
Before Darwin: Reconciling God and Nature by Keith Thomson
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Keith Thomson begins his book with the observation that the young Charles Darwin occupied the rooms in Christ's College, Cambridge which had once been home to William Paley. He seeks to explore the irony, as he puts it, that as a student Darwin would have read Paley's works of natural theology, and to understand the arguments of natural theologians in the century and a half before 1831, when Darwin embarked on his epoch-making voyage on HMS *Beagle*. At times this delivers a purely historical enquiry, for example when Thomson considers how, in the light of contemporary natural theology, Darwin struggled to make sense of the evidence of geological change that confronted him on the coast of South America. Yet the book also seeks to intervene in contemporary debates about the status of evolutionary theory, claiming that it is essential for the modern reader to choose between science and religion (as Thomson suggests that Darwin did) in a manner that was not required of early modern natural theologians. The thrust of Thomson's argument is that, once the theory of evolution had been advanced and defended, natural theology ceased to be an arena for scientific debate and argument, and became simply another way to assert faith in a deity. Thomson is thus writing both a history of early modern (English) natural theology and seeking to use that history to determine what is and what is not legitimate in contemporary debate about science and religion, in particular concerning the theory of evolution.

Thomson is a retired professor of natural history and his treatment of modern ideas about evolution is usually clear and assured. He is careful to argue that science is about a search for secondary causes and that scientific knowledge remains provisional. Reasonably enough, however, he wants to persuade others to share his convictions about the importance of the theory of evolution. Above

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all, he is eager to debunk common-sense claims that complexity cannot have arisen through random mutation and to counter other ill-informed attacks on Darwinism. Discussion of the argument from design mounted by Paley and his predecessors, therefore, becomes a means to demonstrate the superiority of Darwin's analysis of nature and to suggest that modern appropriations of natural theology represent an anachronistic form of scientific argument.

It is not clear what the readership of this book is supposed to be. As a piece of apologetic for Darwinism, it seems unlikely to be particularly successful (despite having been welcomed by the popular scientific press). Those who doubt the validity of evolutionary explanations of the natural world are unlikely to change their minds on the basis that Darwin's science was more up-to-date than Paley's. To provide an accurate historical account of the development of theories of natural selection requires going beyond Darwin (in particular through consideration of genetics, mentioned briefly by Thomson) and demands sensitivity to the ways in which the science of evolution has modified and even rejected aspects of Darwin's own theories. It is misleading to claim that debate over Darwinism was settled immediately after the publication of the *Origin of Species* [1859], as the final chapter appears to do, or, indeed, to argue that late 19th-century evolutionary theories were always faithful to Darwin. Thomson is complacent about the difficulties that Darwinism posed even for its sympathizers. Nevertheless, his conclusion appears to be that scientific knowledge is necessarily incomplete but that this incompleteness is not by itself an argument in favour of a role for some kind of deity in nature. This will not be enough for those who wish to reconcile science and religion, and it will seem coy to those who simply do not believe in religious arguments of any kind.

For readers in search of historical knowledge rather than apologetics, *Before Darwin* is terribly flawed. Thomson makes the elementary error of judging his characters on the basis of an evaluation of the similarity of their ideas to those of modern science, trying, for example, to assess 'how close some of these early geologists got' to the theory of plate tectonics [188]. He appears to assume that natural theology was about saving a role for God in an increasingly scientific world and that, to do this, it was necessary for natural theologians to make nature accord with a literal reading of the text of Genesis. Yet many of the natural theologians (including both John Ray and

William Paley) whom Thomson discusses were as concerned with classical, philosophical arguments against a deity, or with contemporary, moral attacks on Christianity and the reliability of the Bible, as they were with the consequences of new scientific ideas. They did not see those ideas as the product of a rational spirit of enquiry that was inimical to religion; instead they believed that both God and nature could only be understood through the suitable exercise of reason.

