



Ideological and Metaphysical Dimensions of Modern Biology: A Review of *Biology and Ideology from Descartes to Dawkins*

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Abstract

Biology and Ideology from Descartes to Dawkins (The University of Chicago Press, 2010), a 454-page edited volume by Denis R. Alexander and Ronald L. Numbers, explores the dynamic interplay between science, religion, and ideology in a continuous historical framework. Comprising thirteen scholarly essays, the book examines how biology interacts with theological and philosophical domains of meaning. Employing a historical-analytical methodology, it demonstrates that biology has evolved not merely as an explanatory science of nature but also as an intellectual framework that functions as an ideological authority—constituting a significant contribution to the contemporary literature on science–religion relations.

Keywords: Biology, Ideology, Science–Religion relationship, Evolution, Naturalism, Theology.

Öz

Biology and Ideology from Descartes to Dawkins (University of Chicago Press, 2010), Denis R. Alexander ve Ronald L. Numbers tarafından derlenmiş 454 sayfalık bu eser, bilim, din ve ideoloji arasındaki dinamik etkileşimi süreklilik arz eden tarihsel bir çerçevede incelemektedir. On üç akademik makaleden oluşan kitap, biyolojinin teolojik ve felsefi anlam alanlarıyla nasıl etkileşime girdiğini ele almaktadır. Tarihsel-analitik bir yöntem benimseyen çalışma, biyolojinin yalnızca doğayı açıklayan bir bilim dalı olmaktan çıkarak, aynı zamanda ideolojik bir otorite işlevi gören entelektüel bir çerçeveye dönüştüğünü ortaya koymakta ve bu yönüyle bilim–din ilişkisine dair çağdaş literatüre önemli bir katkı sunmaktadır.

Anahtar Kelimeler: Biyoloji, İdeoloji, Bilim–Din ilişkisi, Evrim, Doğalcılık, Teoloji.

Introduction

The revolutions in physics, astronomy, and chemistry profoundly reshaped the intellectual foundations of human thought. For example, Copernicus’s heliocentric model prompted a radical re-examination of humanity’s cosmic position, Galileo’s telescopic observations undermined ecclesiastical authority, and Newton’s law of universal conceived of nature as a mathematically ordered system. Lavoisier’s chemical revolution further liberated the conception of matter from mystical interpretations. Yet none of these scientific transformations provoked epistemological and metaphysical debate as profoundly as those initiated by the rise of biology.

The emergence of evolutionary theory has transformed biology from a merely descriptive science into one situated at the heart of discussions about religion, belief, and the existence of God. Within this intellectual landscape, *Biology and Ideology from Descartes to Dawkins* stands as a major anthology exploring the interaction between science, religion, and ideology across historical and philosophical continua. Edited by Denis R. Alexander (The Faraday Institute for Science and Religion, Cambridge) and Ronald L. Numbers (University of Wisconsin–Madison)¹, the volume was published by The University of Chicago Press in 2010 with the support of the Templeton Publishing Subsidy Program. Consisting of thirteen essays are handled by scholars in the history of science, philosophy, theology, and sociology, the work demonstrates that science operates not merely as a means of explaining nature but as a framework for constructing meaning, morality, and worldviews.

¹ Denis R. Alexander - Ronald L. Numbers, “Introduction”, *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 5-7.

The central contribution of the collection lies in its analysis of the tension between the explanatory limits of science and the semantic field of faith. Alexander and Numbers emphasize two conceptual foundations—*methodological naturalism* and *metaphysical naturalism*—which together define the boundaries of modern scientific thought. While the former confines explanation to natural causes, the latter transforms this methodological constraint into an ontological claim that excludes divine agency. When science confines itself to the question of “how” and neglects “why”, the editors argue, the epistemic scope of both science and theology is diminished.

