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Mid-Nineteenth Century Conflict:
Religious and Scientific Discourse in English Architectural History

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‘There are no constitutional revolutions, no violent reversals of legislation; custom is far more potent than law and custom is modified infinitesimally every day.’

- William Stubbs, *Constitutional History of England*

For my grandfather, William Whitley Ashley

Can we understand something of the relationship between mid-nineteenth century English religious and scientific thought by studying works of art and architecture, as well as the work of architectural historians?

Introduction

It seems architectural historians either write about science and architecture, or they write about religion and architecture, and there certainly have been many books written solely about Victorian churches. Even so, I have yet to find a scholar who writes about the *relationship between* Victorian science and religion with respect to architecture. Most general historians tend to write about the relationship between science and religion in Victorian times as an ‘invasion’ of scientific facts that strain or force the hand of religious thought until eventually religion succumbs to secularisation. Instead, I propose that scientific theories and metaphors were articulated in art and architectural writing and speech precisely because these ideas took root in religious understandings. To be clear, I am not suggesting some kind of *Zeitgeist*, but rather that the presence of religious conceptions made the scientific metaphors and theories of the mid-nineteenth century resonate, made these ideas possible and plausible, as seen in locally articulated art and architectural writing and commentary.

My work builds on a foundation set down by Carla Yanni in *Nature's Museums: Victorian Science and the Architecture of Display*. Yanni's stated concern is ‘the relationship of architecture to the social construction of knowledge’ (Yanni, 3). She writes, ‘thus the task for the historian is not to dismiss science as social behaviour

disguised as truth-seeking, but to ask what scientifically constituted facts meant historically.... And these are cultural questions.' (Yanni, 12). Yanni's historical approach applies equally well to the study of religion. Historians rarely address what religious concepts meant historically without simultaneously, if inadvertently, appearing to discredit them as unfounded at best, or superstitious at worst. My aim is not to question the truthfulness of scientific and religious beliefs, but to produce a picture of early Victorian architectural history that shows the relationship between these beliefs and allows us to see something of their impact on current religious and scientific debates.

Specifically, we will look at sectarian church building in the mid-nineteenth century, with particular attention to All Saints' Margaret Street and William Dyce's *Pegwell Bay, a Recollection of October 5th, 1858*. We will consider the writing and speeches of Victorian architectural historian, John Ruskin, and the way he uses mythology to discuss the relationship between science and religion. We will examine the 1851 – 1853 painting by John Martin, *The Great Day of His Wrath* and architect C.R. Cockerell's 1848 pencil, pen, ink and watercolour creation, *The Professor's Dream*. Julia Margaret Cameron's work around this time will also provide fertile material for study. Then, we will see how the ideas of American scientist Louis Agassiz, when viewed in light of Darwin's theory of evolution and his professional goals, reveal the way in which scientific discourse was used as a tool for political gain. Finally, we will look briefly at contemporary debates regarding scientific and religious discourse with an eye toward what we have said about the mid-nineteenth century.

I. Perceived Conflict Between Science and Religion

The definition of religion we will use refers to Christianity in England in the mid-nineteenth century. The definition of scientific thinking that will be used in this discussion is not that of a single category based on the present-day set of professions, institutions and technologies. Instead, we will use the term ‘science’ as it was used by many people in the nineteenth century, as ‘systematic and formulated knowledge’ (Yanni, 2). Note that in the mid-nineteenth century scientific process was based on observation, or systematic formulations of knowledge. Later in the century, repeatability would be the benchmark for good science, and scientific methods consisted of verifiable experiments.

With regard to the relationship between Victorian science and religion, the decades that are most interesting to focus on are the years between the 1840s and the early 1870s. In the mid-1840s, the repeal of the corn laws helped encourage free trade and exchange of architectural ideas between England and Europe. Historian Paul Thompson writes, ‘it is striking how quickly free trade in goods was followed by free trade in taste: within three years of the repeal of the Corn Laws, the insular nationalism of the *Ecclesiologist* had also collapsed.’ (Thompson, 87). Additionally, a building boom at the time makes the decade an interesting subject for study. Also in the 1840s, the Royal Archaeological Society was founded, indicating great interest in geological, scientific research. The 1850s are significant for the founding of the Royal Photographic Society, which reflected and contributed to the dissemination of ideas about ‘truth’ in observation and empirical

study. Notably, 1860 is the year in which Darwin's *Origin of Species* is published. In America, Anti-Darwinian Louis Agassiz is also working at this time.

