.H.G. 1909. *Genesis I-XXV: a devotional commentary*. London: The Religious Tract Society.

- Thompson, J.P. 1870. *Man in Genesis an in geology: or, the biblical account of man's creation tested by scientific theories of his origin and antiquity*. New York: Samuel R. Wells.
- Thomson, K.S. 2003. Marginalia: Hooke, Fossils and the Anti-Evolutionists. *American Scientist*, 91 (3):210-212, May-June. <http://www.jstor.org/stable/27858206> Date of access: 14 February 2017.
- Thomson, T. 1812. *History of the Royal Society, from its institution to the end of the eighteenth century*. London: Printed for Robert Baldwin.
- Tilly, F. 1900. Locke's relation to Descartes. *The Philosophical Review*, 9 (6):597-612, November. <http://www.jstor.org/stable/2176997> Date of access: 13 July 2023.
- Tiner, J.H. & Biel, B. 1975. *Isaac Newton: inventor, scientist, and teacher*. Mott Media.
- Tomaszewska, A. 2016. Kant's reconception of religion and contemporary secularism. *Roczniki Filozoficzne / Annales de Philosophie / Annals of Philosophy*, 64 (4):125-148. <https://www.jstor.org/stable/90000079> Date of access: 3 December 2020.
- Topham, J. 1992. Science and popular education in the 1830s: the role of the "Bridgewater Treatises". *The British Journal for the History of Science*, 25 (4):397-430, December. <https://www.jstor.org/stable/4027047> Date of access: 30 July 2021.
- Torrey, N.L. 1927. Bolingbroke and Voltaire: a fictitious influence. *PMLA*, 42 (3):788-797, September. <https://www.jstor.org/stable/457405> Date of access: 12 March 2020.
- Torrey, N.L. 1935. Voltaire's reaction to Diderot. *PMLA*, 50 (4):1107-1143, December. <https://www.jstor.org/stable/458111> Date of access: 4 April 2019.
- Toulmin, S.E. & Goodfield, J. 1965. *The discovery of time*. Chicago: University of Chicago Press.
- Translated by Sandler, L. Manchester: Clinamen Press. pp. 33-90.
- Trapp, J. 1650. *A clavis to the Bible or a new comment upon the Pentateuch or five books of Moses*. London: Printed for Timothy Garthwait.
- Triebel, L.A. 1950. Blaise Pascal - architect of civilisation and saint. *The Australian Quarterly*, 22 (2):52-56. <http://www.jstor.org/stable/20633254> Date of access: 4 Feb 2016.
- Trigg, J.W. 2002. *Origen*. London and New York: Routledge.
- Trimmer, J. 1841. *Practical geology and mineralogy; with instructions for the qualitative analysis of minerals*. London: John W. Parker.
- Trublet, N.C.J. 1761. *Memoires pour servir a l'histoire de la vie et des ouvrages de M. de Fontenelle*. Amsterdam: Marc-Michel Rey.
- Trueman, C. 2007. The Renaissance. In: Hoffercker, W.A., ed. *Revolutions in Worldview*. New Jersey: P&R Publishing Company. pp. 178-205.
- Turnbridge, P.A. 1971. Jean André De Luc, F.R.S. (1727-1817). *Notes and Records of the Royal Society of London*, 26 (1):15-33, June. <https://www.jstor.org/stable/531050> Date of access: 7 July 2021.
- Turner, S.H. 1846. *A companion to the book of Genesis*. New York: Stanford and Swords.
- Uckelman, S.L. 2010. Logic and the condemnations of 1277. *Journal of Philosophical Logic*, 39 (2):201-227, April. <http://www.jstor.org/stable/20685136> Date of access: 30 June 2016.
- Uglow, J. 2002. *The lunar men: five friends whose curiosity changed the world*. New York: Farrar, Straus and Giroux.