At this point, it would be appropriate to emphasize that the contributors to the edited volume employ the concepts of methodological and metaphysical naturalism in differing ways. For instance, Peter Harrison’s account of natural theology rests on a conception of order that may be understood as a historical interpretation of methodological naturalism², whereas Nicolaas Rupke’s claim that Darwin deliberately excluded the question of life’s origins appears to open the way for a broader naturalistic framework that assigns a metaphysical function to natural selection.³ Similarly, we consider Alister McGrath’s critique of the transformation of Darwinism into an atheistic worldview to present an approach that questions the limits of metaphysical naturalism.⁴ Within this context, Ronald L. Numbers’s chapter, “*Creationism, Intelligent Design, and Modern Biology*,” may be regarded as the contribution that most clearly articulates the conceptual distinction between these two uses of naturalism. Numbers provides significant conceptual clarity by arguing that methodological naturalism constitutes a procedural principle of scientific inquiry, whereas metaphysical naturalism represents an ontological claim.⁵ As he notes, while Phillip E. Johnson interprets even methodological naturalism as a form of implicit atheism,⁶ other contributors in the volume defend it as a methodological boundary that focuses not on the ultimate source of existence but on its observable processes. Recognizing these varied uses of naturalism, we suggest, enables a more rigorous assessment of both the conceptual diversity within the volume and the ideological dimensions of contemporary debates in modern biology.

Despite the absence of an explicit taxonomy, we can interpret the volume's essays according to three thematic axes. The first examines the relationship between biology and natural theology in

² Peter Harrison, “The Cultural Authority of Natural History in Early Modern Europe”, *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 11-38.

³ Nicolaas Rupke, “Darwin’s Choice”, *Biology and Ideology from Descartes to Dawkins*, ed. Ronald L. Numbers (Chicago: University of Chicago press, 2010), 158.

⁴ Alister McGrath, “The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics”, *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 329-352.

⁵ Ronald L. Numbers, “Creationism, Intelligent Design, and Modern Biology”, *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 303-305.

⁶ Phillip E. Johnson, *Defeating Darwinism by Opening Minds: An Easy-to-Understand Guide* (Downers Grove, Ill: InterVarsity Press, 1997), 91-92; See also: Phillip E. Johnson, an American Presbyterian lawyer and an early leader of the Intelligent Design movement, contends that methodological naturalism—despite claims of neutrality—operates as a form of thinly veiled atheism. By interpreting the methodological exclusion of divine agency as an implicit metaphysical stance, he argues that modern science embeds an atheistic framework beneath its procedural norms. Numbers, “Creationism, Intelligent Design, and Modern Biology”, 325-326.

the early modern period. William Paley's *Natural Theology* (1802)⁷ is presented as the classic articulation of the teleological argument, grounding belief in God on the order and purposiveness visible in nature. Paley's famous "watch on the heath" analogy interprets nature as the rational reflection of divine wisdom. Peter Harrison's essay "The Cultural Authority of Natural History in Early Modern Europe"⁸ highlights Robert Boyle's *metaphor of natural philosophers* as "priests of nature"⁹, reflecting an era when science was viewed as a sacred vocation aimed at discerning divine order.

The second axis investigates the ideological transformation of biology in the post-Darwinian context. Charles Darwin's *On the Origin of Species* (1859)¹⁰ introduced a new paradigm capable of explaining natural processes without recourse to divine intervention. While Darwin did not intend to deny God, his theory displaced theological explanations, situating biology in an ideological rather than epistemological framework. Over time, Darwinian evolution expanded beyond its biological scope, and has shaped modern conceptions of society, morality, and human nature. The third axis explores the influence of modern biology on religion, ethics, and society. Richard Dawkins's *The Blind Watchmaker* (1986)¹¹ epitomizes this stage, replacing Paley's designer with the metaphor of the "blind watchmaker". By contrast, Dawkins argues that nature's apparent order emerges from unconscious natural mechanisms. This interpretation elevates biology to a metaphysical domain, transforms science into an ideological instrument that supports atheistic interpretations of existence.

This position provoked a response from some contributors within the anthology itself. In "The ideological uses of evolutionary biology in recent atheist apologetics", Alister McGrath criticises the instrumentalization of Darwinism in support of atheism, asserting that such usage extends science beyond its legitimate epistemic boundaries and undermines its neutrality.¹² Science, he insists, must maintain its methodological discipline while avoiding metaphysical speculation. Likewise, in "Evolution and the Idea of Social Progress", Michael Ruse—who identifies himself as an atheist—expresses discomfort with the transformation of biology into a defence of atheism. Ruse⁶ argues that when science becomes an ideological belief system, it loses impartiality and collapses into metaphysical dogmatism. Biology thus becomes a framework within which humanity's moral and existential questions are redefined.¹³

⁷ Jonathan R. Topham, "Biology in the Service of Natural Theology: Paley, Darwin, and the Bridgewater Treatises", *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 92-101; see William Paley, *Natural Theology*, ed. Matthew D. Eddy - David Knight (Oxford: Oxford University Press, UK, 2006).

