3

SCIENCE, NATURAL THEOLOGY, AND THE PRACTICE OF CHRISTIAN PIETY IN EARLY-NINETEENTH-CENTURY RELIGIOUS MAGAZINES

Jonathan R. Topham

In his seminal analysis of the place of science in early-nineteenth-century periodicals, Robert M. Young argued that a “common intellectual context” in early-nineteenth-century Britain, reflected in the periodical literature, was held together by a “relatively homogeneous and satisfactory natural theology,” found paradigmatically in the Bridgewater Treatises. Young’s assertion concerning the homogeneity of natural theology in this period is now generally rejected, and his notion of a “common context” questioned, as historians have taken cognizance of a wider range of reading audiences. It nevertheless remains a commonplace that, both in the periodicals and more generally, natural theology fulfilled a decisive role in mediating the natural sciences to a wider public. In what follows, I critically examine this view in relation to a range of early-nineteenth-century religious magazines, demonstrating that natural theology was a far more contested form of theological discourse than this suggests. Having thus cleared the ground, I then consider some important aspects of the way in which science was presented in such magazines, which have hitherto been obscured by the undue emphasis on natural theology.

It is widely considered that scientific natural theology experienced an Indian summer between the publication of Paley’s Natural Theology in 1802 and the publication of the last of the Bridgewater Treatises in 1836. Yet such an assertion relies on conceptual and linguistic ambiguities in the definition of the term “natural theology.” As the reviewer of Thomas Chalmers’s treatise in the leading Church of Scotland monthly observed:

There are few subjects on which a wider variety of opinion has prevailed than natural theology. While some have held it up as all-sufficient, others have denied its existence, or pronounced it to be pernicious. It is true that this variety of opinion has been much increased by men differing as to what natural theology really is, so that what one man has condemned as natural theology, has often been a very different thing from that which another has defended under the same name.
Then, as now, the theologically exact definition of natural theology referred to the attempt to procure religious truths about God and his relation with humans by the exercise of natural reason, and without recourse to any kind of revelation. By contrast, historians of science have often followed less theologically exact writers of the early nineteenth century in using "natural theology" to refer more generally to assertions of divine design. Such conceptual and linguistic inexactitude obscures distinctions which were important to many in the period. Passing references to the evidence of design were often clearly intended to stop far short of any form of inductive inference. Instead, they merely expressed a theology relating to the created universe which was based on a prior commitment to the truth of the Christian revelation (a biblical theology of nature). Such references are more accurately described as a discourse of design, rather than as natural theology, and their pervasiveness should not be taken as demonstrating the pervasiveness of natural theology.

The point is epitomized by the Bridgewater Treatises, which are generally viewed as the most prominent works of scientific natural theology of the early nineteenth century. This series of eight works was published between 1833 and 1836 by seven leading men of science and one theologian, in accordance with the terms of a bequest of the eighth earl of Bridgewater, who had left £8,000 to fund the publication of a work "On the Power, Wisdom, and Goodness of God, as manifested in the Creation." As some contemporaries noted, however, these terms did not require the development of a natural theology as such. Bridgewater might easily have insisted that the manifestation of divine attributes in the creation should be made independently of the evidence of revelation. That is, he could have commissioned a natural theology, properly defined. Instead, the question of epistemology was left undetermined. The bequest made no pronouncement in regard to the capacity of unabated human reason to discover evidence of divine attributes in the creation without recourse to revelation. It was left to the authors to decide the question for themselves. Moreover, as I and others have shown, most of the Bridgewater authors were extremely cautious about the extent to which they were prepared to endorse such a natural theology, in some cases relying merely on a discourse of design, and in others dwelling explicitly on the low epistemological status of natural theology.

This ambivalence toward natural theology was echoed, or rather accentuated, in many of the reviews of the Bridgewater Treatises which appeared in both general and religious periodicals. What is particularly suggestive, however, is that many of the same reviewers nevertheless recommended the series, which achieved unprecedented sales among the wealthy middle classes, and was bought by a wide variety of libraries. This raises a critical question: if such works were not, in many cases, valued as providing an epistemological foundation or apologetic justification for Christianity through natural theology, why were they valued at all? John Brooke, who first addressed this issue in his seminal 1977 article, has subsequently done much to elucidate the non-epistemological functions which could be fulfilled by "natural theology" broadly defined, both for religious practitioners, and more especially for scientific practitioners. In religious contexts in particular, he has shown that "natural theology" could be significant to those wishing to elaborate a systematic theology or to establish a means of analyzing conceptions of God, and that it was sometimes found useful in evoking a sense of awe and wonder at divine activity in nature or in providing a means of combining scientific study with Christian devotion. However, Brooke's analysis tends to maintain the focus of attention on natural theology, or at least on what I have called a discourse of design. It is the object of this essay to explore more widely the attitudes to science in a number of religious traditions by focusing on the way in which the Bridgewater Treatises were treated in the religious periodicals of the period.

The proliferation of periodicals for increasingly diversified reading audiences was one of the defining characteristics of the first quarter of the nineteenth century. "[E]very little sect among us," Thomas Carlyle protested in 1829, "Unitarians, Utilitarians, Anabaptists, Phrenologists, must have its Periodical, its monthly or quarterly Magazine;—hanging out, like its windmill, into the popularist aura, to grind meal for the society." Moreover, the highly divided and diversified nature of early-nineteenth-century religion meant that the magazines of the various religious denominations and parties were particularly tightly wedged to identifiable readerships. Furthermore, the most successful religious magazines far outsold other titles, including the highbrow monthlies and quarterlies, until the inception of mass circulation weeklies in the 1820s and the 1830s.

These magazines provide valuable evidence of attitudes to science in the various religious traditions. However, it is essential to question how such references were intended to function within the original periodical frame, rather than abstracting them as mere records of opinion. The book reviews discussed here are examined not merely as records of the individual reactions of their authors. For thousands of contemporary readers such reviews constituted significant guides to reading practice—
suggesting not only what to read, but how and why it should be read. Moreover, since religious magazines were targeted primarily at bounded audiences, the impact of their reading advice was likely to be particularly significant.

My approach in this account is to use the religious reviews of the Bridgewater Treatises to explore the place of scientific reading in the main Christian traditions. The analysis draws on an examination of eighteen leading religious monthly and quarterly journals, which for the sake of clarity I have grouped under three broad headings—High Church, evangelical (including evangelical dissent), and Unitarian. The most notable omission here is what has been termed “liberal Anglicanism”; however, this was not a clearly defined religious party with its own periodical organ analogous to the High Church and Evangelical parties in the Church of England. The Quakers, too, had no magazine at this period, and other, less dominant, Christian traditions (notably Roman Catholics), have also been omitted on pragmatic grounds. Despite their numerical inferiority, Unitarians have been included, partly because of their cultural significance, but also because as the most rationalist Christian tradition, they represent an interesting marker for attitudes toward natural theology.