- Ullmer, J.H. 2011. The scientific method of Sir William Petty. *Erasmus Journal for Philosophy and Economics*, 4 (2):1-19, Autumn. <http://ejpe.org/pdf/4-2-art-1.pdf> Date of access: 15 Feb 2016.
- Ussher, J. 1864. *Annales veteris testamenti, a prima mundi origine deducti, una cum rerum asiaticarum et aegyptiacarum chronico*. Vol. 8. Dublin: Hodges, Smith, and Co. (The whole works of the most Rev. James Ussher, D.D.).
- Ussher, J. 2010. *The annals of the world*. Arizona: Master Books.
- Van Leeuwenhoek, A. 1800. *The select works of Antony van Leeuwenhoek, containing his microscopical discoveries in many of the works of nature*. Vol. 1. Translated by Hoole, S. London: G. Sidney, Black-Horse Court, Fleet-Street.
- Van Leeuwenhoek, A. 1807. *The select works of Antony van Leeuwenhoek, containing his microscopical discoveries in many of the works of nature*. Vol. 2. Translated by Hoole, S. London: The Philanthropic Society.
- Van Raemdonck, J. 1869. *Gérard Mercator, sa vie et ses oeuvres*. St. Nicholas: Dalschaert-Praet.
- VanDoodewaard, W. 2015. *The quest for the historical Adam: Genesis, hermeneutics, and human origins*. Retrieved Date of access.
- Venables, E. 1877. *Anastasius Sinaita*. Vol. 1. Boston: Little, Brown, and Company. pp. 109-110.
- Vesalius, A. 1999. *On the fabric of the human body: the ligaments & muscles*. Vol. 2. Translated by Richardson, W.F. & Carman J.B. 1st ed. California: Norman Publishing. (Norman Anatomy).

- Victorinus. 1886. On the creation of the world. In: Coxe, A.C., ed. *Fathers of the third and fourth centuries*. Translated by Wallis, R.E. Buffalo: The Christian Literature Company. pp. 341-343. (The Ante-Nicene Fathers: translations of the writings of the fathers down to A.D. 325).
- Volney, C.F. 1796. *The law of nature, or principles of morality, deduced from the physical constitution of mankind and the universe*. Philadelphia: F. & R. Bailey.
- Volney, C.F. 1991. *The ruins, or, meditation on the revolutions of empires: and the law of nature*. Baltimore: Black Classic Press.
- Voltaire. 1766. *Examen important de Milord Bolingbroke*. Vol. 62. Oxford: Voltaire Foundation. (Oeuvres complètes de Voltaire / Complete works of Voltaire).
- Voltaire. 1819. *The important examination of the Holy Scriptures: attributed to Lord Bolingbroke, but written by M. Voltaire*. London: R. Carlile.
- Voltaire. 1901a. *A philosophical dictionary*. Vol. 5. Translated by Fleming, W.F. New York: E. R. DuMont. (The works of Voltaire: a contemporary version).
- Voltaire. 1901b. *A philosophical dictionary*. Vol. 10. Paris: E.R. DuMont. (The works of Voltaire: a contemporary version).
- Voltaire. 1901c. The changes that have happened in our globe, and the petrifications which are alleged as proof thereof. In: Morley, J., ed. *The works of Voltaire: a contemporary version*. Vol. 39. Translated by Fleming, W.F. Paris: E.R. DuMont. pp. 279-292.
- Voltaire. 1910. Life of Jean Meslier. In: De Laurence, L.W., ed. *Superstition in all ages: a dying confession by Jean Meslier*. Chicago: de Laurence Scott & Co. pp. 41-47.
- Voltaire. 1912. *Toleration and other essays*. Translated by McCabe, J. New York and London: G.P. Putnam's Sons.
- Vossius, I. 1659. *Dissertatio de vera aetate mundi: quâ ostenditur natale mundi tempus annis minimum 1440 vulgarem aetatem anticipare*. Hagæ-Comitis: Adriani Vlacq.