Scholars writing about Victorian architectural history often speak of conflicts in mid-nineteenth century thinking. One hundred years after the period, Humphry House said, 'The more I read of the early- and mid-Victorians, the more I see anxiety and worry as a leading clue to understanding them. They were not complacent compromisers. They were trying to hold together incompatible opposites, and they worried because they failed.' (House in Summerson, 5). Although written fifty years ago, Humphry House's comments resonate with contemporary popular and academic perceptions of Victorian conflict. Architectural, religious and scientific thinking are just a few areas that were and are often perceived to be in conflict.

However, it would appear that people at the time thought otherwise. John Ruskin wrote that, 'There is no branch of human work whose constant laws have not close analogy with those which govern every other mode of man's exertion.' (Ruskin, 4). When writing this, Ruskin was equating 'practical' precepts with moral ones, but he was also making a comment about the interrelatedness of human activity and human discourse. Ruskin's statement can be compared to structural anthropologist E.B. Tylor's assertion that 'if law is anywhere, it is everywhere.' (Tylor, 1). Instead of seeing conflict and 'incompatible opposites,' influential thinkers in the mid-nineteenth century perceived a continuity or coherence in people's words and actions. It is my belief that this coherence, continuity or

interrelatedness was pivotal in the creation of scientific discourse, based on existing religious discourse.

By contrast, many contemporary historians have dismissed these observations as 'structuralism,' to the detriment of understanding what was happening at the time. Instead of discounting the utterances that Ruskin and Tylor in the mid-nineteenth century made about their own time, we would do well to listen carefully for the ways in which their words might have been true or might aid our understanding of their situation. To clarify, I am not suggesting that we only use the major intellectual theories of a particular time to analyse works and discourse from that time. It would be foolish to say that we could only understand the mid-nineteenth-century by using structuralist ways of thinking. Similarly, it would be impossible to understand the mid-nineteenth century simply by trying to understand the world as they understood it, which would necessarily involve using only the intellectual strains of thought available in the mid-nineteenth century. If we label Ruskin's and Tylor's utterances as mere structuralism, and relegate their words to the netherworld of antique intellectual theories, we risk missing what surviving voices of the time have to tell us. The challenge for us to is to use current methods and theories to understand in what ways their words described their situation.

Historian Michael Hall is a good example of one who strives to listen carefully to what people said in the past. Of the relationship between science and architecture in the nineteenth century, Hall has said, 'Ruskinian emphasis on nature as the origin of Gothic ornament was essentially scientific in that it demanded a close observation of the natural

world and an ability to schematize it.' (Hall, 81). Ruskin applied scientific methods to his study of geology, as well as his scriptural studies. By listening to Ruskin's own words about the connectedness of human activity, a nuanced understanding of the relationship between Ruskin's own religious and scientific discourse emerges.

So what were the specific issues that historians perceive to be conflicts in religious and scientific thought? Theories about the distant past that emerged at that time, primarily in the work of Lyell and Darwin, would later be seen as conflicting with biblical descriptions of the earth's formation. However, at the time of Darwin and Lyell's publications, science was not a single category or professional occupation. Before 1860, educated men, especially at Oxford and Cambridge, considered both scientific and theological studies as attempts to understand God more fully. In the first half of the nineteenth-century, men who practiced science were also necessarily deeply religious, because the observation of the natural world and the study of scripture were thought to be complimentary pursuits. Following Paley's 1802 *Natural Theology*, most educated people believed that elegant patterns found in the natural world were conclusive proof of an unfolding plan by an intelligent creator. (Yanni, 33).

The professionalisation of science and the so-called secularisation of religion are said to have begun around the 1860s, but it would be a mistake to assume that scientific discoveries necessarily set off these changes. Although Lyellian and Darwinian theories about the distant past are often portrayed as conflicting with biblical descriptions of the earth's formation, most mid-nineteenth-century people incorporated these geological and

evolutionary theories into their ideas about scriptural creation, with little or no conflict. Instead, there was a different motivation at work in the changing ideas about religion and science. Starting 'in the 1820s...working-class radicals saw a chance of using certain versions of the sciences for political ends. Some forms of the sciences, especially those emanating from France, seemed to suggest a restricted (or even non-existent) role for God in the universe, and thus to undermine the Anglican politico-religious establishment.' (Victorian Web). Also in mid-century, men such as Thomas Huxley and John Tyndall argued that religious experts should be separate from scientific experts, the result of which was a division of authority and power between clergymen and professional scientists. So it appears that the separation of scientific enquiry into separate, secular professions was about power, not about so-called truth.