⁸ Harrison, "The Cultural Authority of Natural History in Early Modern Europe", 11-13-25-29.

⁹ Harrison, "The Cultural Authority of Natural History in Early Modern Europe", 28.

¹⁰ Rupke, "Darwin's Choice", 139-141,157-163; See also Charles Darwin, *The Origin of Species* (New York: P. F. Collier & Son, 1909); Alexander - Numbers, "Introduction", 7-8.

¹¹ McGrath, "The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics", 329-335.

¹² McGrath, "The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics", 329-335.

¹³ Michael Ruse, "Evolution and the Idea of Social Progress", *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 247-249,270-272.

The volume's overarching thesis is that biology has consistently maintained "two-way traffic" with the ideological climates of its time. From Paley's theological "watchmaker God"¹⁴ to Darwin's "blind selection"¹⁵ and Dawkins's "metaphysical naturalism"¹⁶, this genealogy demonstrates that science not only interprets nature but also reshapes the moral and religious imagination of modernity.

The anthology's significance extends beyond Western academia. Denis R. Alexander's invitations to speak at conferences in Turkey on "Evolution and Religion" underscore its influence on broader global intellectual discourse. Hence, the work provides an interdisciplinary model for analysing how scientific paradigms intersect with theological and philosophical commitments across cultures.

In conclusion, *Biology and Ideology from Descartes to Dawkins* emerges as a foundational reference for scholars investigating the epistemological limits and ideological extensions of science. Through its thirteen essays, the collection elucidates how biology has evolved from explanatory framework of natural theology into an intellectual system shaping moral and metaphysical assumptions. It approaches the history of science not simply as the accumulation of empirical knowledge but as an enterprise deeply intertwined with questions of meaning, ethics, and belief.

For researchers in Kalām, theology, and the philosophy of science, the anthology offers a comprehensive and critical framework for understanding how methodological naturalism can transition into metaphysical naturalism and how biology continually negotiates between scientific explanation and ideological interpretation. By mapping this intellectual trajectory—from divine design to blind mechanism and beyond—the work demonstrates that science, while methodologically limited, remains inseparable from humanity's broader quest for meaning and moral orientation.

1. Content Analysis and Evaluation

At this point, we believe that examining the relevant sections of the work within a framework of three turning points will be extremely useful for analysing how the authors relate biology to ideologies. The first period is shaped by the ideas of William Paley, which represent the intellectual culmination of natural theology. In the continuation of our study, we will closely examine the articles included in the compilation in detail within the context of this historical continuum, which extends from Paley to Darwin and from there to modern biological ideologies.

1.1. Early Modern Period: From Natural Theology to an Understanding of Evolutionary Natural Order

The anthology begins with Peter Harrison's essay "The Cultural Authority of Natural History in Early Modern Europe", which argues that natural theology provided the intellectual foundation for modern scientific inquiry. William Paley's *Natural Theology* (1802) is presented as the classical articulation of the theological "design argument," grounding belief in God upon the apparent

¹⁴ Topham, "Biology in the Service of Natural Theology", 92-101; Harrison, "The Cultural Authority of Natural History in Early Modern Europe", 25-29.

¹⁵ Rupke, "Darwin's Choice", 159.

¹⁶ Numbers, "Creationism, Intelligent Design, and Modern Biology", 325-327; McGrath, "The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics", 337-349.

order and purposefulness of nature. For Paley, nature was a readable “text” revealing divine wisdom; biology, therefore, assumed both scientific and theological significance.¹⁷ As Harrison notes, Robert Boyle described natural philosophers as “priests of nature”¹⁸ a metaphor expressing the early modern conviction that scientific investigation was a sacred vocation devoted to discerning divine order. This synthesis of science and theology persisted until Charles Darwin’s *On the Origin of Species* (1859) radically transformed it. Darwin sought to point out the order of life without divine intervention, effectively displacing theology from the realm of scientific explanation.¹⁹

