

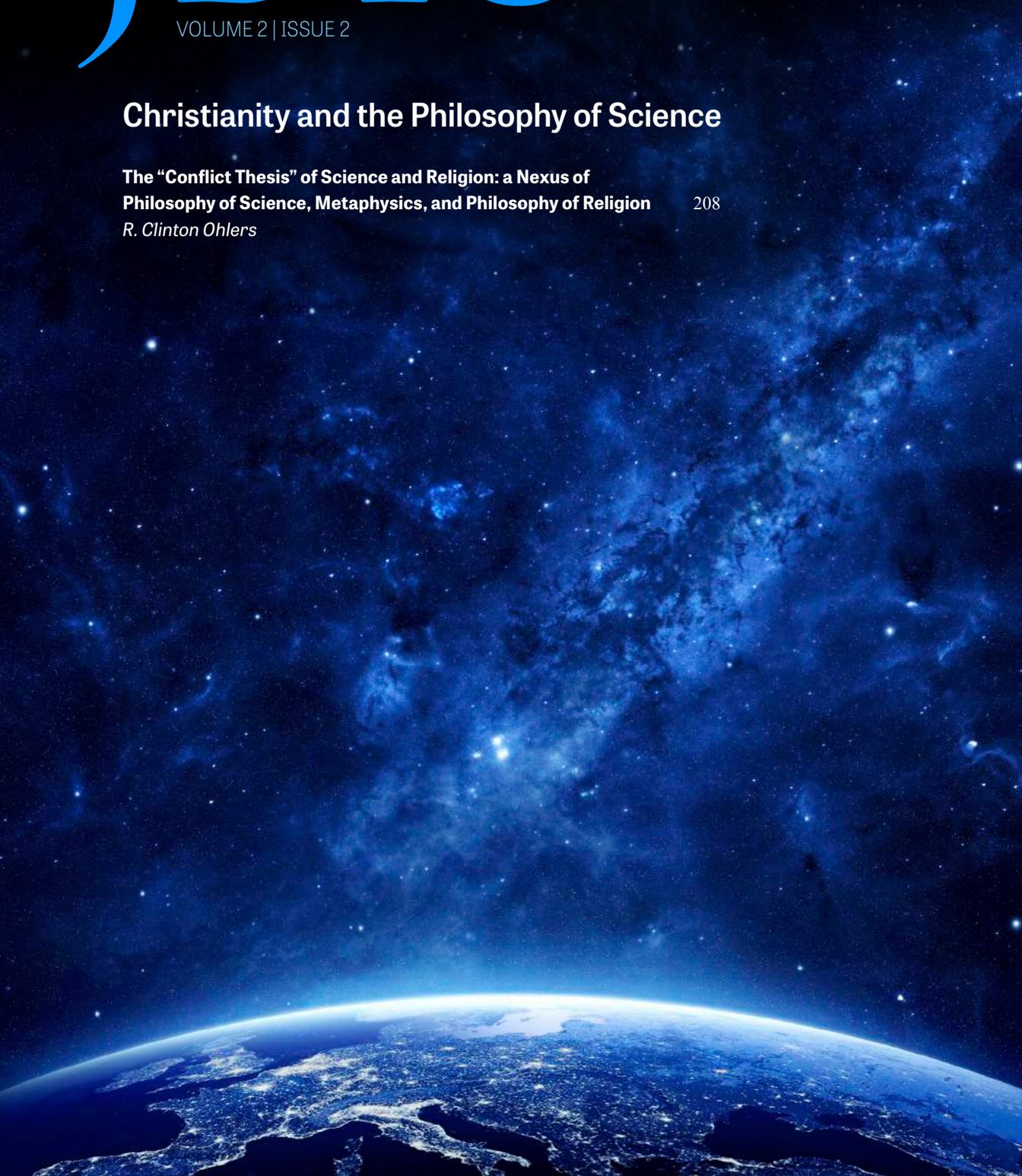
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*The “Conflict Thesis” of Science and Religion: a
Nexus of Philosophy of Science, Metaphysics, and
Philosophy of Religion*

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Abstract: The idea of inevitable and perpetual conflict between science and religion is known among historians as the “conflict thesis.” It exploded in popularity in the late nineteenth century with the rise of the Victorian scientific naturalists to positions of leadership in prominent scientific institutions. A common misperception exists concerning the two authors most central to the widespread dissemination and lasting popularity of the conflict thesis: John William Draper and Andrew Dickson White. This misperception assumes that because Draper and White pitted science and religion at odds, they were not themselves theologically engaged. On the contrary, Draper and White held very specific theological views and championed them in their written works. Like others at the time, they shaped their theology to conform to their vision of science, a vision articulated by scientific naturalism, with its commitments to inviolable natural laws and nature as a closed system of physical causes. They viewed their theologies as the solutions that would bring peace in the conflict between science and religion. Since the commitments shared by the Victorian scientific naturalists remain central in science as it is conceived to the present day, the theological adjustments to accommodate them also continue. To understand the work of Draper, White, and other leading Victorian scientific naturalists offers valuable insight into the nexus of philosophy of science, metaphysics, and philosophy of religion both in the late nineteenth century and in the ongoing scholarly discussion of divine action today.

Key Words: conflict thesis, Victorian scientific naturalism, God of the Gaps, philosophy of science, metaphysics, divine action

Introduction

The idea that science and religion have engaged perpetually in conflict throughout history has been called the “idea that wouldn’t die.”¹ It owes much of its popularity to two widely read works of the latter nineteenth century: John William Draper’s *History of the Conflict Between Religion and Science* (1874) and Andrew Dickson White’s *A History of the Warfare of Science with Theology in Christendom* (1896). Less well-known is the fact that Draper and White had their own theological positions. Not only did they openly promote their own theological views, they did so within these very works. What is more, both men claimed not to be promoting conflict between science and religion but to be *resolving* it. They perceived themselves not as antagonists, but as peacemakers. The proper response to their works, they believed, was a newly found peace and harmony between science and religion. That this is so raises a host of questions about what historians of science and religion have come to call the “conflict” or “warfare” thesis. Of these, the questions addressed here are the following: how was the popularization of the conflict thesis connected to the simultaneous rise of Victorian scientific naturalism, how and why did Draper and White’s theology develop out of apparent conflict between science and religion, and what light does that shed on contemporary debates about science and religion? Contemporary discussion is represented by Alvin Plantinga’s critique of the Divine Action Project in *Where the Conflict Really Lies: Science, Religion, and Naturalism* (2011), Lydia Jaeger’s *What the Heavens Declare: Science in the Light of Creation* (2012) and James Stump’s *Science and Christianity: An Introduction to the Issues* (2017). To answer these questions means encountering the concerns of the conflict thesis as emerging at a nexus of philosophy of science, metaphysics, and philosophy of religion.

I: Conflict with a Twist

The years in which Draper and White published their narratives of conflict encompass a greater timespan than that normally associated with the dates of their most famous works. Draper, a chemist, and co-discoverer of photography, had already published at length on science and religion in historic and unavoidable conflict a decade earlier in his six-hundred and twenty-two page *A History of the Intellectual Development of Europe* which appeared in 1863. That manuscript had been completed five years earlier in 1858.² Many of his theories of the laws governing nature and human societies appear in his work in the early 1840s and include the added influence of August

1. Jon H. Roberts, “‘The Idea That Wouldn’t Die’: The Warfare Between Science and Christianity,” *Historically Speaking* 4, no. 3 (2003): 21-24.

2. John William Draper, *A History of the Intellectual Development of Europe* (Honolulu HI: University Press of the Pacific, 2002), iii.

Comte by 1865.³ In 1860, he presented the book's central thesis as a paper before the Royal Society seated alongside Samuel Wilberforce and Thomas Henry Huxley, who then proceeded to engage in their famous verbal scuffle over Darwin. He planned to bring it to press in 1861 but delayed in finding a publisher due to the outbreak of another and more tragic conflict known as the American Civil War. Within a year of its release, the *History of the Intellectual Development* was already sold out and required a second addition.⁴ It soon appeared in the hands of readers as far away as the Ottoman Empire. In spite of its success, it was Draper's 1874 abridgment of this work for popular consumption that, with slight modifications, became an immediate runaway international best seller. That abridgment was, of course, his famous *History of the Conflict Between Religion and Science*.⁵

The younger White, meanwhile, was not idle. Although raised an Episcopalian, he had already developed many of his views on science and religion in his youth through Unitarian influences that tended to favor a respectable deism. These views intensified during his student years at Yale in the 1850s. Although then theologically conservative, New Haven offered access to the leading Unitarian churches of Boston and New York. After graduation, White studied in Berlin. There he contracted dual contagions — he caught the bug to teach history and the bug of educational reform on the model of the German university. Returning to America he found employment as a professor of history at the University of Michigan, then attempting German-type reforms. Five years later, while serving in the New York Senate, White capitalized on an opportunity to found a new university on the German model — Cornell. White served as its first president for eighteen years. In 1884, he also became the first president of the newly formed professional body for historians, the American Historical Association.⁶ His reputation as an academic historian and influential university president bestowed significant scholarly authority on the thesis that Draper had catapulted to international notoriety.⁷

3. Lawrence M. Principe, "Origins of the Warfare/Conflict Thesis," in *The Idea That Wouldn't Die*, ed. Jeffery Hardin and Ronald L. Numbers (forthcoming).