- Vossius, I. 1685. *Variarum observationum liber*. London: Robert Scott.
- Wade, G.W. 1896. *The book of Genesis: edited with introduction, critical analysis and notes*. London: Longmans, Green, and Co.
- Walker, G. 1641. *The history of the creation as it is written by Moses in the first and second chapters of Genesis*. London: Printed for John Bartlet.
- Walker, T. 2008. Geological pioneer was a biblical creationist. *Journal of Creation*, 22 (1):93-98. http://creation.com/images/pdfs/tj/j22_1/j22_1_93-98.pdf Date of access: 8 Feb 2016.
- Wallace, A.R. 1898. *The wonderful century: its successes and its failures*. New York: Dodd, Mead and Company.
- Wallace, W.A. 1981. *Prelude to Galileo: essays on medieval and sixteenth-century sources of Galileo's thought*. Vol. 62. Boston: D. Reidel Publishing Company. (Boston studies in the philosophy of science).
- Waller, R. 1930. The life of Dr. Robert Hooke. In: Gunther, R.T., ed. *Early science in Oxford: the life and work of Robert Hooke*. Vol. 1. Oxford: Oxford University Press. pp. 1-68.
- Walton, J.H. 2009. *The lost world of Genesis one: ancient cosmology and the origins debate*. Illinois: InterVarsity Press.
- Wandersee, J.H. 1987. Francis Bacon: mastermind of experimental science. *Journal of College Science Teaching*, 17 (2):120-123, 171, November. <http://www.jstor.org/stable/42987386> Date of access: 27 October 2016.
- Ward, E.F. 1943. Thomas Paine. *Negro History Bulletin*, 6 (4):80, 90-94, January. <https://www.jstor.org/stable/44245655> Date of access: 13 March 2020.
- Ward, J. 2014. *The perfection of the paper clip: curious tale of invention, accidental genius, and stationery obsession*. New York: Atria Paperback.
- Ward, T.J. 2004. Adam Smith's views on religion and social justice. *International Journal on World Peace*, 21 (2):43-62, June. <https://www.jstor.org/stable/20753440> Date of access: 23 November 2018.
- Ware, C.S. 1950. The influence of Descartes on John Locke: a bibliographical study. *Revue Internationale de Philosophie*, 4 (12):210-330, April. <https://www.jstor.org/stable/23932518> Date of access: 13 July 2023.
- Warington, G. 1870. *The week of creation: or the cosmology of Genesis considered in its relation to modern science*. London and Cambridge: MacMillan and Co.
- Warren, E. 1726. A review of the sacred theory of the earth, and of its proofs: especially in reference to Scripture. In: Burnet, T., ed. *The sacred theory of the earth: containing an account of the original of the earth, and of all the general changes which it hath already undergone, or is to undergo, till the consummation of all things*. Vol. 2. London: Printed for J. Hooke. pp. 321-400.

- Warring, C.B. 1875. *The Mosaic account of creation, the miracle of today: or, new witnesses to the oneness of Genesis and science*. New York: J.W. Schermerhorn & Co.
- Watkins, E. 2012. Editor's preface. In: Watkins, E., ed. *Natural science*. Cambridge: Cambridge University Press. pp. x-xii.
- Watson, K. 2018. Translator's introduction. In: Watson, K., ed. *A memoir: A.K.A. "The Testament" Jean Meslier 1729*. Vol. 1. Translated by Watson, K. s.l.: Kirk Watson. pp. 8-10.
- Watson, R. 1776. *An apology for Christianity, in a series of letters, addressed to Edward Gibbon*. Cambridge: Printed by J. Archdeacon.
- Watson, R. 1796. *An apology for the Bible, in a series of letters, addressed to Thomas Paine*. Dublin: Printed for Messrs P. Wogan, P. Byrne, W. Jones, J. Rice, H. Fitzpatrick, N. Kelly, and G. Folingsby.