It is interesting to question why there was such a tendency to see conflict between science and religion. One clue came from Carla Yanni in *Nature's Museums*. Even though Yanni's work is some of the most nuanced, interdisciplinary work to be done on the history of mid-nineteenth century science and architecture, Yanni reproduces commonly accepted beliefs that ultimately there came to be a conflict between science and religion. Yanni writes, 'There is an historical litany for [the Oxford Museum] which repeats dichotomies (classical versus Gothic, science versus religion, art versus technology, creation versus evolution) that are, in fact, not present in Victorian intellectual culture in the same way that we understand them today. Indeed, such clear-cut dualities are perhaps not in keeping with Victorian thought. As Ruskin himself wrote, truths may be and often are opposite though they cannot be contradictory.' (Yanni, 90).

To make this statement, Yanni relies on the concept of a commonly accepted secularisation watershed that began in the 1860s. I believe that the key to misunderstandings about the relationship between mid-nineteenth century science and religion can be found in the use of this category 'secularisation' to characterize scientific and religious development. Histories of mid-Victorian science and religion assume an eventual separation of religious and scientific thought, with scientific thought the 'victor' and this assumption is the main barrier to understanding how scientific meaning grew out of religious ideas.



Figure 1. John Martin, *The Great Day of His Wrath*, 1851 – 1853

Tate Britain, London



Figure 2. C.R. Cockerell, *The Professor's Dream*, 1848

Royal Academy of Arts, London



Figure 3. Julia Margaret Cameron, *The Mountain Nymph, Sweet Liberty*, 1866

Albumen silver print from glass negative; 14 $\frac{3}{16}$ x 11 $\frac{1}{4}$ in. (36.1 x 28.6 cm)

II. How scientific thinking took root in religious thinking

In Stefan Collini's *History, Religion and Culture: British Intellectual History 1750-1950*, Collini quotes William Stubbs, *Constitutional History of England*, which states 'There are no constitutional revolutions, no violent reversals of legislation; custom is far more potent than law and custom is modified infinitesimally every day.' (Stubbs, 166 in Collini). Stubbs' assertion perfectly describes the approach that we will take to understanding religious and scientific thinking in the mid-nineteenth century. Just as Stubbs says there are no constitutional revolutions, I maintain that there are no scientific revolutions. New materials, different working conditions and novel scientific facts may appear, but the environment in which they emerge already exists and their emergence takes root or springs from the existing environment. By this I mean that mid-nineteenth century scientific thinking did not subsume religious thinking, but grew out of it. Just as Stubbs writes that custom is far more potent than law, everyday and official discourse, as well as the actions of people in the mid-nineteenth century, will serve as our best clues or historiographical traces.

If meaning is not inherent in buildings, not intrinsic to their materials and purposes, then what is possible to gather from buildings and the discussions about them? Buildings as traces are local, that is they are necessarily fixed in a particular location, and they are knowable through sense perception. Both of these are important qualities of historical evidence that architectural history can offer that other disciplines may not always. Since

scientific and religious discourse happens within each individual and community, we can look at paintings, buildings and books to understand mid-nineteenth century thinking.

Why study mid-nineteenth century buildings and architectural thinking? In *The High Victorian Movement in Architecture 1850 – 1870*, Stefan Muthesius writes, ‘It is not difficult to find out what Victorian architects thought about architecture. ...Architecture and architectural history developed and progressed side by side.’ (Muthesius, xvii). It is true that talk of buildings among preachers and newly-minted architects was rampant then. The *Builder* was a prominent journal at the time, devoted to building and the emerging architectural profession. The work of one nineteenth-century writer, William Lethaby, expanded the role of those who would speak about buildings by saying that meaning could be discerned from them. His work, ‘...has a unique place in the history of architectural theory for it advanced the then new idea that psychological and philosophical notions found symbolic expression in architectural forms.’ (Lethaby, viii).

If we are to read symbolic meaning in architectural forms, a good place to start is with churches, particularly because church construction was an important mid-nineteenth century activity. John Summerson writes, ‘Church building was one of the most significant and visually conspicuous elements in early Victorian London. Through the first twenty years of the reign, about six new churches were built every year. The motives for building and the character of the results are important.’ (Summerson, 23). Church building was rampant and crucial for newly forming communities in London.

Summerson writes, 'The presence of a church, or the prospect of one, was an essential element in successful estate development.' (Summerson, 29).

To give an example of ideologically charged design with respect to church building, we may look at All Saints' Margaret Street Church built in 1859 and designed by William Butterfield. If we are to read meaning into the church's use of materials to embody spiritual truths, a useful comparison may be made with Christ the King Church in Gordon Square. Both All Saints' and Christ the King use Derbyshire marble, which exposes ancient fossils embedded in the rock. The stone showcases the layers of sediment on which humanity was built, according to mid-nineteenth century geological discoveries. This marble was used to gesture toward the spiritual by using material that had been used to demonstrate scientific discoveries.