4. Draper, *Intellectual Development*, iii-iv.

5. Donald Fleming, *John William Draper and the Religion of Science* (Philadelphia: University of Pennsylvania Press, 1950), 93, 193; Leslie Howsam, "An experiment with science for the nineteenth-century book trade: the International Scientific Series," *British Journal for the History of Science* 33 (2000): 198; Ronald S. Wilkinson, "Introduction," in John William Draper, *Life of Franklin*, ed. Ronald S. Wilkinson (Washington, D.C.: Library of Congress, 1977), xi; Jeffrey Russell, *Inventing the Flat Earth: Columbus and Modern Historians* (New York: Praeger, 1991), 41.

6. Andrew Dickson White, *Autobiography of Andrew Dickson White*, vol. 1 (New York: The Century Co., 1905), 277-78; Andrew D. White, "On Studies in General History and the History of Civilization," *Papers of the American Historical Association* 1 (1886): 49; [https://www.historians.org/about-aha-and-membership/aha-history-and-archives/presidential-addresses/andrew-dickson-white-\(1884\)](https://www.historians.org/about-aha-and-membership/aha-history-and-archives/presidential-addresses/andrew-dickson-white-(1884)) (accessed 6/30/2017).

7. David C. Lindberg and Ronald L. Numbers, "Beyond War and Peace: A Reappraisal of the Encounter Between Christianity and Science," *Church History* 55, no. 3 (1986): 340; Russell, *Inventing the Flat Earth*, 41.

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In the 1860s, neither the University of Michigan nor Cornell was secular in the way we would think of a non-religiously affiliated university today. Rather, as White described them in his autobiography, they were essentially non-denominational Christian universities with mandatory chapel services and a professoriate that represented the wider diversity of American denominational life. Nevertheless, the appearance of such large universities, bolstered by state support and not governed by a conventional religious body, threatened the interests of the private religious universities under denominational control and brought strident opposition.⁸

Concerned therefore about the conflict between restrictive denominational interests and unfettered intellectual progress, White began lecturing and writing on the conflict between science and religion, not yet aware that this would also become his defining life's work. In 1869, White gave a lecture at the Cooper Union in New York, entitled "The Battle-fields of Science." Its central argument would appear unchanged throughout all of his later writing on the subject from that year through the appearance of his two-volume autobiography in 1905. The 1869 lecture was immediately reprinted the next day in full in the *New York Tribune* at Horace Greeley's request. White's new venture was off to a notable start. In 1876 he expanded the lecture into *The Warfare of Science*, a short work that he continued to develop during the next twenty years. In 1896 he released his detailed two-volume magnum opus of over eight hundred pages, *A History of the Warfare of Science with Theology in Christendom*.⁹

The surprising theme found in both authors' best-known works, given their titles of *Conflict* and *Warfare*, is that Draper and White both agreed that religion could find a positive future if it embraced wholeheartedly the findings of science and shaped its theology accordingly. In the introduction, Draper asserted that two great branches of Christianity, Protestantism and the "Greek Churches," would be largely absent in the narrative of conflict about to unfold. Roman Catholicism, because of its authoritative and unchanging dogma and its exercise of civil power, was "absolutely incompatible" with science, and received blame for most of the conflict. Whether there might be a path to future reconciliation between the two, Draper saw "formidable, perhaps insuperable obstacles." The Greek branch, in his opinion, had "never, since the restoration of science, arrayed itself in opposition to the advancement of knowledge." Instead it had awaited reconciliation of apparent discrepancies between science and theology "and has not been disappointed."¹⁰ But how was Protestantism to be absolved? Draper's prescription offers an initial glimpse into his theological designs. In the closing pages, Draper also raised hope for Protestantism if the Protestant churches "would only live up to the maxim taught by Luther." That maxim, "the right

8. White, *Autobiography*, vol. 1, 299.

9. *Ibid.*, 437.

10. John William Draper, *History of the Conflict Between Religion and Science*, 4th ed. (New York: D. Appleton and Co., 1875), x.

of private interpretation,” if applicable to biblical revelation must also be extended to “the book of Nature.” Between science and Protestantism, then, there existed “a friendship, that misunderstandings have alienated,” waiting “to be restored.”¹¹ The friendship was by no means an equal partnership, as virtually every traditional Christian belief would have to be jettisoned—from the virgin birth, miracles, the resurrection, to the doctrine of the Trinity.

In contrast, White viewed all the branches of Christianity as equal opportunity offenders, but at the same time he reacted against Draper’s account as too negative. White asserted that conflict was temporary and a rapprochement of science and religion would be the ultimate outcome of these struggles. He assured:

In all modern history, interference with science in the supposed interest of religion—no matter how conscientious such interference may have been—has resulted in the direst evils both to religion and science, and *invariably*. And, on the other hand, all untrammelled scientific investigation, no matter how dangerous to religion some of its stages may have seemed, temporarily, to be, has invariably resulted in the highest good both of religion and science. I say *invariably*—I mean exactly that. It is a rule to which history shows not one exception.¹²

That is the statement as it appeared in the *New York Tribune* in 1869, the day after he delivered it. He later removed the last sentence, made minor punctuation changes, and replaced a single word with a synonym. Other than that, the statement appeared identically in his *Warfare of Science* (1876), his 1896 magnum opus, and his autobiography of 1905. However, his vision for religion would also mean abandoning the major doctrines of Christianity.

That both men developed their general outlooks closer to the middle of the century and both deployed them in print around the year 1875 prompts the question of whether or not deeper causal agents were at work. Certainly, White was influenced by Draper’s earlier piece of 1863, as he acknowledges. That said, there is more to the story. One such causal agent was that the conflict thesis was not a new idea. The trope can be found in England at the turn the seventeenth century, as an appeal among Christians to emancipate natural philosophy from theological restrictions. In the eighteenth century, deists adapted the storyline to promote their theological cause. Deists painted the traditional Christian commitment to divine supernatural revelation as an obstacle to the growth of human knowledge and the source of all sorts of human suffering. Meanwhile, they claimed for their own “natural religion”

11. *Ibid.*, 363.

12. Andrew D. White, “First of the Course of Scientific Lectures: Prof. White on ‘the Battle-Fields of Science,’” *New-York Tribune* (December 18, 1869): 4.

R. Clinton Ohlers: *The “Conflict Thesis” of Science and Religion* a superior commitment to objective enquiry.¹³ Nevertheless, it required the unique developments of the middle and late nineteenth centuries to propel the conflict thesis to international bestseller status.

II. Science, Christianity, and Victorian Scientific Naturalism

To understand the intellectual developments of the late nineteenth century, it is helpful to recall that the dominant religious perspective in the English-speaking world at that time was Christianity, and it is helpful to think of the scientific advancements of that century that impinged on Christianity as of two types, discrete and large-scale. Discrete types of discoveries could bring into question particular passages in the Bible, specific theological assumptions, or commonly held interpretations, but they were discrete in the sense that they were separate and detached from the larger Christian worldview of classical theism. They did not impinge upon the belief in a God who created the universe and could also act miraculously within it. Discoveries early in the 1800s, such as those that indicated that the earth must be much older than 6,000 years are an example of the discrete type. As much as such challenges appealed to skeptics, they presented a manageable interpretative challenge for believers. That this was the case is attested by the speed with which believing scientists and theologians developed alternative interpretations to account for greater time spans, such as the “Gap” and “Day-Age” theories for the Genesis days. Certainly, it helped that precedence for interpreting the days as other than as literal twenty-four hour periods stretched back to the era of the Church Fathers.¹⁴ Even the earlier Copernican revolution, although enormous in its scale in that it restructured the common understanding to the entire universe, was nevertheless discrete in terms of belief. Its resolution for Christianity required only the reinterpretation of a few verses of sacred poetry.