- Watson, R. 1816. *Two apologies, one for Christianity, in a series of letters addressed to Edward Gibbon*. London: Printed for Scatcherd and Letterman, etc.
- Wauters, T. 2012. "Libertinage érudit" and Isaac Vossius: a case study. *Journal for Early Modern Cultural Studies*, 12 (2):37-53, Spring. <https://www.jstor.org/stable/23242163> Date of access: 15 August 2023.
- Way, A.C. 1963. Introduction. In: Way, A.C., ed. *Saint Basil: exegetic homilies*. Washington, D.C.: The Catholic University of America Press. pp. vii-xvi. (The Fathers of the Church: a new translation).
- Wells, J. 2006. *The politically incorrect guide to Darwinism and intelligent design*. Washington DC: Regnery Publishing.
- Welton, D.M. 1878. *John Lightfoot: the English Hebraist*. Leipzig: Ackermann & Glaser.
- Wenham, G.J. 1987. *Genesis 1-15*. Vol. 1. Texas: Word Books. (Word Biblical Commentary).
- Wesley, J. 1842. *A compendium of natural philosophy, being a survey of the wisdom of God in the creation*. Vol. 3. London: Printed for Thomas Tegg.
- Wesley, J. 1987. *Wesley's notes on the Bible*. Grand Rapids: Francis Asbury Press.
- Wessel, S. 2004. *Cyril of Alexandria and the Nestorian controversy: the making of a saint and of a heretic*. Oxford: Oxford University Press.
- Westfall, R.S. 1983. Robert Hooke, mechanical technology, and scientific investigation. In: Burke, J.G., ed. *The uses of science in the age of Newton*. Berkeley and Los Angeles: University of California Press. pp. 85-110.
- Westfall, R.S. 1987. Newton's scientific personality. *Journal of the History of Ideas*, 48 (4):551-570, October-December. <http://www.jstor.com/stable/2709687> Date of access: 2 September 2020.
- Westfall, R.S. 2010. *Never at rest: a biography of Isaac Newton*. Cambridge: Cambridge University Press.
- Westfall, R.S. 2012. Newton's theological manuscripts. In: Bechler, Z., ed. *Contemporary Newtonian research*. London: D. Reidel Publishing Company. pp. 129-144. (Studies in the history of modern science).
- Weststeijn, T. 2007. Spinoza sinicus: an Asian paragraph in the history of the Radical Enlightenment. *Journal of the History of Ideas*, 68 (4):537-561, October. <https://www.jstor.org/stable/30136081> Date of access: 5 November 2019.
- Wetsel, D. 1995. *Pascal and disbelief: catechesis and conversion in the Pensées*. Washington D.C.: The Catholic University of America Press.
- Whalen, T. 1999. *Edgar Allan Poe and the masses: the political economy of literature in antebellum America*. New Jersey: Princeton University Press.
- Whately, R. 1837. *Essays on some of the difficulties in the writings of the apostle Paul, and in other parts of the New Testament*. 4th ed. London: B. Fellowes.
- Whelan, T.D. 2009. Biographical index. In: Whelan, T.D., ed. *Baptist autographs in the John Rylands university library of Manchester, 1741-1845*. Georgia: Mercer University Press. pp. 345-472.
- Whewell, W. 1834. *Astronomy and general physics considered with reference to natural theology*. London: William Pickering. (The Bridgewater treatises on the power, wisdom and goodness of God as manifested in the creation).
- Whewell, W. 1845. *Indications of the Creator*. Philadelphia: Carey and Hart.
- Whiston, W. 1737. *A new theory of the earth, from its original, to the consummation of all things wherein the creation of the world in six days, the universal deluge, and the general conflagration, as laid down in the Holy Scriptures, are shewn to be perfectly agreeable to reason and philosophy*. London: Printed for John Whiston at Mr Boyle's Head. (A new theory of the earth).