Some of these discoveries were interpreted as furthering the argument from design that said the development of the earth was evidence of the divine creator's handiwork. William Dyce, who painted the murals that were exhibited at All Saints' at the time of its opening, also painted an important work that acts as religious and scientific discourse. Dyce's *Pegwell Bay, a Recollection of October 5th, 1858* depicts exposed geological strata that dwarves the human figures in the painting's foreground. Dyce's *Pegwell Bay* reminds us of historian Michael Hall's admonition that 'Decoration is there not to tell a story but to reinforce the sense that a church building is not a neutral structure on which a symbolic interpretation is hung, but itself embodies a sacramental meaning by the beauty and refinement of its forms.' (Hall, 89).

Although Dyce's painting has been interpreted as representing a tension between religious and scientific beliefs at the time, it could also be read as a reminder of the divine role in natural processes. In fact, 'The study of geology was recommended to architects by Ruskin, who had been taught at Oxford by Buckland. In the first volume of *The Stones of Venice* (1851), Ruskin suggested how information about geology can be incorporated metaphorically into buildings by treating walls decoratively with banded constructional polychromy.' (Hall, 82). Such was the treatment at All Saints'. Further, Christ the King's principle benefactor, Henry Drummond, was a geologist, so he would have understood the relevance of using Derbyshire fossil marble to indicate scientific and religious meaning.

Mid-nineteenth-century architecture was cause for heated political debate, as seen in All Saints' Margaret Street and Christ the King, Gordon Square. Discussions often centred around the so-called 'Battle of Styles,' a contest between Gothic and Classical for precedent in new buildings being designed. In Stefan Muthesius' *The High Victorian Movement in Architecture 1850 – 1870*, it is said that scholars should ask why historic forms resonated with people at that time, not just see the design choices as references to previous work (Muthesius, 3). Paul Thompson gives an excellent explanation of this issue, saying, 'The Victorian "Battle of Styles"...was as much an expression of English political history as a conflict between rival antiquarian groups....Whatever the sources of the forms borrowed, their selection depend[ed] upon the aesthetic, political and social taste of the age, rather than upon their original meaning.' (Thompson, 85). Even though

'original meaning' is not itself a helpful distinction, the notion that a building's look can tell us something of its designer and patrons' politics is interesting.

Of Victorian architects Muthesius writes, 'We believe what the church believes but its material expression is our provenance' (Muthesius, 7). It is important to remember that Victorian architects were not trying to replicate previous Classical and Gothic building designs. Instead, they were trying to design a 'version' of the styles that suited their own age. Thompson writes, 'If medieval gothic had been the product of medieval society, it followed that the Victorian social system would not allow its precise imitation.'

(Thompson, 95). The conflict to which John Summerson referred when quoting Humphry House mainly centred around these style discussions. Summerson writes, 'the Victorians were trying and failing to hold together the intense desire to have a style of their own while remaining convinced that style is a matter of ornament.' (Summerson, 6).

Church building was also crucial as an ideological statement and status marker for influential religious sects, such as the Tractarian All Saints' Margaret Street. In this example, architectural design and socially constructed knowledge were closely linked at the time of the building's design, as well as today. There were also sects that did not conform to then-contemporary Christian practices that needed a place to worship. The eccentric Catholic Apostolic Church built seven London churches as a place to put forward controversial ideas about Christianity and its practices. So prominent were Victorian church buildings as social symbols, that the original lithograph illustration

located in St. Mary's, Somers Town portrays the building as larger-than-life, many times that of the human-scale figures congregating outside it.

The use of scale is an important technique used by artists at the time to depict religious ideals. As Landow discusses, the gross disparity between the titanic rock above the human waste below serves to situate humans in the natural world. Similarly, as in the lithograph of St. Mary's, the use of scale indicates the artist's emphasis on the dominance of the physical structure of the church with respect to human life. We also see this technique used in William Dyce's *Pegwell Bay, a Recollection of October 5th 1858*, where the human figures are dwarfed by the imposing mass of exposed geological sediment in the painting's background.

In *History, Religion and Culture: British Intellectual History 1750-1950*, Stefan Collini writes,

'In contrast to the apocalyptic it was hard to represent the newer sensibility pictorially; the imperceptible is also necessarily the unpaintable. Even the frontispiece of Lyell's book is, to the eye, only an attractive engraving of ruined classical columns with their feet still in water. This is, of course, because of the difficulty of rendering time, above all infinitely slow processes, pictorially; shaggy or ruined and overgrown buildings in the picturesque tradition were about the best there was, though there is an exercise in what one might call 'peaceful geology' by William Dyce in his *Pegwell Bay*, with its careful rendering of the layered texture of stone.' (Collini, 218).