More challenging but still discrete in character, was the discovery of the ancient past of the human race. Not until 1858, the year before Darwin’s *Origin* appeared, did a scientific discovery provided concrete evidence of a much deeper past for humanity. Charles Lyell’s *Antiquity of Man* appeared on the subject in 1863. Yet, even this challenge was met by reinterpreting passages of the Old Testament in light of the new evidence. The renowned historian and philosopher of science William Whewell, Master of Trinity College, Cambridge, himself a devout Christian, attested to both the impact and the potential for resolution in a letter dated January 4, 1864.

13. For a detailed history of these developments see R. Clinton Ohlers, *The Birth of the Conflict Between Science and Religion* (forthcoming); for a brief, informative overview, see Peter Harrison, “That Religion Has Typically Impeded the Progress of Science,” in *Newton’s Apple and Other Myths About Science*, ed. Ronald Numbers and Kostas Kampourakis (Cambridge, MA: Harvard University Press, 2015), 199-200.

14. Andrew J. Brown, *The Days of Creation: A History of Christian Interpretation of Genesis 1:1-2:3* (Blandford Forum: Deo Publishing, 2014).

Corresponding about Lyell's new book with a close friend, the Scottish physicist and Principal of St. Andrews, James David Forbes, Whewell wrote:

I cannot see without some regrets the clear definite line, which used to mark the commencement of the human period of the earth's history, made obscure and doubtful. . . . It is true the reconciliation of the scientific with the religious view is still possible, but it is not so clear and striking as it was. But it is a weakness to regret this; no doubt another generation will find some way of looking at the matter which will satisfy religious men. I should be glad to see my way to this view, and am hoping to do so soon.¹⁵

By contrast, several discoveries took place from the tail end of the eighteenth century through the better part of the nineteenth century that could be interpreted by those skeptical of traditional Christianity as posing a large-scale challenge to traditional theism itself. In 1796, the astronomer Pierre-Simon Laplace introduced the nebular hypothesis, proposing that the solar system was the result of natural developments over a lengthy period of time, thereby bringing the heavens under the rule of natural law.¹⁶ Laplace also assumed that nature was a closed, deterministic system of natural laws, not open to divine intervention from outside of it.¹⁷ In 1828, Friedrich Wöhler unexpectedly synthesized urea from ammonium cyanate. Urea was thought only to be produced by living organisms. Herman Kolbe made a similar synthesis from coal, diminishing the apparent separation of life from non-living elements. In the following decades, Wöhler's experiment achieved a mythic and exaggerated significance among chemists, particularly after Wöhler's death in 1882.¹⁸ The outcome was understood to bring chemistry into the fold of naturalized sciences. In the 1840s, Julius Robert von Mayer, James Prescott Joule, and Hermann von Helmholtz established the first law of thermodynamics, known as the conservation of energy, which states that energy is neither created nor destroyed, but remains constant in a closed system.¹⁹

If anything captured the imagination of a religious skeptic in the mid to late nineteenth century it was faith in the primacy and inviolability of natural laws. From the point of view of those skeptical of Christianity, the capstone of these developments was the 1859 publication of Darwin's *Origin of Species*. Although all of these developments, including evolution (divinely directed and with certain limits), were rapidly appropriated by many conservative Christians in the nineteenth

15. Isaac Todhunter, ed., *William Whewell, Master of Trinity College, Cambridge: An Account of His Writings*, vol. 2 (London: Macmillan and Co., 1876), 435-37.

16. Ronald L. Numbers, *Creation by Natural Law: Laplace's Nebular Hypothesis in American Thought* (Seattle: University of Washington Press, 1977), vii-viii.

17. Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion, and Naturalism* (New York: Oxford University Press, 2011), 85.

18. Peter Ramberg, "That Friedrich Wöhler's Synthesis of Urea in 1828 Destroyed Vitalism and Gave Rise to Organic Chemistry," in *Newton's Apple and Other Myths About Science*, ed. Ronald Numbers and Kostas Kampourakis (Cambridge, MA: Harvard University Press, 2015), 60-61, 66.

19. Plantinga, *Where the Conflict Really Lies*, 78.

R. Clinton Ohlers: *The "Conflict Thesis" of Science and Religion* century with minimal difficulty, notwithstanding initial stirs,²⁰ those disenchanting with Christianity spied a trend.²¹ For them, not only had the *Origin* brought botany and zoology under the scope of natural laws, it did so by bringing together the discrete and the large-scale challenges at one and the same time. Darwin's theory of evolution, as he articulated it, struck not only at the Genesis account as widely understood, but it also struck decidedly at the classical theistic world-view by bringing divine design into question and seemingly removing direct divine action from the history of life after its first appearance.

In the English-speaking world of science, centered on the Royal Society in England, a group of "Young Turks" chafing under the Anglican establishment were quick to capitalize on the developments of the century's first sixty years.²² They are known as the Victorian Scientific Naturalists. Historian of science and religion, Ronald Numbers, has characterized this circle as a "noisy group of British scientists and philosophers led by Huxley and the Irish physicist John Tyndall" who "began insisting that empirical naturalistic science provided the *only* reliable knowledge of nature, humans, and society."²³ Bernard Lightman explains, "This cluster of ideas and attitudes was 'naturalistic' in the sense that it would permit no recourse to causes not empirically observable in nature, and scientific because it drew on three major mid-nineteenth-century theories: (1) the atomic theory of matter; (2) the theory of the conservation of energy; and (3) the theory of evolution."²⁴ The Victorian scientific naturalists also embraced a conception of uniformity of nature that entailed natural laws as inviolable.²⁵ This in itself was a metaphysical assumption, and they defended such an assumed metaphysics as a requirement of true science, a position that had been asserted by the philosopher John Stuart Mill. As I argue elsewhere, all of the elements necessary for a truly naturalized vision of science converged only

20. See, for example, William Whewell, *Astronomy and General Physics: Considered with Reference to Natural Theology* (Philadelphia: Carey, Lea and Blanchard, 1833); and Bradley J. Gundlach, *Process and Providence: The Evolution Question At Princeton, 1845-1929* (Grand Rapids, MI: William B. Eerdmans, 2013).

21. T. H. Huxley had famously written in 1860, in his review of Darwin's *Origin*, "Extinguished theologians lie about the cradle of every science is the strangled snakes beside that of Hercules," and he saw this as the historical pattern (Thomas H. Huxley, *Lay Sermons, Addresses, and Reviews* [New York: D. Appleton and Co., 1870], 278.)

22. Frank M. Turner, "The Victorian Conflict Between Science and Religion: A Professional Dimension," in *Contesting Cultural Authority: Essays in Victorian Intellectual Life* (Cambridge; New York: Cambridge University Press, 1993).

23. Ronald L. Numbers, "Science Without God: Natural Laws and Christian Beliefs," in *When Science and Christianity Meet*, ed. David C. Lindberg and Ronald L. Numbers (Chicago: University of Chicago Press, 2003), 281.

24. Bernard Lightman, "Victorian Sciences and Religions: Discordant Harmonies," in *Science in Theistic Contexts: Cognitive Dimensions*, ed. John Hedley Brooke, Margaret J. Osler, and Jitse M. van der Meer, *Osiris* 2nd Series (2001): 346.

25. R. Clinton Ohlers, "The End of Miracles: Scientific Naturalism in America, 1830-1934" (diss., University of Pennsylvania, 2007); Ohlers, *Birth of the Conflict*.

in the 1860s and 1870s and did not become dominant until the end of the century.²⁶ It is also commonly held that scientific naturalism entails ontological naturalism, asserting “there is no supernatural order above nature.”²⁷ While such a statement might be true for a later era, it does not describe Victorian scientific naturalism, as will become apparent.

The men who became the Victorian scientific naturalists were more than youths at the turn of 1840. They rose to professional influence and prominence by the 1870s. In 1874 in Great Britain and 1878 in the United States, leading lights among them advanced to the highest level of leadership in the British Association for the Advancement of Science, one of Britain’s two foremost scientific associations, and its transatlantic counterpart, the American Association for the Advancement of Science. John Tyndall’s famous “Belfast Address” of 1874 as president of the BAAS may be considered the premier example of an intended pronouncement of Victorian scientific naturalism as the new standard of scientific reasoning. In the speech, Tyndall employed the conflict thesis between science and religion for the purpose of promoting naturalistic assumptions over supernaturalist ones in a scientists’ approach to nature. He borrowed from the narratives of Draper’s *A History of the Intellectual Development of Europe* and Friederich Lange’s influential *History of Materialism* (1866) to argue that it was not merely ignorance or dogmatism, but theism itself that blocked scientific advance.