Nicolaas Rupke’s “Darwin’s Choice” explores this shift, arguing that Darwin deliberately excluded the question of life’s origin, reducing the debate to the binary of “evolution or creation. By doing so, biology became central to a metaphysical confrontation.²⁰ Darwin’s theory presented nature as a self-sufficient mechanism operating independently of divine agency, laying the groundwork for scientific naturalism. Similarly, the editors of the volume argue that Darwinism developed beyond a biological theory into a secular worldview, transforming science into a system of meaning that supplanted divine teleology and contributed to the rise of “secular theology”.²¹

1.2. The Ideological Expansion of Biology in the Post-Darwinian Period, Eugenics, and Social Implications

The second major turning point emerges in the late nineteenth century, when biology assumed an ideological authority within social and moral domains. Evolutionary theory began to be invoked to justify political hierarchies and social policies. Paul Weindling’s “Genetics, eugenics, and the Holocaust”²² analyses how biology influenced eugenic and racial hygiene movements. He argues that science moved beyond mere explanation to legitimise social order, constructing a new “secular theology” that grounded moral norms in natural law. Michael Ruse’s “Evolution and the Idea of Social Progress”²³ similarly critiques the ideological misuse of evolutionary theory. Ruse maintains that transforming Darwinism into a “metaphysical weapon” against theology undermines the neutrality of science and risks converting it into a new belief system functioning in place of religion. As Paul Weindling argues, Darwinian thought in the post-Darwinian period began to transcend its scientific domain, evolving into a secular ideology that shaped moral and cultural values²⁴. Similarly, Michael Ruse maintains that science, having moved beyond its explanatory function, began to act as an arbiter of ethical norms, thereby reshaping the modern understanding of knowledge and moral authority. In this post-Darwinian context, biology no longer merely described the natural world but assumed a formative role in constructing social

¹⁷ Topham, “Biology in the Service of Natural Theology”, 92-101; see Paley, *Natural Theology*, 1-3.

¹⁸ Harrison, “The Cultural Authority of Natural History in Early Modern Europe”, 27.

¹⁹ Rupke, “Darwin’s Choice”, 139-141,157-163; See also Darwin, *The Origin of Species*; Alexander - Numbers, “Introduction”, 7-8.

²⁰ Rupke, “Darwin’s Choice”, 139-163.

²¹ Alexander - Numbers, “Introduction”, 6-9.

²² Paul Weindling, “Genetics, Eugenics, and the Holocaust”, *Biology and Ideology from Descartes to Dawkins*, ed. Denis R. Alexander - Ronald L. Numbers (Chicago: The University of Chicago Press, 2010), 192-214.

²³ Ruse, “Evolution and the Idea of Social Progress”, 247-272.

²⁴ Weindling, “Genetics, Eugenics, and the Holocaust”, 215-219.

ideology. The belief that natural laws determined moral and social order signified a decisive expansion of biology's intellectual influence, extending its authority into domains traditionally governed by philosophy and religion.²⁵

1.3. The Effects of Modern Biology on Religion, Morality, and Society

The third analytical axis examines the continuing impact of modern biology on religious thought, ethics, and society. Alister McGrath's "The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics" contends that evolutionary theory has been reconstituted as a metaphysical framework in contemporary discourse. Darwinism, he suggests, now functions not merely as a scientific theory but as a comprehensive worldview that assumes the interpretive and existential functions once held by religion. McGrath identifies Richard Dawkins's *The Blind Watchmaker* (1986) as an emblem of this shift: Dawkins's "blind watchmaker" metaphor elevates biology to a metaphysical level, transforming it into a vehicle for atheistic ideology.²⁶

McGrath cautions that when science answers the "how" of natural phenomena while encroaching upon the "why" of existence, it risks falling into ideological dogmatism. He argues that science should explain natural laws without making ultimate theological judgments—a position resonant with the kalām tradition, which holds that divine creation and natural law coexist harmoniously. As McGrath succinctly states, science does not eliminate God but rather describes the manner in which divine action operates within nature.²⁷

Thus, science and religion can coexist as epistemically complementary rather than mutually antagonistic pursuits. Erika Lorraine Milam's "Beauty and the Beast? Conceptualising Sex in Evolutionary Narratives" examines how sociobiology and evolutionary psychology have sought to biologise ethics, producing a "scientific morality" grounded in evolutionary utility. Milam contends that this reduction of moral freedom to biological determinism narrows ethical responsibility and risks collapsing moral philosophy into natural mechanism.²⁸