- Whiston, W. 1753. *Memoirs of the life and writings of Mr William Whiston*. Vol. 2. London: Printed for J. Whiston and B. White.

- Whitcomb, J.C. & Morris, H.M. 1961. *The Genesis flood: the biblical record and its scientific implications*. 50th anniversary ed. New Jersey: Presbyterian and Reformed Publishing.
- White, A.D. 1896. *A history of the warfare of science with theology in Christendom*. Vol. 1. New York: D. Appleton and Company.
- White, A.D. 1910. *A history of the warfare of science with theology in Christendom*. Vol. 1. New York and London: D. Appleton and Company.
- White, G.W. 1970. Editor's foreword. In: White, G.W., ed. *James Hutton's system of the earth, 1785; theory of the earth, 1788; observations on granite, 1794; together with Playfair's biography of Hutton*. Connecticut: Hafner Publishing Company. pp. ix-x. (Contributions to the history of geology).
- Whitelaw, T. 1881. *The pulpit commentary: Genesis*. New York: Funk & Wagnalls Company.
- Whitford, D.M. 2009. *The curse of Ham in the Early Modern Era: the Bible and the justification for slavery*. London and New York: Routledge.
- Whittaker, E. 1949. Laplace. *The American Mathematical Monthly*, 56 (6):369-372, June-July.
<https://www.jstor.org/stable/2306273> Date of access: 13 January 2020.
- Wight, G. 1847. *The Mosaic creation, viewed in the light of modern geology* Glasgow: James Maclehose.
- Wight, G. 1857. *Geology and Genesis: a reconciliation of the two records*. London: John Snow.
- Wight, J.K. 1911. *The beginning of things in nature and in grace: or a brief commentary on Genesis*. Boston: Sherman, French & Company.
- Willet, A. 1633. *Hexapla in Genesin & Exodum: that is, a sixfold commentary upon the two first bookes of Moses, being Genesis and Exodus*. London: John Haviland.
- Willey, B. 1964. *The English moralists*. London: Chatto & Windus.
- Willey, B. 1967. *The seventeenth century background: studies in the thought of the age in relation to poetry and religion*. New York: Columbia University Press.
- Williams, G.H. 1995. *The radical reformation*. 3rd ed. Missouri: Truman State University Press. (Sixteenth century essays & studies).
- Williams, I. 1861. *The beginning of the book of Genesis, with notes and reflections*. London: Rivingtons.
- Wilson, D.A. 1923. *Carlyle till marriage (1795-1826)*. London: Kegan Paul, Trench, Trubner & Co.
- Wilson, D.B. 2011. William Whewell, Galileo, and reconceptualizing the history of science and religion. *Notes and Records of the Royal Society of London*, 65 (4):343-358, December.
<https://www.jstor.org/stable/23056303> Date of access: 17 March 2022.
- Wilson, E.O. 1999. *Consilience: the unity of knowledge*. New York: Vintage Books.
- Wilson, H.A. 1887. *Victorinus (4), St.* Vol. 4. London: John Murray. pp. 1128-1129.
- Wilson, H.B. 1860. Séances historiques de Genève: the national church. In: Parker, J.W., ed. *Essays and reviews*. London: John W. Parker and Son. pp. 145-206.
- Witham, L.A. 2002. *Where Darwin meets the Bible: creationists and evolutionists in America*. Oxford: Oxford University Press.
- Wolf, A. 1927. Spinoza. *Journal of Philosophical Studies*, 2 (5):2-19, January.
<https://www.jstor.org/stable/3745378> Date of access: 16 October 2023.
- Wolff, C. 1963. *Preliminary discourse on philosophy in general*. Translated by Blackwell, R.J. Indianapolis: The Bobbs-Merrill Company, Inc.
- Wolff, C. 2017. *The law of nations treated according to the scientific method*. Translated by Drake, J.H. & Ahnert T. Indiana: Liberty Fund.