Tyndall listed theories of the early Greek atomists of the fifth century B.C. that appeared to anticipate the big three scientific developments that Lightman noted: the renaissance of atomism, the law of the conservation of energy, and the theory of evolution. The atomists’ naturalistic metaphysics epitomized the “radical extirpation of caprice and the absolute reliance upon law in Nature” that, Tyndall proclaimed, “science demands.”²⁸ After eliminating from the pantheon of Greek natural philosophy thinkers like Socrates, Plato, and Aristotle, who did not fit this model, Tyndall declared that by the second century A.D., “the science of ancient Greece had already cleared the world of the fantastic images of divinities operating capriciously through natural phenomena.”²⁹ By contrast, the delay until the nineteenth century of these discoveries owed to the influences of Socrates, Plato, Aristotle, and the rise of Christianity in promoting speculation on final causes and divine intervention in nature. Ironically, in borrowing from Draper, Tyndall often removed the little

26. R. Clinton Ohlers, “Natural Laws and Genesis: A Historical Enquiry,” paper presented at the American Theological Society Annual Meeting, San Antonio, November 2017; Ohlers, *The Birth of the Conflict*.

27. Edward B. Davis and Robin Collins, “Scientific Naturalism,” in *Science and Religion: A Historical Introduction*, ed. Gary B. Ferngren (Baltimore: The Johns Hopkins University Press, 2002), 232.

28. John Tyndall, “Inaugural Address Before the British Association,” *Popular Science Monthly* 5 (August, 1874): 653.

29. *Ibid.*, 656.

R. Clinton Ohlers: *The "Conflict Thesis" of Science and Religion* nuance that even Draper had allowed. If not fully materialistic, the point of Tyndall's address was clear: traditional theism was a threat to scientific thinking; naturalistic assumptions were the only valid premises.

As we noted, Tyndall was not alone nor were fellow scientific naturalists limited to Great Britain. In the United States, the American equivalent of Belfast occurred in St. Louis in 1878, where Simon Newcomb delivered his inaugural address as President of the American Association for the Advancement of Science. Newcomb, a mathematical astronomer and Fellow of the Royal Society, echoed Tyndall's themes. As in Great Britain, the prevalence of Christian theism among Americans during this period was a primary obstacle to belief in nature as closed system of uninterrupted natural laws. The lecture, entitled "The Course of Nature," directly confronted theistic belief, specifically targeting the doctrine of special providence. In special providence, God employed natural causes to purposefully bring about events that otherwise would not have occurred. The doctrine appeared to many to be compatible with the operation of natural laws.³⁰ Newcomb intended to disabuse his audience of such a notion. "I have but a single central idea to present to you," Newcomb announced to his St. Louis audience, "namely, that of the simplicity and universality of the laws of Nature."³¹ That the laws of nature are simple in their design and universal would be taken as a given by nineteenth-century men of science. For Newcomb, "simple" and "universal" were terms he meant to make synonymous with inviolable and uninterrupted or added to. Using the example of a murderer struck dead by a falling rock, Newcomb left no room for God to somehow interfere so that the rock might strike at the right place and time. Either natural causes operated without interference all the way back to the point of initial creation, or there was some point at which the divine intervenes and physically alters the chain of cause and effect. To physically alter the effect of water on the dirt that supports the stone was for Newcomb no different than to physically alter the effect of gravity and launch the rock it into the air.

The central figure in the dissemination of scientific naturalism in America, and of the conflict thesis worldwide, was the scientific lecturer and editor Edward Livingston Youmans (1821-1887). His famous contemporary and biographer John Fiske dubbed Youmans both the nation's "interpreter of science for the people" and "America's apostle of evolution."³² As the science editor for Appleton's publishing house, Youmans founded the magazine *The Popular Science Monthly* in 1871. In the years before his death in 1878, Youmans published an array of scientific notables

30. Robert Bruce Mullin, "Science, Miracles, and the Prayer-Gauge Debate," in *When Science and Christianity Meet*, ed. David C. Lindberg and Ronald L. Numbers (Chicago: University of Chicago Press, 2003), 210.

31. Simon Newcomb, "The Course of Nature: An Address Before the American Association for the Advancement of Science, At St. Louis, August 22, 1878," *Popular Science Monthly* supplement, 13-18 (1878): 481.

32. John Fiske, *Edward Livingston Youmans, Interpreter of Science for the People a Sketch of His Life* (New York: D. Appleton and Co., 1894), 148.

including virtually every leading Victorian scientific naturalist in the English-speaking world and many from across Europe. Tyndall and Newcomb's addresses appeared in the *Monthly*. It was Edward Youmans who approached Draper in 1873 to write the *History of the Conflict Between Religion and Science* as a popularization of the themes in his earlier *History of the Intellectual Development of Europe* for Youmans' International Scientific Series. Youmans even appears to have recommended its title.³³ While Draper's work was still rapidly selling out printings, Youmans published White's *Warfare of Science* in 1876 in serial form in the pages of the *Monthly* and in book form through Appleton's. Twenty years later, new chapters of White's expansion appeared in the *Monthly*, under the editorship of Youmans' younger brother and longtime collaborator, Jay Youmans. Appleton's again published the work, now two volumes, under a new title.

III: The Theology of Scientific Naturalism

Given the dominance of Christianity within the English speaking world, as well as the numbers of practicing scientists who were also practicing Christians, it comes as little surprise that Tyndall and Newcomb entangled themselves in controversies that lasted nearly a year after each of their addresses. The physicist and devout Christian, James Clerk Maxwell, known today for Maxwell's equations was particularly critical of Tyndall, as were others.³⁴ Newcomb, for his part, became embroiled in debate with individuals ranging from Harvard's Asa Gray to Princeton's (then the College of New Jersey) President, James McCosh.³⁵ What may be more of a surprise is the degree to which Tyndall and Newcomb claimed to approve of "religion." Both relied on Kantian distinctions. Tyndall evaded materialism by asserting that natural processes of nature and of evolution were "the manifestation of a power absolutely inscrutable to the intellect of man."³⁶ Newcomb also viewed the divine as inaccessible to human senses and limited the rightful place of theology to one of speculation on this inaccessible realm. Whereas Tyndall appears to have been something of a pantheist,³⁷ Newcomb favored deism whereby there existed only a single moment of divine intervention, so to speak, at the very beginning where the underlying laws by which nature itself operated came into being.³⁸

33. Fleming, *John William Draper*, 125.

34. Matthew Stanley, *Huxley's Church and Maxwell's Demon: From Theistic Science to Naturalistic Science* (Chicago: University of Chicago Press, 2014), 189-92.

35. Albert Moyer, *A Scientist's Voice in American Culture: Simon Newcomb and the Rhetoric of Scientific Method* (Berkeley: University of California Press, 1992), 135-45.

36. Tyndall, "Inaugural Address," 682.

37. Ruth Barton, *John Tyndall, Pantheist: A Rereading of the Belfast Address* (Philadelphia: History of Science Society, 1987).

38. Newcomb, "The Course of Nature," 493.

Draper and White, along with Youmans, shared with Tyndall and Newcomb a common outlook on the significance of natural law for divine action in the physical universe and its importance to science. In his *Intellectual Development*, Draper spoke of science as the recognition of "immutable laws" over "the doctrine of arbitrary volition."³⁹ In his preface to the *History of the Conflict*, he announced, "We are now in the midst of a controversy, respecting the mode of government of the world, whether it be by incessant divine intervention, or by the operation of primordial and unchangeable law."⁴⁰ Draper and White based their understanding of history on the idea, developed by thinkers such as Hegel, Strauss, Comte, and Spencer, that human civilizations advanced through phases likened to human infancy, adolescence, maturity, and old age. The era of maturity was epitomized by acceptance of modern science of a world governed by natural laws alone. Draper devoted his six-hundred and twenty-three pages to tracing out this pattern in Western history.

White took an approach that would become known as intellectual history. He focused on the development of major branches and sub-branches of the physical and human sciences. In each chapter White traces the development of a different science from belief in the supernatural to the discovery of natural laws. He contrasted belief in "almighty caprice" and with that of "all-pervading law."⁴¹ The growth of scientific thought overcame men's explaining "everything by miracle and nothing by law" to explaining all things in the natural and human science by unbending law.⁴² Chapter titles emphasized this pattern: "Genesis to Geology," "The Prince of the Power of the Air to Meteorology,"⁴³ "From Magic to Chemistry," "From Miracles to Medicine," "From 'Demonic Possession' to Insanity," and so forth. Each chapter followed a standard narrative of movement from belief in supernatural causes to discovery and widespread recognition of natural causes resulting from uniform laws. White ended each section with the assertion that the scientific developments had ultimately benefited religious belief.

