

(pp. 134–135 and 190). Despite Freeman’s persuasive argument to discount the notion of any generation gaps in the genealogies of Genesis 5 and 11, the ‘Affirmations and Denials’ allow for such gaps (probably because of Whitcomb’s own views)!

The list of recommended resources is woefully inadequate. The list is extremely short and significant YEC works (biblical and scientific) are missing. For example, there is no mention of the *Journal of Creation*, *Creation Magazine*, *Origins* or *Creation Research Society Quarterly*.

The name index also appears to be incomplete. The book cites my own work in two places (pp. 152, 247) but I am not listed in the name index. There may well be missing references to other writers.

The editors devoted a few pages in the Epilogue to the Intelligent Design Movement. This topic warrants a more comprehensive discussion because it is often used by theologians and Christian apologists as a justification for theism. However, the intelligent design argument is ultimately incapable of identifying any specific ‘designer’ let alone the God of the Bible. Indeed, the argument intentionally marginalises the Bible.

Conclusion

Despite the above weaknesses, this book is a valuable biblical resource. It is a scholarly, detailed, biblical and exegetical work aimed at theologians, seminarians, pastors, and Bible teachers. Like my own book,² it is a plea to the Christian community to return to faithful exegesis of the Genesis account using the methods employed and conclusions reached when employing the traditional historical-grammatical hermeneutic.

References

1. See Kulikovskiy, A.S., Scripture and general revelation, *Journal of Creation* 19(2):23–28, 2005.
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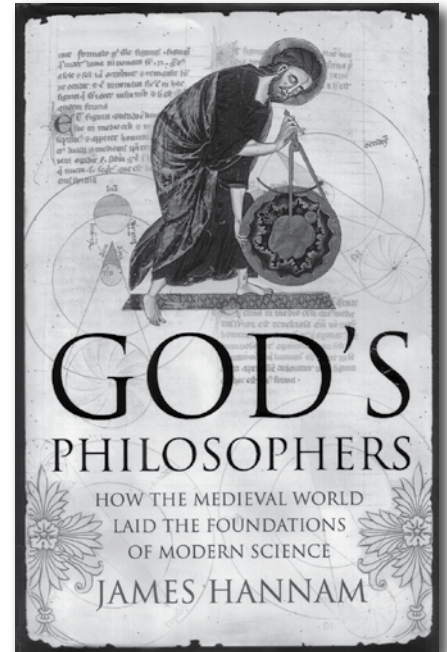
Helpful in places, confusing in others

A review of
*God's Philosophers:
How the Medieval World
Laid the Foundations of
Modern Science*
by James Hannam
Icon Books, London,
UK, 2009

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I received a copy of James Hannam’s *God’s Philosophers* with great anticipation. With a degree in physics from Oxford University and a Ph.D. in the history and philosophy of science from Cambridge University, the author appeared to be well placed to provide a helpful insight into the progress of Christian scientific thought in medieval times. Some of what he presents is indeed helpful, but overall I was disappointed and felt that he failed to bring the clarity so needed in this most important and controversial of subjects.

The medieval period is often referred to as the ‘Dark Ages’, a period of scholarly amnesia, intellectual stagnation and widespread ignorance, in which Christianity stifled technological progress. Along with many other historians, Hannam rejects this view as inaccurate, and cites a number of significant developments and inventions which arose during this period. These include progress in agriculture which significantly improved crop yields; the building of windmills; development of military technology such as the stirrup, metallurgy and explosives; the blast furnace; discoveries in optics and the manufacture of spectacles; the compass; printing; mathematics; understanding of projectile motion; and the design of mechanical clocks. Hannam also shows that most of the stories about how the Church held back science are myths. Although little of



what is presented is new, the case for the medieval period being a time of significant technological progress is argued clearly and in a way which is easy to follow. A link between the rise of science and the Bible, however, is not really made.