- Wolters, G. 1997. The idea of progress in evolutionary biology: philosophical considerations. In: Burgen, A., McLaughlin P. & Mittelstraß J., eds. *The idea of progress*. Berlin: Walter de Gruyter. pp. 201-217.
- Wood, P.B. 1980. Methodology and apologetics: Thomas Sprat's "History of the Royal Society". *The British Journal for the History of Science*, 13 (1):1-26, March. <http://www.jstor.org/stable/4026117> Date of access: 14 February 2017.
- Woodward, J. 1695. *An essay toward a natural history of the earth*. London: Printed for Ric. Wilkin.
- Woodward, R.S. 1891. Tisserand's Mécanique Céleste. *Annals of Mathematics*, 6 (2):49-56, August.
<https://www.jstor.org/stable/1967235> Date of access: 20 January 2020.
- Worcester, E. 1901. *The book of Genesis in the light of modern knowledge*. New York: McClure, Phillips & Co.
- Wortman, D. 1865. Resume of the geological argument. *The American Presbyterian and theological review*, 3 (12):613-640, October.
- Wright, L.B. 1937. The purposeful reading of our colonial ancestors. *ELH*, 4 (2):85-111, June.
<https://www.jstor.org/stable/2871722> Date of access: 17 October 2022.

- Wulf, A. 2015. *The invention of nature: the adventures of Alexander von Humboldt, the lost hero of science*. London: John Murray.
- Wykes, D.L. & Rivers, I. 2008. Introduction. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 1-19.
- Wykes, D.L. 2008. Joseph Priestley, minister and teacher. In: Rivers, I. & Wykes D.L., eds. *Joseph Priestley, scientist, philosopher, and theologian*. Oxford: Oxford University Press. pp. 20-48.
- Yeo, R. 1984. Science and intellectual authority in mid-nineteenth-century Britain: Robert Chambers and "Vestiges of the natural history of creation". *Victorian Studies*, 28 (1):5-31, Autumn.
<https://www.jstor.org/stable/3826757> Date of access: 1 June 2022.
- Yeo, R. 2003. *Defining science: William Whewell, natural knowledge, and public debate in early Victorian Britain*. Cambridge: Cambridge University Press.
- Yeomans, D.K. 1977. The origin of North American astronomy - seventeenth century. *Isis*, 68 (3):414-425, September. <http://www.jstor.org/stable/231317> Date of access: 16 Feb 2016.
- Yolton, J.W. 1991. *Locke and French materialism*. Oxford: Clarendon Press.
- Young, R.M. 1970. The impact of Darwin on conventional thought. In: *The Victorian crisis of faith*. London: S.P.C.K. pp. 13-35.
- Zagorin, P. 1999. *Francis Bacon*. New Jersey: Princeton University Press.
- Zalasiewicz, J., Sörlin, S., Robin, L. & Grinevald, J. 2018. Introduction: Buffon and the history of the earth. In: Zalasiewicz, J., Milon A.-S. & Zalasiewicz M., eds. *The epochs of nature*. Translated by Zalasiewicz, J., Milon A.-S. & Zalasiewicz M. Kindle edition ed. Chicago and London: University of Chicago Press. pp. xiii-xxxiv.
- Zimmerman, B. 2019. Peter Lombard on the doctrine of creation: a discussion of Sentences Bk II, D. 1, C. 1-3. *Australasian Catholic Record*, 96 (1):83-90, January. <https://philpapers.org/rec/ZIMPLO> Date of access: 18 July 2019.
- Ziolkowski, J.M. 2006. Hrabanus Maurus. In: Emmerson, R.K., ed. *Key figures in Medieval Europe: an encyclopedia*. New York: Routledge. p. 333.
- Zuiddam, B. 2020. Augustine: young earth creationist. *Journal of Creation*, 24 (1):5-6.
https://dl0.creation.com/articles/p072/c07263/j24_1_5-6.pdf Date of access: 16 September 2022.