For Draper, belief in an inviolable system of natural laws promoted true monotheism. His own theological view was that of a pantheistic monism that included a form of immortality of the human soul after death and attributed rationality to the mind of the deity. Both his pantheism and his view of the immortality (if not lasting individuality) of the human soul was connected to the laws of the conservation of energy. Draper writes: "The doctrine of the conservation and correlation of Force yields as its logical issue the time-worn Oriental [i.e., Averroist] emanation

39. Draper, *Intellectual Development*, 3, 13.

40. *Ibid.*, xv.

41. Andrew Dickson White, *A History of the Warfare of Science With Theology in Christendom*, vol. 1 (D. Appleton and Co., 1896), 15.

42. Andrew Dickson White, *A History of the Warfare of Science With Theology in Christendom*, vol. 2 (D. Appleton and Co., 1901), 29, 290.

43. The "Prince of the Power of the Air" is Satan, as described by the Apostle Paul in Ephesians 2:2.

theory” which holds “that a portion of the already existing, the divine, the universal intelligence, is imparted, and, when life is over, this returns to and is absorbed in the general source from which originally came.”⁴⁴

Draper argued that pantheism emerged historically whenever a culture faced the truths of nature. It was Islam that first and most fully exemplified this marriage of monotheism and inflexible natural law in the pantheistic monism of tenth and eleventh-century Averroism. Pantheism represented the reconciliation of religion with science. “Why should we cast aside solid facts presented to us by material objects?” Draper asked. “In his communications throughout the universe with us, God ever materializes. He equally speaks to us through the thousand graceful organic forms scattered in profusion over the surface of the earth, and through the motions and appearances presented by the celestial orbs. Our noblest and clearest conceptions of his attributes have been obtained from these material things.”⁴⁵ By contrast, every form of historic Christianity, with its embrace of the Trinity and divine intervention in nature, was a product of pagan superstition.⁴⁶

White was more comfortable with Christian traditions and symbols than was Draper. Deeply influenced by Transcendental Unitarianism in his youth, by the English poet and intellectual Mathew Arnold (1822-1888), and a desire to retain historical Protestant traditions, at least in liturgical form, White’s preferred religious affiliation was with the Episcopalian denomination in which he was raised. His biographer, Glenn Altschuler, reflected that “White was among the rarest of hyphenates, a Parkerite-Episcopalian.”⁴⁷ The hyphenation is apt. The Transcendentalist Unitarian Theodore Parker (1810-1860) has been described as a leading figure who influenced the Unitarians away from adherence to the authority of the Bible and belief in miracles, in favor of views compatible with the naturalism of David Friederich Strauss’ *Life of Jesus* (1835). Abhorrent of Calvinistic doctrine as cruel, and famous for promoting moral truths alone as that which is permanent and lasting in Christianity, Parker famously criticized the Church as being more concerned with creeds than with truth.⁴⁸ White adopted the same views in his adolescence in Saratoga and during his undergraduate years in New Haven, from where he traveled to hear Parker preach in Boston.⁴⁹ Thereby, he arrived at his view of what was essential in true religion,

44. Draper, *History of the Conflict*, 358.

45. Draper, *Intellectual Development*, 579.

46. John William Draper, *Thoughts on the Future Civil Policy of America* (New York: Harper and Brothers, 1865), 200-3.

47. Glenn C. Altschuler, *Andrew D. White - Educator, Historian, Diplomat* (Ithaca, NY: Cornell University Press, 1979), 21.

48. Goodman Russell, “Transcendentalism,” *The Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/sum2017/entries/transcendentalism/> (accessed May 11, 2017); Albert Post, *Popular Freethought in America, 1825-1850* (New York: Octagon Books, 1974), 196; Dean Grodzins, “Theodore Parker,” *Dictionary of Unitarian and Universalist Biography*, <http://uudb.org/articles/theodoreparker.html> (accessed May 11, 2017).

49. White, *Autobiography*, vol. 2, 519ff.

R. Clinton Ohlers: *The "Conflict Thesis" of Science and Religion* borrowed not from ancient creeds or study of the New Testament but from Mathew Arnold's⁵⁰ description of "a Power in the universe, not ourselves, which makes for righteousness," and the New Testament admonition for "love of God and of our neighbor."⁵¹

Such a conception of God and religion accorded well with his understanding of the relationship between natural laws and science itself as divine revelation. "Modern science," White explained, "in substituting a new heaven and a new earth for the old—the reign of law for the reign of caprice, and the idea of evolution for that of creation—has added and is steadily adding a new revelation divinely inspired."⁵² This substitution not only imposed new limits on theology, it also met with its own limits relative to religion. These, in turn, established the context for White's understanding of divine action: for example, in response to prayer. Speaking of worship and prayer, White explains:

If fine-spun theories are presented as to the necessary superfluity of praise to a perfect Being, and the necessary inutility of prayer in a world governed by laws, my answer is that law is as likely to obtain in the spiritual as in the natural world: that while it may not be in accordance with physical laws to pray for the annihilation of a cloud and the cessation of a rain-storm, it may well be in accordance with spiritual laws that communication take place between the Infinite and finite minds; that helpful inspiration may be thus obtained,— greater power, clearer vision, higher aims.⁵³

IV: The God of the Gaps

Given the significant theological implications of their philosophy of science, Victorian scientific naturalists interested in maintaining some version of religion needed not only a scientific apologetic for inviolable natural laws but also a religious apologetic to promote a theology stripped of miracles. That apologetic would famously come to be known as the "God of the Gaps" argument. The argument or, more accurately, objection, states that although many people have looked to find God's activity in gaps in nature (for example, the origin of life and the origin of its diversity), to do so diminishes God in three ways. First it is claimed, to do so relegates God's activity to an ever-shrinking realm. This shrinkage occurs as science fills what are believed to be gaps in nature that prove only to be gaps in our knowledge of nature. Following the assumption that all events in the history of the physical universe have natural causes, promoters of the God-of-the-Gaps argument assumed as a given

50. Glenn C. Altschuler, "From Religion to Ethics: Andrew D. White and the Dilemma of a Christian Rationalist," *Church History* 47, no. 3 (1978): 314.

51. White, *History of the Warfare*, vol. 1, xii.

52. *Ibid.*, 23-24.

53. White, *Autobiography*, vol. 2, 568-69.

that all gaps must be due to ignorance. Second, reflecting an argument voiced by the German philosopher Gottfried Leibniz in the eighteenth century, the objection claims that belief in divine intervention in the natural world made God's creative power appear imperfect, unable to produce a perfectly self-perpetuating system. Third, it is claimed that those who believe in intervention diminish God because they see God's action only in intervention and not in aspects of nature where direct intervention is absent.

Although commonly thought to have originated in the 1890s with the popular evangelist and author, Henry Drummond,⁵⁴ an articulate and complete form of the objection appears in 1873 in a lecture by Edward Youmans, entitled "The Religious Work of Science." Youmans delivered the talk at the Cooper Union in New York, the same locale where four years earlier White delivered his "Battle-fields" lecture of 1869. Similarly, Youmans also was associated with the avant-garde of the Unitarians that so strongly appealed to White. In the speech, Youmans narrated a long history of warfare between science and religion. As the solution to the apparent conflict, he recommended an understanding of God consistent with unbroken natural laws and criticized those who looked for evidence of the divine in the "breaches" of nature:

The theologians who claimed to be authorized expounders of the divine policy insisted not only that breaks and interruptions of the natural order occurred, but they maintained that it is in these breaches of it that the Creator is to be most conspicuously and impressively seen. Holding that the normal phenomena are of small concern, while their ruptures alone disclose divine intervention, they left it to the men of science to work out the natural order to its completeness, and to vindicate the Almighty, whose wisdom is witnessed not in the violations but in the perfection of his works.⁵⁵

The argument obtained the more catchy, alliterative term "gaps" in 1894 when it was co-opted into the service of somewhat more mainstream theology by Drummond. A gifted communicator, if somewhat amateur theologian, Drummond was deeply influenced by the apparent support from science for the universe as a system of inviolable natural laws. Drummond complained that, "There are reverent minds who ceaselessly scan the fields of Nature and the books of Science in search of gaps — gaps which they will fill up with God. As if God lived in gaps!"⁵⁶ Further:

When things are known . . . we conceive them as natural, on Man's level;
when they are unknown, we call them divine—as if our ignorance of a thing

54. Thomas Dixon, *Science and Religion: A Very Short Introduction* (Oxford: Oxford University Press, 2008), 45.

55. Edward Livingston Youmans, "The Religious Work of Science," in *Edward Livingston Youmans, Interpreter of Science for the People*, ed. John Fiske (New York: D. Appleton and Co., 1894), 495.