Scholasticism

In many respects, *God’s Philosophers* is a celebration of Roman Catholic Scholasticism—the system of theology and philosophy taught in medieval European universities and based largely on Aristotelian logic. Thus, in many ways, Hannam attributes the rise of science to the development of Greek knowledge. He also gives much credit to the Muslim scholars who preserved the ancient Greek texts and continued to develop philosophy, medicine and mathematics prior to the medieval period. Speaking of a “Twelfth-Century Renaissance”, he writes, “Most significant of all for the future development of science was the movement to translate into Latin an enormous body of newly discovered scientific and medical writing from

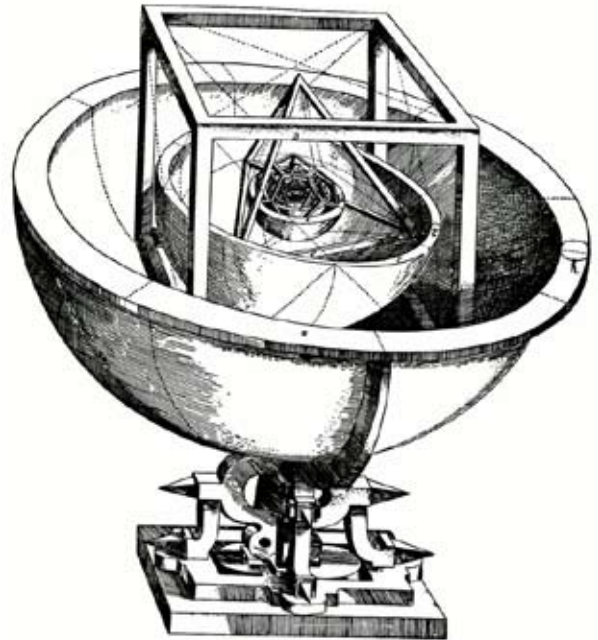
the ancient Greek and Islamic worlds” (p. 61). However, and in contrast to many other historians, Hannam gives the Bible little credit for the development of scientific thinking. Instead, when the Bible is mentioned, it is usually to suggest that it misled people. For example, Hannam interprets the manifestly poetic language of Job 38:13 as implying that the earth is flat (p. 38), although he does show that people of medieval times knew very well that it wasn’t. Similarly, he claims that Genesis 1:16 implies that the moon generates its own light (p. 63). He also expresses the view that Darwin proved that Newton was wrong in believing that life on Earth required a creator and could not have arisen by natural processes (p. 341).

Hannam devotes much of his book to explaining how medieval Roman Catholic philosophers learnt from the Greeks, and much of what he says is highly controversial. He argues, for example, that the Church benefited from pagan ideas in combating heresy, and that the work of Thomas Aquinas made Aristotle “not only respectable but essential to Christian theology” (p. 91; see also p. 99). Intellectual development, he claims, was delayed until the wisdom contained in the Greek texts was translated into Latin (p. 148). Peter Harrison¹ makes more of the opposing view. He cites the belief of the 3rd century apologist, Tertullian, that Greek philosophy was “the parent of heresy” and the 4th century Bishop of Caesarea, Basil the Great, as dismissing Greek science as “idle chatter” which was “not at all useful for the edification of the church”. Augustine declared that “the knowledge collected from the books of the pagans, although some of it is useful, is also little as compared with that derived from scripture.” Moreover, Harrison notes that “Tertullian, Basil and Augustine all agreed that Greek philosophers had contradicted each other, and that their disagreements stood in stark contrast to the harmony of scripture.” Others argued that Moses predated the Greeks and that whatever was of value to be found in their writings was “plagiarised from the

Mosaic tradition”.^{2,3} Protestant leaders of the theological and scientific revolutions of the 16th and 17th centuries were also very critical of Greek thinking. Luther wrote that “Aristotle is related to theology as darkness is to light”⁴ and that “Aristotle’s physics ... should be altogether discarded together with all the rest of his books which boast of treating things of nature ... nothing can be learned from them ... I venture to say that any potter has more knowledge of nature than is written in these books.”⁵ Calvin wrote of Aristotle’s “absurd subtleties” and “frigid doctrine” which had prevented people from embracing spiritual truths.⁶ Copernicus and Paracelsus were referred to as the Luther and Calvin of natural philosophy (science) and Kepler described himself as the Luther of astronomy. Francis Bacon believed that just as paganism had led to the forsaking of Scripture and corruption of religion, so it had also led to the forsaking of nature and the corruption of natural philosophy.⁷ Even the Roman Catholic mathematician and philosopher, Nicolas Malebranche, asserted that “One insect is more in touch with Divine wisdom than the whole of Greek and Roman history.”⁸