The first part of the essay attempts to redress the emphasis of Young and others, by examining the assessments of natural theology made in the religious reviews of the Bridgewater Treatises and other contemporary works (notably the widely debated 1835 Discourse of Natural Theology of the controversial Whig Lord Chancellor, Henry Brougham). I focus in particular on the extent to which the idea of natural theology was contested across the Christian traditions, highlighting the fact that, where a discourse of design was considered to have value, it was usually for non-epistemological and non-apologetic reasons. Having shown that the historical emphasis on natural theology is problematic, I argue in the second part of the paper that other themes emerge when the religious periodicals are approached on their own terms. In particular, I suggest that science was often discussed in such magazines in relation to religious sentiments or sensibility, rather than in relation to religious doctrines or reasoning, and in relation to the practice of Christian piety, rather than with the practice of Christian evangelism.

NATURAL THEOLOGY AND THE RELIGIOUS MAGAZINES

Periodicals have sometimes been read by historians as unproblematic registers of the opinions of the audiences they represent. However, as Margaret Beetham has observed, the periodical genre is unusually open in significant respects, inviting readers and contributors to engage in debate. Whether in the interplay of different paid contributors or in letters pages, periodicals present a space which, however tightly bounded, allows for a variety of opinions to be expressed. The most that one can ask of a periodical is what the limits of acceptable opinion are and where the positions in the debate lie. This is particularly apparent in regard to the attitudes toward natural theology expressed in the religious magazines. As recent scholarship concerning the status of natural theology in the religious culture of early-nineteenth-century Britain has shown, the legitimacy, the value, and even the definition of natural theology were the subject of sometimes very vigorous debate both within and between the different Christian traditions.

The existence of such a debate indicates that several important interests were at stake in the issue of natural theology. Perhaps the most obvious of these was the question of apologetic strategy. The apologetic usefulness of natural theology depended heavily on the strategies of the apologists’ adversaries. In convicting the Unitarian or the Deist—common targets in early-nineteenth-century apologetics—natural theology was likely to be of little value, and might indeed be seen as the problem. Yet the period also saw a pronounced increase in atheism, both among radical artisans, and among “philosophical radicals,” and against such opponents natural theology might be found to be of apologetic value. According to Pietro Corsi, this development lay behind Baden Powell’s shifting apologetic stance between writing his Rational Religion Examined (1826) and his Connexion of Natural and Divine Truth (1838). Whereas in the former Powell criticized natural theology as “an insufficient and to some extent dangerous exercise,” in the latter he made it the foundation of his apologetic scheme, largely because of his assessment of the changing apologetic imperative. Moreover, what in Powell amounted to a diachronic shift, often appeared in the religious parties and denominations as a synchronic debate. Indeed, apparently contradictory apologetic strategies could coexist in a single individual who was concerned to address different audiences. Sometimes this was expressed in a self-conscious apologetic opportunism. More often, however, it was expressed in rather tortured discussions which frequently unwittingly contained internal inconsistencies.

Another reason for the religious debate over natural theology was that it did not serve only one function. As we have seen, the apologetic function of natural theology was by no means its sole, nor even
necessarily its primary use within Christian traditions. To add to the complexity of the debate, the non-apologetic functions sometimes served by natural theology might equally be served by a theology of nature in which the legitimacy of natural theology was denied. Thus, an author denying the epistemological validity of natural theology with respect to the clouded eye of natural reason, might elsewhere be found apostrophizing on the devotional value of tracing the design evident—to the eye of faith—in nature. Furthermore, there was no comprehensive agreement, especially among evangelicals, about whether or not the phrase “natural theology” should be made to apply to the former, the latter, or both.

All of these issues emerge in the reviews of the Bridgewater Treatises that appeared in the religious periodicals during the 1830s. Yet, while most of the periodicals incorporated debate regarding natural theology, the most striking feature of these discussions from the perspective of the history of science is the very limited extent to which natural theology was considered to be either epistemologically valid or apologetically useful. Very often, moreover, even where natural theology was granted some epistemological legitimacy, it was seen as useful chiefly for the sorts of non-apologetic reasons which John Brooke has identified.

High Anglicans

The ambivalence toward natural theology is certainly exhibited by the three leading High Church periodicals, which reviewed the Bridgewater Treatises extensively. The opposition of the Tractarians to natural theology is well known, but in the early 1830s the emerging High Church party of Newman and Pusey had yet to establish a periodical voice. However, as Pietro Corsi has shown, High Churchmen had over several decades been critical of the “weak epistemological status” of natural theology, stressing instead the limitations of reason in religious matters and the importance of revelation. Corsi argues that in the 1820s the Hackney Philanx in particular was preoccupied with the Unitarian intellectual revival, and thus effectively disregarded natural theology as being tangential to their apologetic concerns, instead placing the evidence for revelation at the heart of their apologetic strategy.

This is borne out by the reviews of the Bridgewater Treatises in the main Hackney organ, the highbrow quarterly British Critic. The British Critic’s most starting critique of natural theology appeared in its review of the first treatise, William Whewell’s Astronomy and General Physics (1833). Written by one of the journal’s leading reviewers, the mathematical professor at the East India Company’s college at Haileybury, Charles Le Bas, the review discussed Whewell’s book in company with John Abercrombie’s immensely successful Philosophy of the Moral Feelings (1833), a book which presented a relatively unsophisticated, but studiously pious, exposition of the moral philosophy of the Scottish “common-sense” school. Starting from Abercrombie’s assertion of the existence of certain “first truths” of morality, “which admit of no demonstration and which need none,” the reviewer turned the same principles to religion, suggesting that belief in the being and attributes of God was similarly “instinctive” (pp. 76, 77). Moreover, he contended that argument on the subject would never convince those who disputed these conclusions. To reach such a skeptical state, the reviewer asserted, their minds must have “gone through a course of unnatural and artificial discipline,” the result of which was the “banishing of moral sentiment and emotion from their philosophy” in favor of “mere speculative reason.” Here the analysis took on openly Kantian terms, as the reviewer ascribed the instinctive belief in divine existence and divine attributes to the “Practical,” as opposed to the “Speculative” reason (p. 90). Like Kant, he argued that the belief in a morally perfect God arose from the natural tendency to “hunger and thirst after what is benevolent and good,” a tendency founded on the proper development of the instinctive “moral powers and perceptions” of humans (p. 81). Like Kant, too, he suggested that, to the speculative reason, the phenomena of the universe could never demonstrate the existence of a morally perfect God (p. 80).