56. Henry Drummond, *Ascent of Man* (New York: James Pott & Co., 1894), 333.

were the stamp of its divinity. If God is only to be left to the gaps in our knowledge, where shall we be when these gaps are filled up? And if they are never to be filled up, is God only to be found in the disorders of the world? Those who yield to the temptation to reserve a point here and there for special divine interposition are apt to forget that this virtually excludes God from the rest of the process. If God appears periodically, he disappears periodically. If he comes upon the scene at special crises he is absent from the scene in the intervals. Whether is all-God or occasional-God the nobler theory? Positively, the idea of an immanent God, which is the God of Evolution, is infinitely grander than the occasional wonder-worker who is the God of an old theology.⁵⁷

Historically speaking, it appears that the God of the Gaps objection originated (or, like the conflict thesis itself, exploded in popularity) only recently, sometime during the specific decades when scientific naturalism placed heightened pressure on Christian belief. In spite of the objection’s claims, Christian theology historically never asserted such a narrow scope for divine action. Rather, the God who was understood to have created the natural order, then continually sustained the existence of the creation, governing through the general providence of natural processes.⁵⁸ The divine role in nature was understood alongside special divine action within the created order for the purpose of human redemption in the form of special providences, signs, wonders, miraculous interventions, inspired revelation, divine entrance into the creation in the Incarnation of Christ, and the spiritual transformation of individuals through faith in Christ. The God of the Gaps argument turned historic Christian doctrine on its head by asserting that its expansive view of divine action was a limited one. Counterintuitively, it claimed that its more limited version, in which all divine action in nature was effectively general providence after an initial point of creation, was actually an enlarged vision. Rhetorically, however, the God of the Gaps argument served its purpose. As a response to new pressures, it provided a justification for the marriage of two values that often appeared at odds: the commitment to belief in a closed-system of natural laws and a commitment to religion.

V. Nexus

The idea of natural laws so inviolable as to preclude divine intervention is a metaphysical one. Although it was limited to nature and made no claim about the ultimate existence or non-existence of God, the idea is nevertheless metaphysical. It is a fundamental statement about the processes of nature that could be neither

57. *Ibid.*, 334.

58. C. John Collins, “How to Think About God’s Action in the World” in *Theistic Evolution: A Scientific, Philosophical, and Theological Critique*, ed. J. P. Moreland, et. al. (Wheaton, IL: Crossway, [forthcoming] 2017); Plantinga, *Where the Conflict Really Lies*, 65-67.

fully observed nor verified. It also implied certain possibilities concerning God's being while excluding others. Given such distinctions, it is helpful to distinguish two categories of metaphysics by suggesting two terms. There is *metaphysics of nature*, which concerns the fundamental nature of the physical universe. Naturalism, for example, is one view of the metaphysics of nature. Then, there is *metaphysics simpliciter*, concerning ultimate reality, which pertains to philosophy of religion and theology and concerns the characteristics of God's being, or ontology. The metaphysics that describes our physical universe also defines, by implication, the kind of God who created that universe. Philosophy of science, therefore, tends to entail metaphysics and, ultimately, philosophy of religion. To discuss this nexus requires, then, a clear distinction between categories of metaphysics: metaphysics of nature and metaphysics *simpliciter*.

Ronald Nash, Chad Meister, and others have pointed out that there exist only a very limited number of potential options for divine ontology—that is, what God's being is like.⁵⁹ Further, the universe and reality in which we all exist must conform to one of these. One of these *must* be true. They are: classical theism, deism, pantheism/panentheism, and materialism.⁶⁰ Classical theism (henceforth, simply theism) holds that God created the physical universe, sustains it, governs it providentially, and continues to interact with creation by means of special divine action, commonly understood as miraculous intervention (whatever “intervention” actually is).⁶¹ Theism is also the only ontology among these that is incompatible with metaphysical naturalism in the physical universe. Each of the other five can be accommodated to naturalism. In strict deism, for example, divine action ceases after the initial creation. In effect, deism is non-supernatural theism. Pantheism, which envisions the universe and God as one in the same, can take a naturalistic form by defining natural laws as God's laws, that is, part of the divine nature. Baruch Spinoza (1632-1677) exemplified this view. Panentheism, is most simply described as the idea that the universe is part of God, but all of God is not the universe. It is grouped here with pantheism, because in regard to naturalism, it is equally accommodating and does so in essentially the same manner.⁶² Materialism is, by definition, ontological naturalism.

59. See, for example, Chad Meister, *Introducing Philosophy of Religion* (New York: Routledge, 2009); William Hasker, *Metaphysics: Constructing a World View* (Downers Grove, IL: InterVarsity, 1989); and Ronald Nash, *Faith & Reason: Searching for a Rational Faith* (Grand Rapids, MI: Academie Books, 1988).

60. Alternatives like polytheism, animism are better seen as subcategories. For example, some forms of polytheism are theistic in that there is a high god and lesser gods, while other forms are pantheistic (e.g., as in Hindu polytheism).

61. Exactly what “intervention” *is* is a complex topic, as Plantinga points out (Plantinga, *Where the Conflict Really Lies*, 91ff.).

62. To the degree that some theists claim panentheism, they do so in regard to the question of the origin of the substance of the universe, and not in regard to the question of divine intervention. To the degree, for example, which Jonathan Edwards may have been a pantheist (admittedly a controversial question), his view included miraculous divine intervention. By contrast, Arthur Peacocke's panentheism, as noted earlier, excludes miraculous divine intervention.

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Therefore, in light of a naturalistic metaphysic of nature, that is, of nature as a closed and impenetrable system of physical laws, all adherents ultimately must depart theism. Nevertheless, such adherents are not required to adopt metaphysical naturalism as their metaphysic *simpliciter*. For this reason, many of the most notorious Victorian scientific naturalists could at one and the same time adhere to a naturalistic metaphysic of nature and also assert theological positions. Thereby, Draper, Tyndall, Youmans and (seemingly) White embraced pantheism, Newcomb deism, and others embraced materialism (atheism). Had the terminology of pantheism arrived before the twentieth century, some may have found a home there.⁶³

Such a discussion requires mention of T. H. Huxley, who coined the terms “scientific naturalism” and “agnostic.” The reason for the absence of agnosticism from our list of ontological categories, is that agnosticism is not a statement about ultimate reality. Rather, it is a statement about what can be known or not known about ultimate reality, or about one’s own undecided state of belief. As agnostic as one might be, one of those metaphysic *simpliciter* categories is actually real. It is also worth noting that to be agnostic does not mean that the agnostic must regard all of the ontological categories with equal indecision. Few people today, for example, are agnostic about the existence of Zeus. Huxley was not at all agnostic about classical theism. He rejected it outright.⁶⁴

VI. The Long Shadow of Scientific Naturalism

The lingering issues of Victorian scientific naturalism that fostered the conflict thesis and determined theological options available to Tyndall, Newcomb, Draper, and White retain their relevance and continue to drive theological options in the present day. Alvin Plantinga’s discussion of the controversy over divine action in *Where the Conflict Really Lies: Science, Religion, and Naturalism* (2011) reveals the degree to which the Victorian-era conflict between science and religion that resulted from its conceptualization of natural laws continues to the present day. Once such a metaphysic of nature is accepted, theological restrictions become unavoidable. Plantinga notes the work of the twentieth-century theologians Rudolf Bultmann, Landon Gilkey, and John Macquarrie, who all rejected the idea of miracles because “breaks” or “interventions” in nature contradicted metaphysical assumptions embedded within modern science. As Macquarrie explained:

Science proceeds on the assumption that whatever events occur in the world can be accounted for in terms of other events that also belong within the world; and . . . the scientific conviction is that further research will bring to

63. Some may deserve to be recategorized as panentheists, but that is beyond the scope of this study.

64. Bernard Lightman, *The Origins of Agnosticism: Victorian Unbelief and the Limits of Knowledge* (Baltimore: Johns Hopkins University Press, 1987), 119ff.

light further factors in the situation, but factors that will turn out to be just as immanent and this-worldly as those already known.⁶⁵

Again we find the naturalistic metaphysics of nature coupled with an epistemological prediction regarding further discovery—the completion of the gaps with acceptable naturalistic answers.