Thomson recognizes some of this [141] but his understanding is undermined by an inability to accept that early modern theologians were more sophisticated in their reading of the Bible than present-day creationists. Thomas Burnet, for example, was not seeking ‘to bring together in one unifying theory the Biblical account of creation and the new sciences of the earth’ [142]. On the contrary, Burnet recognized that there were problems with a literal reading of Genesis. He wished to read the Old Testament theologically through the light of the New Testament (in particular, 2 Peter), and wanted to advance a theory about the creation, dissolution, reformation, and future destruction of the Earth that was compatible both with classical mythology and with contemporary Cartesian physics. A Christian tale of redemption provides the narrative for Burnet’s history of the Earth, but the point of the theory is to tackle problems in classical philosophy and ideas of nature rather than to make modern science agree with the Bible. Thomson advances a number of possible targets for John Ray’s natural theology, which he describes as being that of the ‘founding father’ of the school he is studying. Unfortunately, every one of these (Locke, Hume, Toland, even Boyle) wrote long after the arguments that were eventually embodied in Ray’s *Wisdom of God* [1691] had originally been advanced in sermons at Cambridge in the late 1650s and early 1660s. Ray, indeed, later considered Boyle to be an ally in his attacks on Descartes, whose crime was not to be in some vague sense an ‘atomic-deist’ [31], but, quite specifically, to have cast doubt on ideas of the immortality of the soul and to have denied the existence of final causes in nature.

Time and again, Thomson assumes that early modern writers were constrained by a need to be faithful to the literal sense of the Bible at all times. This misconception appears to arise from a misunderstanding of the nature of Galileo’s crime, which was not simply to offer an interpretation of nature apparently at odds with the literal meaning of some passages of scripture, but to disobey a prohibition

on teaching a hypothetical interpretation of nature as if it were absolutely true. Thomson fails to appreciate the relative freedom provided by techniques of accommodation or by figurative readings of biblical terms. More seriously, he misunderstands the way in which a prevailing culture of literal interpretation encouraged readers to view the Bible as a historical narrative, which gave context to natural phenomena (such as fossils) and for which they might in turn provide factual evidence. Thus, the problem for early modern readers, as distinct from their 19th-century counterparts, was not so much that fossils demonstrated that there had been mass extinctions or that the Earth had a long history as that they might be proof of the spontaneous creativity of nature. Thomson tends to project the theological difficulties faced by mid-19th-century apologists back onto earlier writers, in the process ignoring or playing down the threats that were most pressing to them.

Thomson constructs a familiar narrative in which the argument from design is advanced and to some extent refined in the late 17th century and then subjected to successive evidentiary challenges that come to undermine it by the mid-19th century. There are problems at every stage of this narrative. Thomson's tendency to confuse the largely theist argument from design with deism obscures one of the principal motives of early proponents of natural theology. His work fails to convey the sense in which the argument from design represented a relatively ecumenical response to a variety of intellectual challenges to orthodox Christianity. Those challenges came from freethinkers, from a growing awareness of the atheism of much classical thought, and from advocates of individual spiritual inspiration. The design argument hinged on the claim that human reason, which linked mankind, however fallen, with God, could trace the signs and purposes of divine activity in nature. Over the course of the 17th century, strict adherence to the concept of the lawfulness of nature directed natural theologians towards the argument from design and away from more wide-ranging celebrations of divine involvement in natural wonders and marvels. In the process, the involvement of divine superintendence with secondary causes in nature was widely accepted. Writers such as Thomas Burnet, for whom the secondary causes that shaped the contemporary, fallen world were distinct from the original physical intentions of God, or other Neoplatonic authors (even, at times, John Ray), for whom nature retained a creative role,

did not, in this respect, represent the mainstream of thinking about the argument from design. Instead, the contrivance that was so important for Paley in demonstrating divine involvement at every stage in the regular working of creation was a direct statement of God's power over the natural world. Thomson does not always appear to understand that the God of the design argument was a God who was in control of secondary causes, rather than a deistic first cause [cf. 107–108] or a God of the gaps.