Science actually progressed by rejecting Greek thinking

In something of a volte-face, having lavished praise upon the Greeks in the first half of the book, Hannam then acknowledges that science could only progress by rejecting much of their thinking (p. 171). Jean Buridan, for example, anticipated Newton’s First Law of Motion by rejecting Aristotle’s notion that projectiles are propelled by the air closing in behind them. Johannes Kepler was able to deduce that the planetary orbits are elliptical only



Johannes Kepler, who derived the laws of planetary motion, wrote of how his scientific work was driven by the “highest confidence in the visible works of God”.

by first rejecting the Copernican and Greek view that they must be circular, as this is “the ideal shape”. Because human dissection was prohibited in the Greco-Roman and Islamic worlds, little progress was made in physiology and medicine. However, because the Christian theology emphasized the separation of body and soul at death, dissection could proceed largely unopposed. In fairness to Hannam, it might be argued that medieval philosophers slowly learned to take what was useful from the Greek texts, and reject what was wrong.

A genuine weakness of the book is that it gives only scant space to the essential difference between the achievements of the Greeks and the nature of true scientific enquiry. As pointed out by Rodney Stark⁹, the Greeks, Arabs and Chinese gained knowledge—skills, crafts, technology and engineering—but did not do science. “[T]heir empiricism was quite atheoretical, and their theorizing was nonempirical.”^{10,11} Euclid’s development of geometry, for example, facilitated the description of reality but did not explain it. Aristotle theorized that the speed at which objects fall to Earth is proportionate to their weight,

but he evidently never did much experimentation to test this idea! Scientists formulate hypotheses about the natural world and then test them by gathering data through observation and experiment. The Greeks did not do this, and their learning was based on trial and error in the absence of explanation.

Hannam also places little emphasis on why science failed to flourish in ancient Greece, but arose instead in Christian Europe. Reijer Hooykaas¹² is much more helpful. In pagan thinking, nature is to be worshipped and feared, whereas the Bible implies it can be understood and mastered. To pagan thinkers such as Plato and Aristotle, the world was an organism that was deified, but to Christian thinkers such as Descartes, Boyle and Newton, it was a mechanism that could be examined and understood. In Greek thinking, nature is constrained and must conform to certain philosophical rules, whereas in biblical thinking, the God of creation needed to obey nothing and was free to make laws as he willed. Consequently, in Christian thinking, the appropriation of scientific knowledge necessitates experimentation. To the Greeks, pursuit of science was considered displeasing to the gods, whereas biblical scholarship led people to see the study of nature as a legitimate means of learning about God. The elite Greek thinkers despised manual work, whereas the Bible respects craftsman whose work is so necessary in facilitating the manufacture of apparatus for scientific experiments.¹³ In pagan thinking, the belief in many fickle gods implied an unpredictable natural world, but in Christian thinking, the belief in one unchanging God implied a world with immutable laws which could be studied. Stanley Jaki¹⁴ argues that science was stillborn in all the pagan and Islamic cultures because they failed to muster, in sufficient measure, faith in progress, confidence in the rationality of the universe, appreciation of the quantitative method and a depersonalized view of the process of motion.¹⁵

Christianity and science

In contrast, as Stark argues, “Christianity depicted God as a rational, responsive, dependable, and omnipotent being and the universe as his personal creation, thus having a rational, lawful, stable structure, awaiting human comprehension ... The rise of science was not an extension of classical learning. It was the natural outgrowth of Christian doctrine: nature exists because it was created by God. To love and honour God, one must fully appreciate the wonders of His handiwork. Moreover, because God is perfect, His handiwork functions in accord with *immutable principles*. By the full use of our God-given powers of reason and observation, we ought to be able to discover these principles.”¹⁶