Plantinga attributes this prejudice against miracles to a misunderstanding of Newtonian classical physics and the law of the conservation of energy. “In classical physics,” he points out, “the great conservation laws deduced from Newton’s laws are stated for closed or isolated systems.” Because these principles apply only to closed systems, “there is nothing in them to prevent God from changing the velocity or direction of a particle. If he did so, obviously, energy would not be conserved in the system in question; but equally obviously, that system would not be closed, in which case the principle of conservation of energy would not apply to it.”⁶⁶ The significance of the assumption of a closed system applies to more than merely the first law of thermodynamics. It applies to all natural laws. “If God were to perform a miracle,” Plantinga points out, “it wouldn’t at all involve contravening a natural law. That is because, obviously, any occasion on which God performs a miracle is an occasion when the universe is not causally closed; and the laws say nothing about what happens when the universe is not causally closed.”⁶⁷ Physical laws “don’t purport to tell us how things always go; they tell us, instead, how things go when no agency outside the universe acts in it.”⁶⁸

The idea of a conflict between science and supernatural religion did not arise from Newtonian physics. As Robert Burns and Peter Harrison demonstrate, the founding members of the Royal Society in the 1660s, along with Newton’s famous contemporary Robert Boyle, and the great majority of its members of the society in the eighteenth century, all worked within the framework of the mechanistic philosophy. They also believed in divine intervention and did not envision the universe as a closed system.⁶⁹ Rather, the explicit coupling of classical physics with the idea of the universe as a closed, deterministic system was the work of the French astronomer Pierre-Simon Laplace. Laplace’s idea of the universe as a closed system did not, of course, come from the domain of science. Plantinga cautions, “You won’t find that claim in physics textbooks—naturally enough, because that claim isn’t physics, but

65. John Macquarrie, *Principles of Christian Theology*, 2nd ed. (London: 1977), 248, cited in Plantinga, *Where the Conflict Really Lies*, 71.

66. Plantinga, *Where the Conflict Really Lies*, 78.

67. *Ibid.*, 82-83.

68. *Ibid.*, 79.

69. Robert M. Burns, *The Great Debate on Miracles: From Joseph Glanvill to David Hume* (Lewisburg, PA: Bucknell University Press, 1981), 14, 15, 19ff; Peter Harrison, “Religion, the Royal Society, and the Rise of Science,” *Theology and Science* 6, no. 3 (2008): 255-71.

R. Clinton Ohlers: *The “Conflict Thesis” of Science and Religion* a theological or metaphysical add-on.”⁷⁰ In our terms, its domain is the metaphysics of nature.

As Plantinga is aware, there is more to the story than simply a commonplace misunderstanding of the limits of the conservation of energy and other natural laws. John Tyndall, for example, sparred with theologians over the reality of miracles and answered prayers almost a decade before he ignited controversy at Belfast. At least one perceptive opponent criticized Tyndall for falling into a fatal error. He had taken the descriptive principle of uniformity and treated it as prescriptive. He thereby strayed beyond the pale of trustworthy, empirically supported statements into the realm of metaphysics. Rather, than rebut the point, Tyndall turned for support to John Stuart Mill who argued that science could not function if the results of its inductive methods did not apply universally.⁷¹ An oft-repeated quip during that era was that if a single river were discovered to run uphill, science would be impossible. The same reasoning was applied to divine intervention. Science could not work if its conclusions could not apply universally in every instance, and they could not so apply if there were or ever had been a break in its uniform law-like processes. Science, however, did work. Therefore, the uniformity of nature as a descriptor must be assumed to be, or at least treated as being, universal and inviolable. It was universal because the self-confidence of Victorian scientific naturalism required it to be so.

If Tyndall was the Stephen Hawking of his day, Hawking, in respect to his metaphysics and philosophy of science, is no less the John Tyndall of our day. In his most recent book, *The Grand Design* (2010), Hawking reflects, “the scientific determinism that Laplace formulated is the modern scientist’s answer to [the] question of [miracles]. It is, in fact, the basis of all modern science. . . . A scientific law is not a scientific law if it holds only when some supernatural being decides not to intervene.”⁷²

For examples of contemporary theologians working in the area of science and religion who reject the possibility of divine intervention, Plantinga points to the Divine Action Project (DAP), a series of conferences and publications from 1988 to 2004, whose participants included over fifty prominent philosophers, theologians, and scientists. Three DAP objections to miracles claim: 1) an alleged inconsistency in that divine intervention occurs sometimes and not in response to every incidence of evil; 2) that if any natural regularity is contravened in any instance, human decision making, which relies on predictable patterns of cause and effect, would be undermined and, with it, free will also; 3) for God to act in two ways in the natural order, at once supporting regular and consistent natural laws while at the same time breaking those laws would amount to divine inconsistency.⁷³ Of the three, the second most closely

70. Plantinga, *Where the Conflict Really Lies*, 79.

71. Mullin, “Science, Miracles, and the Prayer-Gauge Debate,” 207-9.

72. Stephen Hawking and Leonard Mlodinow, *The Grand Design* (New York: Bantam, 2010), 30.

73. Plantinga, *Where the Conflict Really Lies*, 97ff.

approximates Tyndall's objection on the basis of the predictive nature of science. While each of these three objections is theological, they share an obvious cultural advantage in conforming to the dominant vision of science that Hawking describes. They display, as Plantinga observed, "a decided list in the Laplacean direction."⁷⁴ It is, in fact, difficult to imagine a group of leading theologians, among whom rejection of miraculous divine intervention was the majority view, convening anytime before the waning years of the nineteenth century.

Almost all the DAP participants agree that only a noninterventionist account of divine action is acceptable. Describing what that looks like is the challenge. Arthur Peacocke evaded the difficulty through panentheism and process theology. Peacocke's critique of one such noninterventionist scenario might equally be said of all classically theistic attempts at noninterventionist divine action: whether we perceive it or not, God directly influences the system and therefore *intervenes*.⁷⁵ If God effects results within our physical universe that would not have occurred through His preservation alone, then He is in some way acting upon the universe to effect physical change. Although natural properties⁷⁶ and their resulting laws may not be interrupted, since processes can only be said to be interrupted if a system is causally closed, intervention, in the sense of direct action appears unavoidable.

Recognition of the influence of Victorian scientific naturalism in shaping present-day discussions may help inform current discussions of the relationship of science to divine action. One evangelical scholar currently at work in these areas is the physicist and theologian Lydia Jaeger, Academic Dean at the *Institut Biblique de Nogent-sur-Marne*, in France. Another is James Stump, Senior Editor at BioLogos, author of *Science and Christianity: An Introduction to the Issues* (2017) and co-editor, among others, of *Science and Christianity* (2012). Both Jaeger and Stump support belief in the miracles of the Old and New Testaments as philosophically sound.⁷⁷ Both also accept at least the theoretical possibility that God may have intervened in natural history to bring about certain natural structures.⁷⁸ In addition, Jaeger views miracles as occurring "without, above, or against natural means" so that by definition, a miracle "escapes any scientific account."⁷⁹ Stump follows Alvin Plantinga's assertion that the

74. *Ibid.*, 105.

75. *Ibid.*, 97-98.

76. On "natural properties" as a more important concept than "natural laws" (which owe to natural properties), see C. John Collins, "How to Think About God's Action in the World," (forthcoming).

77. Lydia Jaeger, "Against Physicalism-Plus-God: How Creation Accounts for Divine Action in Nature's World," *Faith and Philosophy* 29, no. 3 (2012): 11-13; James Stump, panelist, "A Conversation on Origins: BioLogos, Reasons to Believe (RTB), and Southern Baptists," Evangelical Theological Society Annual Meeting, San Diego, CA, November 2014.

78. Personal conversation, June 16 and 17, 2017, The Dabar Conference, Deerfield, IL, June 14-17.

79. Jaeger, "Against Physicalism-Plus-God," 12-13.

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miracles pose no contradiction to natural laws when the universe is recognized as an open system.⁸⁰

Their discussion of science and divine action becomes potentially problematic, however, in their critique of Robert Russell’s Noninterventionist Objective Divine Action (NOIDA). In the following passage, Jaeger attempts to rally the God of the gaps objection against NIODA and the suggestion of a causal joint at the level of quantum mechanics:

Trying to fit divine action into the gaps in the scientific description clearly shows a confusion of primary and secondary causes: God is not an additional causal factor alongside the entities that populate the world. His action is therefore not in competition with the established natural order; it is manifested just as much in his providential sustaining as it is by a miracle, should one occur. Looking for “gaps” in the picture which science gives us, and invoking God to explain them, is more deistic than theistic.⁸¹

Stump cites Jaeger’s gaps critique of NIODA and marshals it against NOIDA and the Intelligent Design movement, also. Stump explains:

Some Christians seem to find succor in these supernatural interventions, believing them to keep God involved in the affairs of the world. In reality, though, putting God into the gaps in the natural explanations is already a concession to the deism they are trying to avoid. . . . There is not much difference between the deistic god who started things off and then sits back and watches and the Intelligent Design god who sits back and watches for a while then inserts himself into the process for a bit to make something work to then go back to sitting and watching.⁸²