The British Critic’s reviewers could also be found employing some of Hume’s arguments respecting the epistemological status of the design argument. The British Critic’s reviewer of Lord Brougham’s Discourse of Natural Theology (1835) was a prominent minister in a small Calvinist Methodist sect, the Countess of Huntingdon’s Connexion. In response to Brougham’s claim that the design argument was an inductive science as certain as any of the physical sciences, he acknowledged that the existence of “an intelligent all-wise Being” could legitimately be inferred from the physical and mental phenomena in the visible universe, but used Humean arguments to deny that reasoning could “establish either the unity, or the omnipotence, or the omniscience of the ruler of that portion of the universe which is visible to us.” To the question whence one might ascertain knowledge of the divine attributes, the reviewer answered that “Revelation, and Revelation only, gives us the information” (p. 221). Like Thomas Chalmers, the reviewer thought that his restricted natural theology was of use only in raising questions, the answer to which lay in revelation (pp. 223–224).
This view was echoed in the *British Critic*’s review of Chalmers’s Bridgewater Treatise, which likewise acknowledged fears about rationalist threats to revealed religion. The reviewer frankly admitted that there was an “objection to the whole scheme of [the] Bridgewater Treatises,”* Revelation should be compromised, by all this bustling indagation throughout the regions of Natural Theology.” The whole project of natural theology was, the reviewer asserted, “in the estimation of many a pious and exemplary Christian, . . . well nigh an obsolete thing”—an objection he claimed to have heard urged “not only with much gravity, but with deep anxiety, and even with no little indignation.” Yet, to the fear that confrontation with natural theology might lead to deism rather than Christianity, the reviewer answered that natural theology was “a bridge constructed, not by way of a foundation whereon men are to erect their dwelling-places, but merely as a pathway along which they may travel in safety to the realms of a higher theology” (p. 241). Even then, however, its use was compromised. Asserting that the conviction that design demands a designer is a matter of “intuition” (Thomas Reid’s “common-sense” doctrine), the reviewer admitted that argument could never persuade those who refused to admit the intuition (pp. 250, 252). He continued: “And this being so—what, it may be asked, is the profit of heaping up a mountainous induction, in order to overwhelm the Titans? Since there is no crushing their belief out of them, why should we rise early, and rest late, and eat the bread of toil and carefulness, and construct a battery of Boyle Lectures, or Bridgewater Essays, for the purpose of breaking them to pieces?” It was here that the non-apologetic functions of “natural theology” came to the fore, meaning that it was “not without use.” It may, the reviewer observed, at least “serve to brighten the hope and to confirm the faith, of those who feel that, to seek after God, is the main object of their creation. It may impress a salutary horror of the hardihood which exalts itself against a fortress of testimony, of such awful length, and breadth, and depth, and height. It may, perchance, recall from their outrageous folly many a disciple of the Godless School before he shall have become an irreclaimable adept in the mysteries of impiety” (p. 253).

Although lacking the same degree of theological and philosophical sophistication, other organs of the older High Church reflected the party’s ambivalence toward natural theology. In addition to the *British Critic*, the Hackney Phalanx was also responsible for producing a monthly magazine, the *Christian Remembrancer*, intended to reach a wider middle-class audience. The *Christian Remembrancer* reviewed all the Bridgewater Treatises, mostly in very favorable terms, and, while clearly stating the “true defects” of natural theology, reviewers seemed to allow its arguments limited epistemological validity, and some were even prepared to admit its utility in the “subversion of infidelity, and the promotion of true religion.” Yet, when the reviewer of Buckland’s treatise referred to it as an “interesting, able, eloquent, and learned addition to the evidences of Natural Theology,” one “Constant Reader” found it necessary to state that, “notwithstanding all the labours of writers in the department of natural theology,” it was “a matter of great doubt whether any infidel has ever been converted by them.” Moreover, the reviewer made no attempt to dispute this claim, merely noting: “It is ‘the fool’ only that ‘sath in his heart there is no God;’ and even if atheism still remains rampant upon earth, it is not less the duty of the man of science to attempt ‘to vindicate the ways of God to man’; if not to convert the infidel, at least to confute and strengthen the faith of the young and unestablished believer.”

Another High Church monthly, Hugh Rose’s *British Magazine*, provided a link between the more traditional High Church and the Tractarians. The journal again reviewed all eight of the Bridgewater Treatises favorably and at unwonted length. Yet the reviews were largely silent on the epistemological status of natural theology, and, when a reviewer was finally spurred into more explicit comment by the controversy surrounding Brougham’s notoriously rationalist *Discourse*, he took what he thought of as a “via media” between extreme positions, stating that “previous to revelation, although there was a knowledge of a creating God, it was quite an uncertain and doubtful knowledge, very often wholly rejected, and always considered uncertain.” Moreover, the *British Magazine*’s reviewers were, like other High Anglicans, occupied with the extent to which the arguments employed appealed not only to the reason, but also to “the heart”; they were concerned with the “feelings” as well as the “views” which the pursuit of science could produce.

**Evangelicals**

The emphasis on religious sentiment found in the High Church periodicals is, perhaps not surprisingly, echoed in many of the evangelical periodicals both of the established churches in England and Scotland, and of old and new dissent. Indeed, it is so common to portray evangelical religion as a “religion of the heart” that Boyd Hilton has sought to redress the balance by emphasizing the extent to which what he calls “moderate” evangelicals sought to construct a religion that combined religious feeling with rational thought. Focusing on the “moderate” evangelicals
in the established churches of England and Scotland, Hilton concludes that natural theology was a key part of their theological thinking (pp. 8, 22). He points in particular to the manner in which the cultured leaders of the Clapham sect, gathered around William Wilberforce, sought not to supplant but to revise the analysis of Paley’s *Natural Theology* in accordance with a more pessimistic, post-Lapsonian outlook (pp. 21–22). Yet, as Hilton admits, the Evangelical party in the established (Presbyterian) Church of Scotland, which came to new prominence during the early nineteenth century under the leadership of a similar group of learned churchmen, showed itself to be distinctly ambivalent about the status and value of natural theology. Moreover, he asserts that those whom he describes as “extreme” evangelicals—“the pentecostal, pre-millennial, adventist, and revivalist elements”—tended to oppose rational approaches to religious truth (pp. 10, 21–23). Indeed, only five of the thirteen evangelical magazines examined here reviewed any of the treatises.