In other words, “Christians developed science because they believed it could be done and should be done.”¹⁵

This view can be supported by many examples. In his *Epitome Astronomiae Copernicanae*, Kepler wrote of how his scientific work was driven by “the highest confidence in the visible works of God”, and often interspersed his reflections on scientific method with biblical quotations on the wisdom, power and glory of God.¹⁷ Galileo wrote that “the book of nature is a book written by the hand of God in the language of mathematics”¹⁸ and referred to the divine Creator as a ‘craftsman’ and an ‘architect’, concepts which inspired him to conduct experiments so as to learn about God’s creation. Believing the human mind also to be the work of this Creator, he confidently pursued his research in the expectation that the mind created by God was capable of understanding at least some of the rest of His creation. According to Galileo, it was this Christian belief, that the principles of the universe were fathomable, that led Copernicus to postulate the simple theory that the earth revolved around the sun.¹⁹ For Robert Boyle, “the doctrine and belief in the Creator

represented the very foundation of sound reasoning about the world” and Newton “most explicitly endorsed the notion of a creation once and for all as the only sound framework of natural philosophy.”²⁰ In an essay written for the Royal Society, John Maynard Keynes said of Newton that “he regarded the universe as a cryptogram set by the Almighty.”²¹ According to Robert Hooke, the pioneer of microscopy, the more we magnify objects “the more we discover the imperfections of our senses, and the omnipotency and infinite perfections of the great Creator.”²⁸

That the faith of these creationists provided the basis for modern science was also acknowledged by the leading anthropologist and historian of science, Loren Eiseley:

“... the philosophy of experimental science ... began its discoveries and made use of its method in the faith, not the knowledge, that it was dealing with a rational universe controlled by a creator who did not act upon whim nor interfere with the forces He had set in operation... It is surely one of the curious paradoxes of history that science, which professionally has little to with faith, owes its origins to an act of faith that the universe can be rationally interpreted, and that science today is sustained by that assumption.”²²

Arguing in a similar fashion, the Oxford University mathematician and philosopher of science, John Lennox, quotes Nobel Prize-winner Melvin Calvin:

“As I try to discern the origin of that conviction [that the universe is orderly], I seem to find it in a basic notion discovered 2,000 or 3,000 years ago, and enunciated first in the Western world by the ancient Hebrews: namely that the universe is governed by a single God and is not the product of the whims of many gods, each governing his own province according to his own laws. This monotheistic view seems to be the historical foundation for modern science.”^{23,24}

Hannam's view of creationism and science

Hannam makes a rare positive reference to the Bible in quoting Psalm 19:1, "The heavens declare the glory of God; and the firmament shows his handiwork", and argues that Kepler understood from this that "if the paths of the planets were ordained by God, then they must be simple and elegant" (p. 291). Kepler, then, "cracked the mystery of the planets' movements because of his faith in God's creative power" (p. 292). Similarly he states that Copernicus "wanted a model of the world machine worthy of its Creator whom he called 'the best and most orderly workman of all'" (p. 274) and favoured rotation of the earth rather than rotation of the universe as this is more parsimonious (p. 275). Galileo also, Hannam agrees, wholeheartedly endorsed the medieval belief that nature was created by God and so worthy of attention (p. 336).

Hannam's recognition of the need for a Christian world-view for the proper practice of science, however, appears actually to be paper thin. For example, he argues that although assumptions about God and creation were necessary for science to get started, by the 19th century science was "so successful that it no longer needed them" (p. 338). In this Hannam is surely wrong. Evolutionary beliefs have time and again held back the progress of science, some examples being the belief in vestigial organs and the concept of 'junk DNA'.²⁵ Moreover, the rejection of the Bible's account of creation has resulted in the squandering of an enormous amount of time and money in the pursuit of a naturalistic explanation for life and, more recently, in the search for extra-terrestrial life.