This conception of God explains both why natural theology remained so adaptable throughout the 18th century, even when understandings of the working of secondary causes altered, and why Hume's critique of natural theology was, at the same time, so powerful and so relatively ineffective. Hume argued that it was not possible to identify the power that lay behind effects that were visible in nature through a chain of consequences and that it was human imagination, rather than reason, that presumed that a person might be always and fully in control of natural actions and reactions. The relationship between secondary causes and divine power posited by natural theologians was, for Hume, a denial of the true nature of God as supreme creator, which made God responsible for the trivial, contradictory, and mundane. Clear though Hume's reasoning seems to us, it ran up against the overwhelming success of Newtonian physics and theology in demonstrating that the universe was orderly and lawful, and in claiming that it therefore must respond to divine direction. Thomson says little about the appropriation of Newton for the design argument, a process that began before Newton himself endorsed it publicly through the General Scholium to the second edition of the *Principia* [1713]. Indeed, he appears quite confused about Newton's role in natural theology more generally, claiming, for example, that the Neoplatonist, Ralph Cudworth, who believed in the activity of a plastic, creative force in nature, was 'quasi-Newtonian' [205].

This sort of schoolboy error plagues Thomson's book on a scale that is remarkable for a work published by a reputable university press and that would be shocking even in the most hurried of trade publications. Almost every word in a foreign language is spelled incorrectly, including names ('des Cartes' [29]; 'Stenson or Steenson' [113]; 'Leewuenhoek' [81]; 'Leibnitz' [46]; 'd'Holback' [61], for Descartes, Stensen, Leeuwenhoek, Leibniz, and d'Holbach) or titles of books (Burnet's *Telluris theoria sacra* becomes *Telluria Theoria Sacra*).

Technical theological terms are garbled: ‘Non-Jurant’ is thus put for nonjuring and ‘Armenians’ mysteriously appear from the Caucasus to do battle with the theology of John Calvin (in place of followers of Arminius of Leiden) [52]. Attempts to provide a little historical context are hilarious in their ineptitude: the Plymouth Brethren, a sect whose development would usually be placed in the 1830s, are made to stand for the trials of nonconformity after 1662 [52]; with reference to almost the only year of relative peace in over two decades of conflict between Britain and post-revolutionary France, we are told sententiously that ‘we must also remember that in 1802, Britain was at war with France’ [54]. The loyal churchman, John Ray, is labelled, in a convoluted expression that betrays multiple misunderstandings, ‘not just a dissenter’ but ‘a Dissenter... although he retained a lay membership of the Anglican Church’ [64–66]. Titles are regularly mistaken: the Cambridge Hebraist, John Lightfoot, receives a knighthood [115], whereas James Ussher, Archbishop of Armagh, is downgraded to a bishopric [114]. Thomas Burnet loses his doctorate [141], while the homosexual libertine, Dr. John Woodward, is received into the priesthood of the Church of England (‘the Reverend Doctors... John Woodward’ [142]). Robert Hooke is correctly described as being eight years younger than Robert Boyle [33], but incorrectly assigned the year 1627 for his birth (which was, however, when Boyle was born). Strangest of all, perhaps, is the appearance of a drawing of Hooke [34], one of several vignettes executed by Thomson’s wife, Linda Price Thomson. Most of these, though smudgy, are recognizable for being copied from well-known images that might have been reproduced more accurately at little cost to the author or publisher: what is, of course, remarkable (although not mentioned) about Hooke’s portrait is that it must be the pure invention of Mrs Thomson, since no known likeness of Robert Hooke survives. Unless, that is, the portrait labelled ‘Hooke’ is meant to be of someone else. The book has been published with Yale’s usual, frustrating system of endnotes: these, however, are more frustrating than most, since the author has not bothered to provide page references for any of them (even those that reference quotations).