There thus existed a lively debate among evangelicals about the status and value of natural theology, with various different positions being adopted even within the same party. Moreover, the debate clearly shifted over time. Under Wilberforce’s influence, 30 years earlier, the Claphamite monthly *Christian Observer* had embraced Paley’s *Natural Theology* with some enthusiasm. The fact that it remained silent on the appearance of the Bridgewater Treatises seems to reflect a diminishing sense of the importance of presenting Anglican Evangelicalism as a rational religion, distinct from Methodist enthusiasm. The *Christian Observer*’s lengthy review of Brougham’s *Discourse* certainly indicated a growing ambivalence about the logical status of natural theology. The scriptural authority of the declaration in Romans 1: 20 weighed heavily with all evangelicals, and the reviewer admitted that certain “primary truths” of divine existence and moral judgment might be known by natural reason. Yet, with Hume, the reviewer believed that there was no sure foundation in natural reason for such fundamental attributes of the Christian God as his unity or benevolence. Thus, like many evangelicals, the reviewer suggested that much in the “natural religion” of the ancients resulted from the corruption of a primeval revelation delivered to the “forefathers of the human race,” and he viewed “the system which modern philosophers call natural religion” as “almost entirely . . . an unacknowledged plagiarism upon Christianity” (pp. 687, 691). Once this was acknowledged, the reviewer believed, there was value in “what is called—whether rightly or not—Natural Theology.” He echoed the *British Critic*’s analysis of the functions of such a biblical theology of nature: “. . . although, even to the most intelligent, the testimony of the Sacred Volume is of superior cogency to any laboured reasoning . . . yet it is useful for the silencing of gainsayers, and the repulsion of sceptical thoughts which may sometimes harass the minds of sincere believers, to perceive, that, after Revelation has proved a point, human investigation often seconds or supports it, or at least establishes no contrary position.” (p. 689) Nevertheless, while conceding that this so-called “natural theology” was of value “chiefly as a step in the evidences for Divine Revelation,” the reviewer refused to allow Brougham’s claim that it was necessary to establish the truth of revelation (pp. 738, 815–818). This statement elicited two letters written to the *Christian Observer* arguing that natural theology was the logical prerequisite of revealed theology. In response, the reviewer reiterated his distinction between the discovery and “corroboration” of divine knowledge from the created universe, and pointed to St. Paul’s assertion (1 Cor. 1: 21) that “the world by wisdom knew not God” (pp. 400–401).

In addition to severely restricting the epistemological validity of natural theology, the *Christian Observer*’s reviewer sought to restrict the use of reason in religious faith. Brougham, he asserted, had forgotten that merely giving mental assent to the truth of the evidences of Christianity was not what was required: “it is forgotten, that it is with the heart that man believeth unto righteousness” (p. 696). Moreover, the strongest evidence of Christianity to the believer was the consciousness that the gospel had “diffused its influence in his heart” (p. 697). The evangelical monthly of the Church of Ireland, the *Christian Examiner*, endorsed a similar analysis in its review of Chalmers’s treatise, suggesting that the conviction of the divine being and attributes owed more to the realm of sentiment than of reason. With the man who had closed his ear to the voice of conscience, the “demonstrations of the schools” were ineffectual. “We do not think that the Most High God ever intended that His existence should be made out by the demonstrations of Natural Theology; nor can we persuade ourselves that those demonstrations ever had any other effect upon a bold and intelligent atheist, than to confirm him in his impious daring.”

As in the Anglican communion, the leadership of the Evangelical party in the Church of Scotland sought in the early nineteenth century to create and present a more rational form of evangelicalism which would appeal to the educated middle classes, combining evangelical feeling with sound reason. Thomas Chalmers is often taken as the archetype of this movement, and there can be little doubt that his influence was profound. However, as Paul Baxter discovered on surveying the periodicals of
Scottish evangelicalism, it is clear that the Evangelical party had nothing like an agreed position regarding the validity or utility of natural theology. Indeed, as Baxter observes, the main party journal, the Edinburgh Christian Instructor, greeted Chalmers’s treatise with the observation that natural theology could not discover “either the existence or the character of God,” and that it was only after the existence of God had been “announced to us” by revelation, that what was called “natural theology” could furnish us with “solid arguments in proof of his existence, and... his character.” A somewhat similar position was enunciated in the Instructor’s review of Chalmers’s Natural Theology (1835)—an expansion of his treatise. In terms strikingly reminiscent of those used in the Christian Observer, the reviewer suggested that the “theology natural to man is Polytheism,” and that it was only by recourse to the Bible—even if treated merely as a “record of primeval tradition” rather than a revelation—that anything resembling modern natural theology could be constructed. Having thus established that “to discover a truth, and to prove it after it has been discovered, are very different processes,” the reviewer was happy to ascribe to “natural theology” so defined the same important role as the Christian Observer as “an auxiliary to the evidences of revelation, and as an introduction to the study of it” (pp. 361, 364).

A markedly more positive approach to natural theology was taken by the less populist Presbyterian Review which, untypically among the evangelical journals, reviewed in complimentary terms all eight of the Bridgewater Treatises. Yet even here, the widespread unease about the legitimacy or value of natural theology was evident. The reviewer of Prout’s treatise began by noting that he had heard the Bridgewater bequest “by some ridiculed, by others blamed,” in consequence of its having been “misrepresented as an attempt to teach natural religion to the exclusion of God, and there to leave men to seek, as they best may, for a Saviour.”

Noting that belief in the being of a God was too deeply rooted in an innate principle to “require the aid of argument for its support,” the reviewer argued that the Earl of Bridgewater had intended his authors to provide proofs from nature of the attributes, rather than the existence of God. “He intended to teach men, not the science of natural religion, but the religion of natural science” (p. 1). The reviewer concluded that “the religious illustration of natural science” had the “great advantage” of “making Christians more intelligent, of increasing their capacities for enjoyment, and rendering them better prepared, when called upon, to give a reason for the hope that is in them.” In this way Bridgewater had been

“made an instrument in the hand of God for good, by enlarging men’s ideas respecting the Divine attributes and ways, and thereby leading them more fervently to love, more humbly to adore” (pp. 2–3).