Similarly, John Martin's 'The Great Day of His Wrath,' painted from 1851 to 1853, is a fine example of religious and scientific discourse carried out in the visual arts. The work combines many of the themes that run through nineteenth-century religious and scientific thought. The painting shows a violent volcanic eruption, lightening and giant pieces of earth that crush classical buildings in the background and lay waste to people in the foreground. The awesome power of the natural world is a common theme at the time. Mid-nineteenth century geological discoveries helped fuel interest in this subject matter. Even before these discoveries, however, there was keen interest in the so-called sublime. Although the meaning of sublime in the mid-nineteenth century can be debated, we can say that, as it is rendered here, the sublime is a depiction of natural phenomena so terrifying or vast that they become beautiful.

The title of the painting references the Christian idea of a judgment day, the end of the world known to humans brought about by God's wrath. The title associates Martin's depiction of the sublime with religious symbolism. At the time Martin painted this work, many English Christians believed that the world's end was imminent. One sect, the Catholic Apostolic Church, even built a cathedral as a kind of 'waiting room' for Christ's Second Coming.

In his book *Images of Crisis: Literary Iconology, 1750 to the Present*, George P. Landow writes,

'In *The Great Day of His Wrath* (1852, Tate [Britain] Gallery) this master of the theatrical sublime created an image of the Last Judgment which can stand as a

type of his entire career. Using his characteristic elongated horizontal format, Martin follows his usual pictorial strategy of juxtaposing many diminutive human beings to a world whose scale, depth, and energy is about to destroy them. A black chasm opens before the spectator in the immediate foreground, and into this emptiness pour the terror-stricken inhabitants of this doomed world, while down upon them cascade from the left enormous boulders. Lightning flashes across the sky and down on the ground, and this fire from the sky is matched in the right portion of the background by a sea of lava and fire. The curving sides of the hills, the swirling clouds of smoke on the right, and the central blackness all create a vortex that draws spectator.

In all these representations of catastrophe and crisis, Martin relies upon the great disparity of scale between his personages and the world in which they find themselves to emphasize man's essential helplessness in the face of natural phenomena. Throughout Martin's work lightning, flood, avalanche, volcanic action, and earthquake destroy human beings and their guilty civilizations, and when he came to paint *The Great Day of His Wrath*, he employed them all, as if to provide a final summation of this situation and of his own career in depicting its various forms. (Landow, 7-8).

The relation of works like Martin's to religious symbolism and meaning is well known. What is not discussed as often is the connection between these religious depictions, and the scientific ideas emerging at the time. The notable thing about John Martin's work, as

well as Dyce's and others, is how easily religious and scientific discourse could be portrayed in a single work of art or architecture. Contemporary historians' claims that science subsumed religion fail to appreciate that scientific and religious ideas are part and parcel of a society's cultural activity, because their notion of secularisation relies on some kind of evidence of conflict, not on the absence of conflict. In Dyce's and Martin's work, the absence of conflict and the ease with which religious and scientific ideas were incorporated tells us that these ideas were not in opposition to one another, but considered complimentary.

While most architectural historians have been concerned with the influence religious or scientific thought had on mid-nineteenth century building design, it seems more interesting to question the way in which political and social conditions influenced the meanings that were read into mid-nineteenth century building design. Political and economic factors were key contributors to the changes taking place in building design in the mid-nineteenth century. In his book on William Butterfield, Paul Thompson writes,

'One of the first important effects of the industrial revolution upon architecture was the rise of the block contractor, who undertook a complete building at a firm price, in the place of the old master craftsman, who was paid on a basis of time and materials, and worked on until the job was finished. This change resulted in the lowering of standards of execution, for while the old craftsman made his name for quality, the new contractor's success depended upon speed and cheapness.'

(Thompson, 70).

Many, including the leading architectural historian John Ruskin enlisted religious references to fight changing practices in building construction.

Ruskin relied on Christian ontology, symbols, and scriptural analysis to read meaning into the natural world and then, in turn, used scientific concepts to find meaning in religious symbols. From the time he was a child, Ruskin studied scripture daily and in the 1830s, he conducted scientific study with Reverend Dr. Buckland of Christ Church, the man who would later oversee the building of the Oxford Museum. Like natural theology believers, he saw both religious and scientific study as the single pursuit of God's revealed truth.