Science and the reformation

Harrison argues that of all the factors that gave rise to modern science, "by far the most significant was the literalist mentality initiated by the Protestant reformers".²⁶ Prior to the reformation, the reading of the "book of scripture" (the Bible) had been subject to much allegorising.

Similarly, the "book of nature" (God's works) had often been understood symbolically as communicating moral and theological truths. Creatures were regarded as natural signs invested with divinely instituted significance. Hence the form of animals, for example, could be read and their story told just as we might read the hieroglyphics of ancient Egypt. In insisting on the non-allegorical, literal reading of Scripture, the reformers discouraged this allegorising of nature and paved the way for a non-symbolic understanding of the material world. Thus, scientists came to see the "book of nature" as written in the language of mathematics, rather than the language of emblems, and something to be scrutinised so as to discover causal relationships rather than meanings. Predictably, Hannam is unconvinced by this argument, and suggests instead that an emphasis on the literal interpretation of the Bible might have hampered science, as this would also "make contradictions between science and scripture more likely" (p. 226). However, since the Bible makes no comment on issues relating to almost all of the scientific discoveries of that period, it is difficult to see how Hannam's argument can have any merit.

Conclusion

In the known history of mankind, science arose just once, in the 16th and 17th centuries, in Western Europe. Because of this, many millions of people now enjoy a quality of life that previous generations could hardly even dream of. Contrary to views frequently expressed by militant secularists, there is much evidence that this is owed, in no small part, to biblical Christianity. In attributing so much to the work of pagan and Islamic cultures (e.g. pp. 5, 21 and 39), and so little to the Bible, I do not believe that Hannam has presented a true account of history.

References

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3. See also review of Harrison by Weinberger, L., *J. Creation* 23(3):21–24, 2009.
4. Harrison, ref. 2, p. 106.
5. Stark, R., *For the Glory of God: How Monotheism Led to Reformations, Science, Witch-hunts and the End of Slavery*, Princeton University Press, Oxford, 2003, p. 157.
6. Harrison, ref. 2, p. 106.
7. Harrison, ref. 2, p. 104.
8. Harrison, ref. 2, p. 174.
9. Rodney Stark is Distinguished Professor of the Social Sciences at Baylor University in Texas, USA.
10. Stark, ref. 5, p. 126.
11. See also review of Stark by Williams, A., *J. Creation* 18(2):49–52, 2004.
12. Reijer Hooykaas (1906–1994) was Professor of the History of Science at the University of Utrecht, Netherlands.
13. Hooykaas, R., *Religion and the rise of modern science*, Scottish Academic Press, Edinburgh, 1977.
14. Stanley Jaki, OSB was Distinguished Professor of Physics (1924–2009) at Seton Hall University, New Jersey, USA and was awarded the Templeton Prize for furthering the understanding of science and religion.
15. Jaki, S., *Science and Creation*, Scottish Academic Press, Edinburgh, 1986.
16. Stark, ref. 5, p. 147.
17. Jaki, ref. 15, p. 268.
18. Stark, ref. 5, p. 165.
19. Jaki, ref. 15, p. 276–279.
20. Jaki, ref. 15, pp. 285, 287.
21. Keynes, J.M., *Newton, the Man*, Essay read to the Royal Society, 1946. Cited in Stark, ref. 5, p. 173.
22. Eiseley, L., *Darwin's Century: Evolution and the Men who Discovered It*, Anchor Books, New York, p. 62, 1961.
23. Lennox, J.C., *God's Undertaker—has science buried God?* Lion Hudson, Oxford, p. 19, 2007.
24. See also review of Lennox by Weinberger, L., *J. Creation* 23(3):35–38, 2009.
25. Australian geneticist John Mattick states: "The failure to recognize the full implications of this—particularly the possibility that the intervening noncoding sequences may be transmitting parallel information ... may well go down as one of the biggest mistakes in the history of molecular biology." Cited in: Gibbs, W.W., The unseen genome: gems among the junk, *Scientific American* 289(5):26–33, November 2003; pp. 29–30. See also, John Sanford, *How evolution hurts science*, DVD.
26. Harrison, ref. 2, p. 8.