The same ambivalence regarding natural theology found in the evangelical magazines of the established churches was also to be found in the magazines of evangelical dissent. The periodicals of “new” dissent, such as the Wesleyan Methodist Magazine, were more uniformly critical of natural theology, but the same range of concerns appeared in the periodicals of the more rationalist denominations of “old” dissent. Of these, only the Congregational Magazine and the Eclectic Review (written and read chiefly by Congregationalists and Baptists) gave space to the Bridgewater Treatises. Even then, they reviewed only Buckland’s treatise, chiefly because of their concern for intellectual freedom in the pursuit of geology. Yet, while reviewers in the Congregational Magazine expressed a high estimate of the epistemological status of natural theology, the Eclectic Review gave voice to a sophisticated version of the common evangelical view that natural reason was almost completely powerless to discern anything concerning God, and that what passed for natural theology was in fact dependent upon revelation rather than prior to it. Moreover, the reviewer pointed to the limits of reason in producing Christian faith, observing that faith was “dependent upon the state of the heart,” and asserting that this was a doctrine at which “the proud reasoner stumbles” (p. 173).

Unitarians

Of all religious denominations in early-nineteenth-century Britain, the Unitarians—at this period still largely in intellectual thrall to Priestley—would perhaps be most expected to be unsparingly committed to a foundational natural theology. This view is certainly borne out by the main Unitarian magazine, the Christian Reformer, which reviewed six of the Bridgewater Treatises in terms which suggest belief in both the validity and apologetic usefulness of the a posteriori arguments for the divine existence and attributes. Yet the 1830s saw a new development in English Unitarianism—partly inspired by the American Unitarian leader William Ellery Channing—which modified, and ultimately supplanted Priestley’s rationalism with an emphasis on religious sentiment. This movement found its outlet in the less populist Christian Teacher, which reviewed both of the Bridgewater Treatises published subsequent to its foundation in 1835. While the Christian Teacher’s reviewers viewed the treatises with somewhat mixed feelings—one considering that they “must on the whole be pronounced a failure”—several contributors to the magazine asserted the
epistemological validity of a scientifically based natural theology." Yet in an article on "The Study and Spirit of Natural Theology," the emerging emphasis on sentiment is clearly seen. Affirming the valid reasoning of the a posteriori arguments, the writer continued: "The idea of Deity has not its proper influence until it ceases to be a matter of analysis, and becomes a principle of inspiration. The fact is, that only a single step lies between the heart and God, or an unfathomable chaos. The spirit clings at once to him or it revolts altogether, and no argument in that case, can conciliate."

The same point was made with respect to the natural arguments for the immortality of the soul, regarding which the reviewer affirmed: "We are led by every day's experience, to dispute it less as a point of logic, and to realize it more as a sentiment of feeling. . . . The only change we would be for making in the discussion would be, to bring it nearer to the spirit, to make it more humble, and more homely. We would lay less importance on science, and more on emotion." (p. 391) Thus, while retaining a Priestleyan commitment to the epistemological status of natural theology, the writer effectively undermined its apologetic value, supplanting it with an approach based on sentiment.

SCIENCE, SENSIBILITY, AND THE PRACTICE OF CHRISTIAN PIETY

In the first part of this chapter we have seen that the epistemological status and apologetic value of natural theology, strictly defined, were not only profoundly contested and frequently denied in the religious magazines of early-nineteenth-century Britain, but that much of what passed under the name of natural theology, or which, on first inspection, might appear to be a natural theology, was in fact something less ambitious. Moreover, many of the same criticisms of natural theology also appeared in the reviews of the Bridgewater Treatises in the general literary magazines. Thus the perception articulated by Young and others—that natural theology fulfilled a decisive role in mediating the natural sciences to a wider public at this period—requires major revision, at least as far as many religious audiences were concerned.

This raises the question of how science functioned in the religious magazines, if it did not do so primarily through the arguments of natural theology. Such a question can only be answered fully when the several periodicals have been subjected to detailed analysis beyond the scope of this account. However, the reviews of the Bridgewater Treatises in the religious magazines suggest some important avenues for exploration. Of these, I will select two which seem to me to be particularly suggestive. Firstly,
incursion of what they viewed as incorrect or anti-religious ideas, and there was no shortage of literature designed to counteract the spread of mental materialism, or to neutralize the threat posed by modern geology to "scriptural" ideas of earth history. Yet it is also important to appreciate that science which avoided supposedly erroneous ideas might not necessarily be considered "safe" for recommendation to religious readers. On the contrary, religious commentators were generally agreed that science which was correct in point of doctrine could still profoundly undermine religious faith because of its effect on religious sensibility.

The point was well appreciated by William Whewell, who, in a widely applauded section of his treatise, provided analysis of the different impressions produced on men's minds by "inductive" and "deductive" habits of scientific thought. His objective was in part to explain how it was that "the growth of piety" had not always been "commensurate with the growth of [scientific] knowledge"—a trend which was apparently growing, and which he acknowledged had recently been of increasing concern to Christians (p. 323). In explanation he suggested that "deductive reasoners," habitually occupied with "tracing the consequences of ascertained laws," rather than with the discovery of new laws, were vulnerable to "all the delusive feeling" that the logical processes of deduction can lead to "all the knowledge and all the certainty we need" (p. 335). Such people might thus, Whewell suggested, lose the "common instinctive convictions and feelings" of mankind: they might become "insensible to moral evidence and to poetical beauties," and might possess in a "feeble and imperfect degree only, some of those faculties by which truth is attained"—especially those required for the apprehension of religious truth (pp. 338–339).

Although Whewell's analysis was untypical in its sophistication, he identified an issue of wide concern. As numerous commentators in the religious magazines pointed out, science might serve to foster religious sentiments, but presented in certain ways it might equally dim religious sensibility and might thus ultimately destroy faith. Thus, to be "safe," science needed not only to be free from erroneous doctrines, but it needed to be capable of protecting the religious sensibility, and of fostering the religious sentiments that were at least as important for faith. In this context a discourse of design was sometimes considered valuable. Yet this was not uniformly the case and, from the perspective of some reviewers, a discourse of design by itself was dangerous. For many evangelicals, in particular, science could only be rendered "safe" by its explicit association with scriptural sentiments. Without such associations, they considered that scientific reading tended to deaden religious sensibilities, regardless of whether it contained a discourse of design.