Further, Stump alleges that NIODA suffers not only from the gaps objections, but that such a view is fundamentally dichotomized. “Either nature is left to itself to produce a certain effect,” Stump objects, “or God does something to change the way nature would have gone. This is one of the difficulties of attempting to locate God’s action within the causal order discovered by science.”⁸³

Such attempts to appropriate the God of the gaps objection to the interests of biblical Christianity suffer from a number of shortcomings. First, they fail to clearly distinguish real Deism or semi-Deism from traditional Christian theology, which contemplates special divine action occurring in the events of creation after the initial starting point: the origins of life and human consciousness are two examples. By such

80. James Stump, *Science and Christianity: An Introduction to the Issues* (Oxford: Wiley Blackwell, 2017), 125.

81. Lydia Jaeger, *What the Heavens Declare: Science in the Light of Creation* (Eugene: Cascade Books, 2012), 93.

82. Stump, *Science and Christianity*, 53.

83. *Ibid.*, 128.

reasoning, an expansive view of divine action that includes special divine action in nature's past is counted as deistic and as a diminishment of divine action, whereas the more limited set is considered non-deistic and construed as an enlargement of divine action. The polemic is the same as that of the late Victorian era, but modified with the epithet of deism and the appeal to avoid it.

Second, such objections go beyond questions of the scope and limits of scientific method to instead assert how God must act in regard to nature and natural processes. Therefore, it is unclear why the critique must not logically also apply to other forms of divine action that involve natural processes such as special providence, the efficacy of Christian prayer, or accounts of spontaneous healing preceded by prayer, or to biblical miracles. Relevant here is the promising scholarly work on miraculous healings in Christianity by Candace Gunther Brown and Craig Keener, particularly to the degree that such reports are medically documented and thereby involve scientific disciplines.⁸⁴

For such objections to be constructive, greater clarity concerning how divine healing of a physical human body does *not* make God “an additional causal factor alongside the entities that populate the world” in a way to which Jaeger objects. Similarly, it is not immediately clear how cases of divine healing avoid Stump's concern if “God does something to change the way nature would have gone” or how such events can possibly *not* “locate God's action within the causal order discovered by science.” Rather, such objections appear to stand at odds with the intellectual goal of a comprehensive understanding of science, natural laws, and all aspects of divine action.

An illustration from a BioLogos post by Stump highlights the difficulty. In “Belief in God in a World Explained by Science,” Stump addresses the question of retaining faith in Christ should science fill in every gap in the created order with a natural explanation. He points out that regardless of explanations of the natural order, Christian religious experience remains compelling. Stump recounts how Carl Sagan's film *Contact* (1997) deeply strengthened his faith while a graduate student in Boston. In the film, Jodie Foster plays a SETI researcher named Ellie Arroway. In the course of interstellar journey lasting many hours, Dr. Arroway makes contact with alien intelligence. On her return, she learns that only 8 seconds transpired on Earth and that NASA believes her transport never left the planet. No physical evidence to confirm her story exists. A congressional hearing ensues over what appears to be an outrageously expensive hoax, and the lead investigator pressures Arroway to recant.

84. Candy Gunther Brown, ed., *Global Pentecostal and Charismatic Healing* (New York: Oxford University Press, 2011); Craig Keener, *Miracles: The Credibility of the New Testament Accounts* (Grand Rapids, MI: Baker Academic, 2011); Candy Brown, *Testing Prayer Science and Healing* (Cambridge, MA: Harvard University Press, 2012).

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Ellie not only refuses, but *cannot* do so. “The weight of her own experience won’t allow it.”⁸⁵

It is fair to point out that the film *Contact* also offers a valuable example of the intellectual limits of the God of the Gaps objection and its disruptive influence on the pursuit a full understanding of divine action. In a climactic scene in the conclusion of the film it is revealed that, unbeknownst to Arroway or the rest of the world, a confidential government report on the experiment includes mention of eighteen hours of static that was somehow recorded during her eight-second event. In other words, not all the evidence had been admitted to the inquiry. Certainly, Jodie Foster’s character is fully justified in believing her own experience. But that is just it, *only* she is fully justified. Third parties, particularly undecided, open minded, and rational ones require something more, even if just an inconclusive hint unexplainable within the opposed framework. The film’s authors recognize that fact and provided that detail.

A significant intellectual problem with the God of the Gaps objection is that cuts off, prematurely and *a priori*, the search for those “18 hours of tape.” The ability to conduct such a search was at the heart of the controversy over Victorian scientific naturalism. If it is a valuable exercise to consider how belief in God would function in a universe entirely explained in naturalistic terms, then it is also a valuable exercise to examine whether the universe, the origin and diversity of life, consciousness, and modern accounts of special divine action that overlap with and even require scientific enquiry, might objectively demonstrate evidence by which they fail to be explainable in purely naturalistic terms. The move from denying the right of the former exercise to denying the right of the latter one was a central assertion in the conflict thesis and central tenet of Victorian scientific naturalism.

Conclusion

Andrew Dickson White recognized keenly what was at play when he retitled *The Warfare of Science* as *The History of the Warfare of Science with Theology in Christendom*. With *theology* in *Christendom* was exactly where the conflict lay. The challenges to Christianity during the first sixty years of the nineteenth century were of two types: discrete and large-scale. Christian theologians accommodated both. However, to the individuals who would one day become the Victorian scientific naturalists, several of the large-scale challenges appealed as evidence for a metaphysic of nature based on belief in inviolable natural laws. That metaphysic was engendered largely by an incomplete view of the law of the conservation of energy. Nevertheless, it informed the Victorian scientific naturalists’ metaphysic *simpliciter* concerning divine ontology. Therein lay the fuse for the explosion of the popularity

85. James Stump, “Belief in God in a World Explained By Science, Part 1,” *BioLogos*, <http://biologos.org/blogs/jim-stump-faith-and-science-seeking-understanding/belief-in-god-in-a-world-explained-by-science-part-1> (accessed 5/25/2017).

of the conflict thesis in the last quarter of the nineteenth century. Of the ontological options recognized in philosophy of religion, classical theism, deism, pantheism/panentheism, and materialism, Victorian scientific naturalism eliminated theism alone and embraced the others.

Contrary to widespread belief, the scientific naturalists of the Victorian era maintained their own theological views, which they selected from the pool of options that allowed for both belief in God and their naturalistic metaphysics of nature. Pantheism and deism were the choices for those who did not favor materialism or resign themselves to agnosticism. If the two leading Victorian scientific naturalist physicists, Tyndall and Newcomb, the two authors of the modern conflict thesis, Draper and White, and the greatest popularizer of both, Edward Youmans, all favored pantheism or deism, one wonders how prevalent materialism and agnosticism really were within that movement. When Draper and White wrote of conflict, they also held out hope that readers would, like themselves, find the path of reconciliation with religion by embracing pantheism or deism.

The scientific naturalism of the late Victorian period also engendered anew a theological polemic deployed against classical theism: the God of the Gaps objection. Historically speaking, the God of the Gaps objection was problematic on multiple grounds. On the one hand, it directed itself at a view of God that may never have existed in any significant sense, and very certainly was not held by the Christian theologians and laity against whom it is deployed. Only by excising significant categories within the historical Christian theology concerning divine action could it serve as a polemic against traditional conceptions of special divine action within the process of Creation. The objection appears also to be of very recent mintage. Its roots were not in historic Christian theology or biblical exegesis, but rather in a confidence in the all-encompassing power of natural laws coupled with the metaphysical add-on of a closed system of physical causes. It was that self-same overweening confidence and metaphysical add-on that gave Victorian scientific naturalism its impetus and propelled the popularity of conflict thesis of science and religion. Rhetoric to the contrary notwithstanding, the effect of the God of the Gaps objection both at the time of its origin and in its present-day deployment has been to justify that diminishment and make it emotionally palatable.

As we have seen, in the work of Plantinga, Jaeger, and Stump, certain salient features of Victorian scientific naturalism and the conflict thesis it promoted remain central to the discussion of science and religion today, including the longstanding popularity of the God of the Gaps objection and the desire to separate accounts of divine action from the causal order investigated by science, even while the metaphysics and universal claims of scientific naturalism are rejected. Better understanding of that history and the logic by which the conflict thesis formed at the nexus of philosophy of science, metaphysics, and philosophy of religion should enlighten the contemporary

R. Clinton Ohlers: *The "Conflict Thesis" of Science and Religion* discussion. Greater clarity, it is hoped, will offer new foundations for thought as the discussion moves forward informed by historic patterns.