Michael Wheeler provides an interesting portrayal of Ruskin's work on science and religion in the chapter 'Science, myth and a creative wisdom,' in his book, *Ruskin's God*. Although Wheeler's analysis leaves something to be desired, especially since it assumes a conflict between religious and scientific ideas, the primary material he pulls together is amazing. Wheeler describes Ruskin's belief in the concept of 'a creative wisdom' and states that Ruskin's religious beliefs, particularly about creation, depended strongly on faith in God the Holy Spirit more than the role of God the Father. Wheeler characterizes Ruskin's dissatisfaction with Darwin's work for its failure to relate naturalist facts to 'larger truths' and designs of the 'Supreme Deity.' (Wheeler, 180). What is interesting about Ruskin's belief in the Holy Spirit is that he saw it as the New Testament model of 'divine wisdom' as foreshadowed in the Old Testament and, more significantly, in Greek and Egyptian religion (Wheeler, 181).

The significance of the relationship that Ruskin draws between Christianity and Greek and Egyptian religion cannot be overlooked. Ruskin even recognizes scriptural passages as redactions of older, earlier myths and theories about the world. By acknowledging the connectedness of religious traditions and relating them to Christianity, despite the earlier traditions being thought of as myths, Ruskin furthers our understanding of the role religion plays in scientific discourse. Ruskin saw scientific discoveries as further proof of a divine Christian creator. His ideas were based on a belief in 'a creative wisdom' or Holy Spirit that he believed infused all life, all text and all materiality. Although Ruskin's belief bears resemblance to Victorian natural theology, the fact that Ruskin draws part of his inspiration from earlier historical and religious sources makes his belief slightly different than most natural theology believers, and opens up the possibility for viewing scientific discourse as an extension of the pursuit of revealed faith in 'a creative wisdom.'

Wheeler writes that 'by the late 1860s and early 1870s [Ruskin] was acknowledging the progress of *science* while questioning the value of *progress*.' (Wheeler, 182). Making a distinction between science and progress is interesting, because it separates two key concepts that are often assumed to be linked – scientific fact and development. Ruskin could believe in the truthfulness of scientific facts, while challenging the changing social, economic and material conditions of his time, which he often did. Particularly in his critique of changing practices in building design, Ruskin emphasized the value of man-made work as opposed to machine manufactured products.

One writer who Ruskin sympathised with is Bishop Colenso, who wrote in the epigraph for *The Pentateuch and Book of Joshua Critically Examined*, ‘...to state the truth, the whole truth, and nothing but the truth, - are the grand, the vital, maxims of Inductive Science, of English Law, and let us add, of Christian Faith. – Quarterly Review on “Essays and Reviews,” Oct. 1861, p. 369.’ (Wheeler, 183). Bishop Colenso tried to expose what he saw as ‘remarkable contradictions’ in the first five books of the Old Testament. He believed those internal contradictions showed that the Pentateuch could not be seen as ‘true narratives of actual, historical, matters of fact.’ (Colenso, *The Pentateuch*, I, 17 in Wheeler, 183). Ruskin’s own theological study around this time was very similar to Colenso’s conclusions, and Ruskin took comfort in finding a kindred spirit in Colenso. Colenso’s beliefs call into question the role of factual knowledge as the basis of faith.

Both Colenso and Ruskin were men of great faith whose beliefs were not necessarily incompatible with contradictions within the texts of their religion. This is an important distinction because it allows Ruskin to believe that opposing ideas are not necessarily contradictory, which plays an important role in his understanding of science and religion. In fact, Colenso considered biblical criticism in his time to be ‘scientific.’ He said that the, ‘results of scientific criticism, applied to the examination of the letter of the Scriptures will also soon be acknowledged as facts, which must also be laid as the basis of all sound religious teaching.’ (Colenso, *The Pentateuch*, I, vii –viii in Wheeler, 184).

Ruskin applied what would come to be known as a scientific approach to religious study. Even Ruskin's definition of the study of religion and science were intertwined. Ruskin wrote in *The Eagle's Nest* in 1872, 'What we call theology, if true, is a science.' (Wheeler, 186). Similarly, Ruskin's contemporary W.R. Lethaby wrote, 'At the inner heart of ancient building were wonder, worship, magic, and symbolism; the motive of ours must be human service, intelligible structure, and verifiable science.' (Lethaby, xviii).