**High Anglicans**

The reviewers in the High Church magazines generally believed that a discourse of design could be used with great effect to elicit appropriately pious sentiments from scientific matter. Strikingly, C. W. Le Bas, who argued in the *British Critic* that natural theology was utterly powerless against the skeptic, nonetheless welcomed Whewell's treatise as showing—in Whewell's own words—"how admirably every advance in our knowledge of the Universe harmonizes with the belief of a most wise and gracious God." This was the more valuable, Le Bas noted, since "physical researches" had not always been "signally favorable to the development of moral and religious sensibilities." The efforts of those who, like Whewell, sought to "show the goodness of God, by an exposition of the contrivances and arrangements with which creation abounds" were to be applauded because of the emotional rather than the intellectual impact of their writings (pp. 78, 79). Indeed, the effectiveness of such illustrations was to be judged on the basis of their capacity to "take captive the affections" (p. 95). Not surprisingly, Le Bas warmly commended Whewell's analysis of the effects of different scientific habits of mind on devotion as being perhaps "the two most powerful and original chapters of the book" (p. 107).

Interestingly, the *British Critic* was prepared to publish a review of Buckland's treatise by the liberal Anglican geologist, W. D. Conybeare, which was much more positive in its assessment of natural theology. Nevertheless, Conybeare also considered that the primary value of the series was in making science subservient to religious sensibility. Commenting on the sublimity of Buckland's scientific findings, he concluded: "When, as throughout these treatises, we are directed to look still higher, and to see in all these things proofs of the unity and attributes of the great designer of universal nature, we are convinced that the greatest benefit to the best discipline of the mind must result from the habit thus impressed of giving a religious association to our most interesting intellectual speculations; and this, we are persuaded, will be found to be the principal advantage arising from the application of the Duke [sic] of Bridgewater's bequest, far more than even supplying any additional force to the great argument from final causes." The same point, though not always explicitly made, clearly lay behind reviews of the Bridgewater Treatises in the other High Church periodicals, where the "religious spirit" in which the
works were written rendered them religiously appropriate vehicles of
popular science, melding accurate exposition with suitable references to
divine agency in the natural world. Thus, while the Christian Remembrancer
and the British Magazine rarely contained reviews of more secular scient-
ific books, they gave the treatises wide recommendation.

Evangelicals

Whereas a discourse of design might render science safe and wholesome
for High Church readers, many evangelical reviewers provided a widely
differing assessment of the role of science in fostering pious sentiments, a
point reflected in the fact that three High Church organs between them
carried nineteen reviews of the Bridgewater Treatises, while thirteen evan-
gelical magazines carried only twelve reviews, eight of which appeared in
one journal, the Presbyterian Review. The Christian Observer was prompted
by Brougham’s Discourse to state the problem in bald terms. Brougham had
argued that natural theology formed a distinct branch of every science,
and that each science therefore consisted of three divisions: “1. The truths
which it teaches relative to the constitution and action of matter or of
mind;—2. The truths which it teaches relative to [natural] theology; and
3. The application of both classes of truths to practical uses, physical or
moral.” The “moral” uses of science which Brougham included under the
third heading consisted of the manner in which “the contemplation of the
Divine wisdom and goodness inculcates piety, patience, and hope.” While
apologizing for the Discourse’s reviewer wanted to know
why Brougham had not included revealed theology under the second
heading, as well as natural theology, claiming that “all science ought to be
made to bear upon the matters contained in Revelation, so far, that is, as
they can legitimately be adduced to that purpose.” If it were philosoph-
ical for Lord Brougham to refer to the design exhibited in nature, he
argued, so would it be “if some field-preacher, as the feathered seeds of
the humble dandelion floated around him, were to remind his rustic audi-
tors of the primeval curse, which condemned the ground to thorns and
briers for man’s transgression” (pp. 810-811).

The reviewer went even further, arguing that a discourse of design
which made no reference to revealed truth was effectively deistical, largely
because of its effect in dulling Christian sensibility. It is not unlikely that
he had the Bridgewater Treatises at least partly in mind when he expressed
a fear that the “high eulogies so often of late pronounced on Natural
Religion” were intended as part of a deliberate program to make people
become “too philosophical to be religious, too liberal to be Christian”
(p. 691). This secularizing program he not surprisingly associated most
closely with Brougham, whose activities in promoting secular, and largely
scientific education in the mechanics’ institute movement, the Society for
the Diffusion of Useful Knowledge, and at the University of London,
marked him out as a particular target. Yet, Brougham only presented an
extreme case of “the general spirit of the age, as shown in a spurious lib-
erality, a passion for generalizing in religious sentiment, a desire to amalgamate all creeds in simpler elements, the deification of Knowledge as
man’s chief good, and a disposition to concede the most important points
of religious doctrine and sentiment for the fancied interests of science” (p.
691). Such “generalized religion” was to be encountered in the new leisure
activities of the growing middle classes. In particular, as the book trade
sought to take advantage of the emergence of new reading audiences,
the reviewer lamented, commercial imperatives inevitably came into play:
“The grand views of external creation are beyond question beautiful and
sublime, and poets and romance writers find them more convenient instru-
ments of description and sentiment than the mysterious doctrines of the
Gospel. Romance writers therefore generally, and poets too often, are
Deists in their writings; and it well suits such authors, and their merce-
mary book-sellers, that there should exist a generalized religion, which may
embrace purchasers without restriction of sect; while lukewarm readers
will covet the luxury of books which interest or amuse them, without the
interruption or perplexity of religious topics, which they consider but the
bigotry of Saintship or Evangelism.” (p. 810) In this context, the effect of
discourse of design on religious sensibility was arguably as dangerous as,
and yet more insidious than any deistical argument.

These comments in the Christian Observer were evidently in part
amplified by the extraordinary status of Brougham’s Discourse. Yet similar
views were repeatedly expressed in the evangelical magazines during the
1830s. The ever-expanding scope of popular education, and the growing
demand for and availability of scientific publications, were issues widely
canvassed. Aware that other denominations had stolen a march on them
in the provision of elementary day schools, for instance, contributors to the
Wesleyan Methodist Magazine were conscious of the need to provide
suitable, scripture-based schooling for Methodist children. Yet the provi-
sion of such schooling immediately created further problems in regard to
the provision of appropriate reading matter, and commentators recognized
that even their efforts in providing Sunday-school instruction had already
created an “appetite for knowledge” which it was necessary to supply
“with intellectual food, at once wholesome and agreeable.” In this
context works of scientific natural theology like the Bridgewater Treatises were certainly of some use, and while the Wesleyan Methodist Magazine did not review any of the series, the titles were listed in the magazine’s “Select List of Books Recently Published, Chiefly Religious,” and extracts were published from two of the treatises. Yet it is significant that the extracts from William Kirby’s treatise related to scriptural natural history, and involved the sort of “Methodistical” moralizing referred to by the Christian Observer. Moreover, most of the science books recommended by the magazine incorporated both scriptural and moralistic aspects.