Although misunderstandings about how change took place bedevil Thomson’s account, in one respect his work offers the reader a more interesting perspective than the existing, standard accounts of the rise and demise of the design argument. Despite his frequently

teleological language and focus, Thomson remains alert to the fact which initially surprised him, that is, that Darwin himself was trained in the school of Paley. His best chapters consider this relationship more fully and show how the questions and solutions raised by Paley occupied Darwin on the *Beagle* voyage. It is a pity that Thomson did not devote more time and effort to his study of Paley himself. His account of the relationship between Paley and Malthus, for example, is pretty slight. The focus of much of the book on seeing Paley as the end of a tradition detracts from the more interesting possibilities that Thomson raises for tracing the continuity and development of the design argument in the early 19th century. In part, this is a consequence of the intellectualism of Thomson's account of change, in which arguments that are less wrong (from Thomson's perspective) inevitably win out over ones that are even worse in the march to improvement of science. Thomson does not consider the possibility that intellectual (let alone social or political) factors extrinsic to the narrow debate over the argument from design might have played a role in altering perceptions of the value of natural theology. As Thomson acknowledges, Paley himself was involved in the development of the concept of utility, which, in the hands of Malthus, Bentham, and, particularly, Mill, shifted the terms in which the argument from design might be understood. If utility implied the greatest good for the greatest number, then the utilitarianism of much natural theology, in which the activity of an all-powerful God was held responsible in a piecemeal fashion for what were often fairly limited or subjective benefits, seemed pretty unsatisfactory. Voltaire or Hume, in their very different ways, had exposed some of the logical shortcomings of the claims to utility made by natural theologians. Their criticisms of principle, however, may well have been less damning than the growing awareness of the shoddiness of argument practised by natural theologians in a society increasingly used to complex, statistical assessments of loss and gain.

Nevertheless, it seems unfair both to Paley and to the young Darwin to argue, as Thomson does, that 'Paley... contributed to the promotion of atheism in the form of the evolutionary theory of Darwin' [259]. Instead, it might have been safer to suggest that Darwin substantially reworked the utilitarian calculus that was present in most early modern natural theology, but which Paley had brought

to the fore. The consequences of that reworking for religious apologetics were complex and, in the initial uncertainty, Darwin's own faith was one among many that were shaken. Yet, for a God who works through natural causes, the theory of natural selection was not necessarily fatal. Only from a position of hindsight (and, to some extent, with the assistance of Darwin's later writings) does it become apparent that the theory of natural selection advanced in the *Origin of Species* cannot properly be understood in a form that allows straightforwardly for divine direction of its processes. The importance of random mutation in theories of sexual selection and, eventually, genetics posed and poses genuine problems for the idea of divine purpose in natural causes. Such randomness, however, remained deeply controversial for scientists as well as theologians, even during the 20th century. It is not to Thomson's credit that, in his principal description of natural selection [217–221], this critical aspect of the debate is left obscure. In this sense, if Thomson's purpose was to use history to clear up a contemporary disagreement between science and religion, he has simply chosen the wrong subject or at least the wrong period to write about.

Despite its clarity and the engaging insight that frames its narrative, this remains therefore a deeply unsatisfactory book. That there still exists no good, general treatment of natural theology that covers the entirety of its hey-day, from the 1650s until the 1870s, makes that all the more frustrating. Dissatisfaction with Thomson's argument is turned into annoyance by the shoddy presentation of his book. The grotesque sequence of factual and orthographical errors (most of them repeated in the index) indicate that nobody involved in the production of Thomson's book paid much attention to it once it had been drafted. If neither the author, nor his agent, nor the publisher's editor, nor a proof-reader, nor any of the distinguished names who are thanked for reading the manuscript, or who provide comments quoted by the publisher, could take the trouble to read the book carefully enough to correct such howlers, one must ask the question why should anyone else bother?