A key demonstration of Ruskin's methodical, systematic, historical approach can be seen in a letter to his father dated 1861. He described Evangelicals, the tradition in which he himself was raised, as his biggest detractors at the time. His main criticism of Evangelical preachers at the time was their use of Old Testament scripture to explain New Testament phenomena, as if one had intentionally foreshadowed the other. Ruskin's use of humour to describe his detractors livens the debate. Of noted Evangelical Reverend Daniel Moore, he writes,

'I name Mr. Moore first, however, for the most damaging thing to Christianity I ever yet heard in my life was a sermon of his on a verse in Psalms, "Thou hast magnified ~~thy~~ word above all they name", [Psalms 138.2] in which, applying the phrase "thy word" to the Bible, he sent, or endeavoured to send, his congregation away with the impression that David had a neatly bound volume in the Bible Society's best print always on his dressing-table, with a blue string at his favourite chapter of St. John, and I fully expected to hear, before the sermon finished, how Masters Amnon and Absalom were good boys and always learned their texts

correctly, but little Solomon had to have a Watts' hymn to learn besides, for having made a mess of his pinafore in Bathsheba's back garden. (36.396 –7).'
(Wheeler, 185).

Similarly, Ruskin was critical of scientific discourse during his time for stripping away meaning from the material and spiritual world, that is for not being religious in its approach. Ruskin protests in *Fors Clavigera*, Letter 5 (May 1871), that science in his time,

'gives lectures on Botany, of which the object is to show that there is no such thing as a flower; on Humanity, to show that there is no such thing as a Man; and on Theology, to show there is no such thing as a God. No such thing as a Man, but only a Mechanism; no such thing as a God, but only a series of forces. The two faiths are essentially one... (27.83).' (Wheeler, 185).

By the end of the 1860s, Ruskin criticized both scientists and religious leaders, claiming a 'want of faith in God shown by most of our scientific men' and the 'want of courage and common-sense among the clergy.' (Wheeler, 185). Ruskin's approach to science and religion was to take the same attitude to both pursuits.

What is interesting to note is that his approach to religious analysis did not necessarily spring from scientific methods, but drew largely from religious and mythological traditions. Although his methods were systematic, and although scientific thought did influence his beliefs, Ruskin's reference to earlier traditions, such as the redacted stories of the Great Flood, as well as Greek and Egyptian religious traditions show that his

beliefs rose from an historical consideration of intellectual study, including religious and scientific reading. As described in Robert Fraser's *The Making of the Golden Bough: The Origins and Growth of an Argumen*, Sir James Frazer's *The Golden Bough* draws Ruskin-like connections between mythological and religious traditions to describe human behaviour using the comparative method that formed the basis for social science at that time.

Around the same time that Ruskin and Frazer were working, Julia Margaret Cameron was producing new images using so-called photographic science. Recalling that the scientific method at this time relied on observation, rather than experimentation, it becomes clear why photography was considered a science. Cameron's images were often portraits and re-enactments of mythic fables and religious scenes. The scientific observation she performed sprang from religious and mythical traditions, and were heavily influenced by Christianity.

A further example of religious tradition and mythic metaphors can be seen in C.R. Cockerell's *The Professor's Dream*. Cockerell's masterpiece is significant, not just for its wonderful detail and scale, but because it represents an important articulation of a particular view of architectural history. The Royal Academy of Arts has put together an introduction and guide to their display of Cockerell's work and other related works. One of these related works, J.N.L. Durand's *Recueil et Parallele* of world architecture, most likely influenced Cockerell's selection of buildings for *The Professor's Dream*. However, Cockerell's work stands out sharply from Durand's in purpose and

composition. According to the Royal Academy of Arts, 'Durand's purpose was to marshal the architecture of all continents and periods within a single, arbitrarily imposed taxonomic system, Cockerell assembled the buildings of his *Dream* in order to visualise a "genealogical" history in which European architecture continually branched like a tree from its original Graeco-Roman stock.' (Royal Academy of Arts, Tennant Room). Cockerell's approach can be called scientific, in the way that Ruskin's thinking was scientific, that is systematic.

The relation between the concept of development in Cockerell's work and in Ruskin's work is interesting. In Cockerell's *Dream*, he depicts a strongly developmentalist picture of architectural history. Beside each 'level' of the set of buildings depicted in *The Professor's Dream* are markers, similar to the kind one would see at geological dig site, indicating a further debt to scientific inquiry. Clearly, each 'level' is meant to lead into the other in an almost claustrophobic, but well composed succession. Ruskin's relationship with developmentalism illuminates the way in which Cockerell's developmentalist depiction relates to and springs from religious thought. Ruskin eschewed the notion of progress in the building trades and elsewhere in society, but his religious notions, while not strictly anthropocentric, definitely privileged humankind's (or mankind's) place in the world. For mid-nineteenth-century English Christians, the notion of an organized scheme of development and of humankind's privileged place in that scheme takes root in the biblical creation story of Genesis.