One such book, Henry Duncan’s widely commended Sacred Philosophy of the Seasons (1837–38), drew heavily on the Bridgewater Treatises for its materials. However, Duncan explicitly designed his work to counteract a dangerous tendency which he clearly considered some of the treatises manifested: “The attention of scientific men, while it has of late been very successfully, has, perhaps, been too exclusively, directed to the book of Nature, in illustration of the Divine perfections; and those, who peruse their writings, may be induced to overlook the highly important truth, that, after all, natural religion affords but an imperfect glimpse into the moral attributes of the Eternal” (p. xvi). It was only under the illumination of the “celestial light” of revelation, Duncan observed, that the study of creation was “calculated to expand the understanding, enlighten the judgment, and improve the heart.” He consequently combined his exposition of “the various marks of divine wisdom and goodness, with occasional references to the peculiar doctrines of holy Scripture.” In this respect, the Wesleyan Methodist Magazine noted with an obvious eye to the Bridgewater Treatises, the work was “better adapted to general use than are several modern works of much higher pretensions.”

The contrast was made more explicitly in the Edinburgh Christian Instructor. The reviewer of Duncan’s work warmly welcomed the “great improvement of late years in works of science, in so far as the illustration of the great doctrines of natural religion is concerned,” arguing that the Bridgewater Treatises had been “eminently beneficial” in this regard. Yet Duncan’s object was more important: “to lead his readers forth amidst the scenes of nature which lie spread around them, to seize on striking facts and phenomena as they occur; to bring the light of science to bear upon them, and to consecrate them by applying them to the purposes of an enlightened and scriptural piety.” Like most of the evangelical magazines, the Edinburgh Christian Instructor was keen to establish that, while scientific knowledge was not inherently evil, great care had to be taken to ensure that it engendered pious sentiments. For, the heart might be “carried away from God, and from the feeling of its own natural wretchedness and helplessness, by a keen taste for the pleasures of science and literature,” and a man might be “warmly alive to the beauties and the wonders of creation, while he thinks not of, nor feels the slightest desire to have any communion with, or even any knowledge of [the creator].” For this to be avoided, a discourse of design was not enough: “revealed religion should be the light of all the sciences.”

Another reviewer put the point succinctly: “There are two ways of connecting religion and science; the one is by making religion scientific, and the other is by making science religious.” The only safe way of connecting the two was to insist upon science “being made to assume the garb and speak the language of religion.”

Although it is clear that the evangelical magazines held much in common in their approach to scientific reading, there were evidently subtle differences, most of which are beyond the scope of this essay. One point, however, stands out, which is that “rational” dissenters appear to have been more inclined to regard a discourse of design as adequate for fostering religious sensibility and sentiments. The writer of the Eclectic Review, who effectively dismissed natural theology as a form of theistic inference, nevertheless saw it as useful in counteracting the evils consequent from the “tacit exclusion of religion from scientific and useful knowledge.” Once again, the analysis rested on the effects of mental habits on religious sensitivity: “Knowledge can exert no practical influence upon us, except as it changes or determines our habitual considerations… Hence, to the anatomist or physiologist, exclusively occupied with the mechanism of the human frame, that study which would seem peculiarly adapted to lead to religious belief, proves too often the means of stripping the mind of all belief in spiritual existence, and of extinguishing all religious feeling.” This was, the reviewer continued, the true “intellectual cause of irreligion” (p. 178).

Unitarians
Views similar to those of the more rationalist dissenters were promulgated by Unitarians. While the reviewer of Whewell’s treatise in the Christian Reformer had been happy to endorse the epistemological validity of natural theology, he felt it necessary to point out that the “logical sufficiency” of the argument could hardly be added to by science. For him, the value of such works as the Bridgewater Treatises was that “the attention is more forcibly drawn to the subject, a deeper and more lasting impression is made, and the student of nature is led more distinctly to perceive and
practically to acknowledge the intimate connexion of his favourite pursuit with the most noble and worthy object to which the human faculties can be directed.\textsuperscript{70}

This devotional role was also emphasized in the \textit{Christian Teacher}. Clearly convinced of the necessity of pursuing science independently of theology, one writer was nevertheless deeply concerned by the effect of the scientific language on Christian piety. Not being framed for religious purpose, such language served religion very ill, failing to "throw into relief the constant action of God—to make lively the impression of the universality of His operation and His presence—and to present him prominently to the awakened heart of devotion."\textsuperscript{71} Moreover, he continued, it tended to lead to a semi-deistical view of general providence which was "unfavourable to piety, because it is alien to our belief in God's spiritual omnipresence, and destroys the quickness and awe of the devotional feelings that gather serenely around that faith; because it throws an air of coldness over his administration, and represses the sentiment that we are the objects of his personal care" (p. 396). The scientific study of nature could be useful in engendering such pious sentiments, but only when approached with the correct sensibility in the first instance.

\section*{Conclusion}

Twenty years ago, John Brooke observed that there existed a "stylized picture of natural theology which has been drawn from a backward projection of the Darwinian antithesis between natural selection and certain forms of the design argument"—a perception which he has done more than anyone to correct.\textsuperscript{72} However, Darwin may have led historians astray in a yet more fundamental respect: the historical interest generated by Darwin's role in turning Paley on his head has perhaps led historians to overemphasize the place of natural theology, Paleyan or otherwise, in British culture during the early nineteenth century.\textsuperscript{73} Certainly, a recent study suggests that, in reading Paley's \textit{Natural Theology}, Darwin was not quite as typical of Cambridge undergraduates in the 1820s as might be supposed.\textsuperscript{74} In any case, approaching the issue, if not from the pew, at least from the devout parlor of early-nineteenth-century Britain, indicates a far more contested role for natural theology than we have come to expect from our relatively narrow focus on a central group of scientific practitioners who have been supposed to share a similar, "liberal Anglican" theology.

Having established that natural theology was not the primary means by which the sciences were framed in the religious magazines, the historian is free to explore the manner in which they were framed. In this account I have focused on two points which I consider to have been hitherto rather neglected. Firstly, in many religious magazines the affective aspects of science were at least as important as the rational aspects. While it has certainly not been my object to suggest that the reviewers who wrote for religious periodicals were uninterested in the place of reason in relating science to religion, I suggest that we should not focus almost exclusively on reason in such discussions.\textsuperscript{75} Secondly, in many religious magazines, the pressing need in the face of an encroaching scientific culture was to find a place for science in the practice of Christian piety. Once again, I do not mean to suggest that the role of science in religious belief was unimportant, but an almost exclusive focus on beliefs is clearly insufficient. Indeed, historians of science have increasingly over recent years become interested in the question of scientific practice, and several studies have clearly demonstrated the fruitfulness of exploring the interconnections between religious and scientific practices as well as between religious and scientific beliefs.\textsuperscript{76} It has been my argument in this essay that such an approach needs to be extended to the readers of scientific publications, as much as to scientific practitioners themselves.