The anthology concludes with Ronald L. Numbers's "Creationism, Intelligent Design, and Modern Biology", which traces the evolution–creationism controversy from the Scopes Trial (1925) to *Kitzmiller v. Dover* (2005). Numbers shows how legal disputes transformed science into the standard of "public reason", relegating theological discourse to the intellectual margins. He argues that in modern societies, science has assumed the role of a public theology—an institutional authority defining the acceptable boundaries of rationality.²⁹

Across these three historical stages, the anthology demonstrates that biology has functioned not merely as a science of nature but as a transformative intellectual force shaping ideology, morality, and theology. The progression from Paley's natural theology through Darwin's evolutionary

²⁵ Ruse, "Evolution and the Idea of Social Progress", 351-359.

²⁶ Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (New York: Norton, 1996), 54-55.

²⁷ McGrath, "The Ideological Uses of Evolutionary Biology in Recent Atheist Apologetics", 339-341.

²⁸ Erika Lorraine Milam, "Beauty and the Beast? Conceptualizing Sex in Evolutionary Narratives", *Biology and Ideology from Descartes to Dawkins*, ed. Denis Alexander - Ronald L. Numbers (Chicago; London: The University of Chicago Press, 2010), 266-276.

²⁹ Numbers, "Creationism, Intelligent Design, and Modern Biology", 302-320.

mechanism, Dawkins's metaphysical naturalism illustrates both the expanding ambition and the inherent limits of science's claim to meaning.

As an interdisciplinary synthesis, *Biology and Ideology from Descartes to Dawkins* clarifies the ongoing tension between the methodological boundaries and ideological extensions of science. It provides scholars with a conceptual framework to comprehend the recurring intersections between biology's explanatory scope and metaphysical interpretation, thereby validating the work's enduring significance for theology, philosophy, and the history of scientific thought.

Results and Evaluation

The collection "Biology and Ideology from Descartes to Dawkins" demonstrates that biology is not merely a scientific discipline that explains nature; it has also become a decisive philosophical field in the construction of meaning, value, and belief. The articles in the work discuss how biology intertwined with theological, moral, and ideological discourses in different periods of scientific history from an interdisciplinary perspective. In this respect, the work is a significant contribution to the critical examination of science's epistemic authority in the modern world and particularly prompts a reevaluation of the claim of "scientific knowledge's neutrality." The studies included in the compilation demonstrate with concrete examples the transformation of methodological naturalism into metaphysical naturalism over time. The most striking example of the change can be seen in the intellectual line that extends from Paley's God-centred natural theology to Darwin's understanding of natural selection and, from there, to Dawkins' "blind watchmaker" metaphor. This process clearly demonstrates how science transcends its boundaries and transforms into an ideological framework.

In this context, the articles in the work have not only historical but also enduring intellectual value. The compilation offers an interdisciplinary analytical framework for analysing the emergence of science as a new "authority of meaning" replacing religion in modern societies, and it is considered an important reference source for understanding the effects of the biology-ideology nexus on modern thought.

However, it's important to acknowledge certain limitations of the work. Discussions, particularly those concerning biology and ideology, largely approached from a Euro-American perspectives, resulting in an insufficient representation of Islamic and Eastern thought traditions regarding the relationship between science and religion. However, the ways in which the theory of evolution and biological thought were received in Ottoman and Islamic intellectual circles have dynamics quite different from the secular-theological opposition in the West. Therefore, addressing this deficiency in future editions or the continuation of similar studies could enrich the scope of the work and provide a comparative depth. Additionally, certain imbalances in conceptual depth are noticeable among the chapters included in the compilation. Some articles emphasise historical descriptions, while others focus on intensive philosophical analyses. This variation is unavoidable in an interdisciplinary study; however, it sometimes disrupts the logical coherence of the work. However, the convergence of different approaches enhances the intellectual diversity and richness of the compilation and reveals the different dimensions of the biology-ideology relationship.

In conclusion, *Biology and Ideology from Descartes to Dawkins* is a key reference for researchers investigating the epistemological limits, ideological assumptions, and metaphysical assertions of science. This compilation, meticulously prepared by the editors, analyses modern humanity's search for meaning, morality, and belief, focusing on the historical development of biology. In this respect, the work makes original contributions to the literature on science-religion relations and provides a significant contribution to efforts to understand the ideological dimensions of science and its transformative effects on contemporary thought.

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