Now that we have understood more of the relationship between mid-nineteenth century religious and scientific thinking, we are left to ask to what use these religious and scientific discourses were put. In Hayden White's 'The Fictions of Factual Representations', in *The Literature of Fact: Selected Papers from the English Institute*, White observes of Darwin, '...his entertainment of the record is no simple reception of facts; it is an entertainment of the facts with a view toward the discrediting of all previous taxonomic systems in which they had previously been encoded.' (Wheeler, 183).

American scientist Louis Agassiz promoted an earlier version of a taxonomic system for classifying species, and he was a well-known opponent of Darwin's evolutionary theory.

'Agassiz was no evolutionist; in fact, he was probably the last reputable scientist to reject evolution outright for any length of time after the publication of *The Origin of Species*. Agassiz saw the Divine Plan of God everywhere in nature, and could not reconcile himself to a theory that did not invoke design. He defined a species as "a thought of God."' (University of California, Berkley, Museum of Palaeontology).

Of his own work, Agassiz said in 1869, 'I have devoted my whole life to the study of Nature, and yet a single sentence may express all that I have done. I have shown that there is a correspondence between the succession of Fishes in geological times and the different stages of their growth in the egg, -- that is all. It chanced to be a result that was found to apply to other groups and has led to other conclusions of a like nature.'

(University of California, Berkley Museum of Palaeontology). Agassiz's work has provided a fuller picture for classifying species than Darwin's theories alone, and Agassiz's work is still being used today. So, in fact, scientific fact and so-called

truthfulness was not accurately represented by Darwin's hegemonic control over taxonomic classification. I point this out, not to dispute the accuracy of Darwin's scientific research, but to show how scientific discourse could be used for political and professional gains.



Figure 4. Steve Bruce, *God Is Dead: Secularisation in the West*

III. How the perceptions of the origins of scientific discourse relate to today

By looking at Victorian church buildings and paintings of William Dyce and John Martin, we have seen that religious and scientific discourse in mid-nineteenth century England was not necessarily in conflict. By examining the work of Ruskin, Cockerell and Cameron, we saw how scientific meaning, geological symbols and scientific images could be derived from religious and ancient mythological thinking. And by contrasting Darwin's work with Agassiz's ideas, we saw how scientific aims could be used for political, professional gains.

What relevance, then, does this discussion of Victorian art and architectural history have on recent scientific and religious debates? If science is seen as an autonomous set of principles and theories, distinct from religious thought, then we will have a difficult time understanding current scientific and religious disputes, particularly in America. A controversial theory gaining momentum in the United States is 'intelligent design,' the idea that natural development was orchestrated by a divine power, rather than produced by countless chance mutations, as Darwinian evolution posits. One recent experiment is expected by some to validate the idea that genetic mutations happen in a directed manner, rather than at random. The project's lead scientist, Richard Lenski, said, 'If anyone is resting his or her faith in God on the outcome that our experiment will not produce some major biological innovation, then I humbly suggest they should rethink the distinction between science and religion.' (Chang, *New York Times*, August 23, 2005).

In fact, in the United States, the proponents of 'intelligent design,' evangelical and fundamentalist Christians, are growing in number and power. Present-day Evangelicals, who believe in actively converting others to their religion, and fundamentalists, those who interpret the Christian bible in a so-called literal way, now hold powerful positions in society and government. While religious authority confers one kind of hegemony, as long as religious and scientific thought are perceived to be in conflict, scientific discourse will be perceived as a threat to religious authority. In this way, struggles to define and control the dissemination of scientific facts in the United States seeks to unite religious and scientific authority under a single hegemonic influence. However, if we consider that scientific discourse sprang from or was created from the same cultural environment as religious discourse, we can begin to understand the current debates over science and religion. What is happening today is not necessarily a conflict between science and religion but a conflict for control of the two major discourses that help define and, at the same time, take their definition from, people's values and actions.

Although the rhetoric of religious speech and people's religious habits may have changed greatly over the last hundred and fifty years, the cultural assumptions of religious thought still permeate architectural, political and social activities. Ideas and metaphors that grew from religious thinking persist even in societies where outward signs of religiosity have vanished. In communities in which many claim to be atheists and no one debates scripture anymore, these ideas and metaphors exist. As mentioned in this paper's first chapter regarding *Nature's Museums: Victorian Science and the Architecture of Display*, it is a shame for an interdisciplinary thinker like Carla Yanni to spend so much energy

and brilliance clearing up misunderstandings about the past, only to perpetuate them in characterizing the present. Instead, I have proposed a new way of looking at the relationship between Victorian science and religion, by seeing scientific thinking as subject to similar metaphors and ideas as those with which religious thought was concerned. We have traced this connection in the writing, speech and activities surrounding Victorian art and architecture. Hopefully then, this reconception frees us to lay groundwork for future novel research on today's religious and scientific thinking.

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