\section*{Acknowledgments}

Earlier versions of this essay were presented at the conference "Science in Theistic Contexts," held in July 1998 at the Pascal Centre for Advanced Studies in Faith and Science, Redeemer College, Ancaster, Ontario; at the conference "John Ray and His Successors: The Clergyman as Biologist," jointly organized by the John Ray Trust, the Institute of Biology History Committee, and the Society for the History of Natural History, and held in March 1999 at Braintree Essex; at the Centre for Science and Religion, University of Leeds, April 1999; and at the Modern History Faculty, University of Oxford, November 2001. I am grateful for helpful discussions on those occasions, and more especially for the comments on earlier drafts of John Brooke, Geoffrey Cantor, Jonathan Hodge, Jack Morrell, Jim Secord, and Sally Shuttleworth. The research on which this chapter is based was generously funded by the Leverhulme Trust, through their program of Special Research Fellowships, and the Arts and Humanities Research Board, through their program of Institutional Research Fellowships.


6. The *OED* gives “theology based upon reasoning from natural facts apart from revelation.”


15. See, e.g., Alvar Ellegård’s *Darwin and the General Reader: The Reception of Darwin’s Theory of Evolution in the British Periodical Press, 1859–1872* (1958; reprint, with a foreword by David L. Hull, University of Chicago Press). Ellegård sought to use the opinions expressed concerning Darwinism in 115 periodicals and newspapers as a tracer of public opinion, basing his whole procedure on the assumption that “periodicals can be taken, by and large, as representative of the ideas and beliefs of their readers, and thus, with some qualifications, of the population at large” (p. 21). He also sought to codify public opinion by a statistical analysis of press reaction, classifying according to five possible positions on each of what he identified as three “parts” of Darwinism: “the evolutionary theory as such,” “the descent theory in its application to man,” and “the theory of natural selection” (p. 341).


29. “Notices and Reviews” [Thomas Turton’s Natural Theology Considered with Reference to Lord Brougham’s Discourse], British Magazine 9 (1837), p. 419. Other references endorse this assessment of the weak epistemological status of natural theology. The reviewer of Chalmers’s Bridgewater Treatise referred to arguments which would “go as far as we can go to prove a benevolent Designer” (“Notices and Reviews,” British Magazine 4 (1833), p. 193).


33. The evangelical periodicals consulted were the Baptist Magazine, the Christian Examiner (which reviewed Chalmers’s Bridgewater Treatise), the Christian Guardian, the Christian Lady’s Magazine, the Christian Observer, the Congregational Magazine (which reviewed Buckland’s Bridgewater Treatise), the Edinburgh Christian Instructer (which reviewed Chalmers’s Bridgewater Treatise), the Eclectic Review (which reviewed Buckland’s Bridgewater Treatise), the Evangelical Magazine, the Gospel Magazine, the Presbyterian Review (which reviewed all eight Treatises), the Primitive Methodist Magazine, and the Wesleyan Methodist Magazine.


44. See "Dr. Buckland's Geology and Mineralogy Considered" (ibid.); "Works of Natural Theology," Congregational Magazine 13 (1837): 242–251.


47. See Altholz, Religious Press in Britain, pp. 73–74.


55. The three High Church periodicals are the British Critic (which reviewed Whewell's, Chalmers's, and Buckland's Bridgewater Treatises), the British Magazine (which reviewed all eight Bridgewater Treatises), and the Christian Remembrancer (which reviewed all eight Bridgewater Treatises).


58. In dealing with the reactions to Brougham's Discourse it is important to appreciate—as some contemporaries noted—that Brougham's prominent position in national affairs, taken together with his rationalist approach to religion, on some occasions prompted rather exaggerated, if not disingenuous comments from reviewers. See, e.g., "Works on Natural Theology," pp. 249–250. For a useful survey of reviews of Brougham's work, see Yule, "Impact of Science," pp. 200–235.


63. Henry Duncan, Sacred Philosophy of the Seasons: Illustrating the Perfections of God in the Phenomena of the Year, fifth edition (Edinburgh: William Oliphant and Sons; London: Hamilton, Adams, and Co., 1848), p. xv. Another of the most frequently reviewed scientific authors in the evangelical periodicals during the 1830s was the Scottish evangelical schoolteacher Thomas Dick, who, as William Astor has shown, rejected natural
Theology, strictly defined, advocating instead a "doxological" or God-praising theology of nature based upon knowledge of God derived from Scripture... and elaborated by examining the natural world" (William Joseph Astore, Observing God, Ashgate, 2001, p. 46).


Reporting Royal Institution Lectures, 1826–1867
Frank A. J. L. James

The expansion of the periodical press during the nineteenth century meant that the Royal Institution could gain considerable press coverage as journals sought to fill their columns. This chapter will examine the way in which the Royal Institution took advantage of the expansion of the press and the changing pattern of reporting over the years.

Founded in 1799, the Royal Institution has survived on the basis of attracting large numbers of people to its lectures. When Humphry Davy lectured there as Professor of Chemistry between 1801 and 1812, large and appreciative audiences helped keep the Royal Institution in a reasonable financial state. After Davy's retirement in 1812, the Royal Institution carried on with William Thomas Brande as the new Professor of Chemistry. By all accounts Brande was a good lecturer; however, he seems not to have had the inspirational quality possessed by Davy, and audience numbers seem to have fallen.

To help increase audience sizes, it was agreed that Brande would move his chemical lectures for medical students from the Windmill Street Medical School to the Royal Institution. But these were morning lectures delivered by Brande for the students, who, over the years, increasingly came from nearby St. George's Hospital. Though they helped financially, these lectures did little for the general audience level and the overall reputation of the Royal Institution. By the mid 1820s, the Managers (the committee, elected from the Members, that used to run the Royal Institution) had evidently decided that more needed to be done and a major program of reinvigorating the lectures was commenced.5

The key person here was Michael Faraday, who had been appointed assistant in the laboratory in 1813. In his original position his main task was to help in the preparation of lectures, including those of Brande. In 1821 he had in effect been appointed Acting Superintendent of the Royal Institution (when Brande was absent, but under his general direction), and four years later Director of the Laboratory. It was in this capacity that he took charge of reinvigorating the lectures at the Royal Institution, especially