NATURAL SELECTION AT NEW COLLEGE: THE EVOLUTION OF SCIENCE AND THEOLOGY AT A SCOTTISH PRESBYTERIAN SEMINARY

by Mark Harris

Abstract. The contemporary creation–evolution debate has become so polarized (over the issue of either Genesis or evolutionary science) as to obscure the more nuanced questions that have arisen in the historical and theological reception of Darwinism. Edinburgh's New College has been the academic home to some prominent scientists and theologians who have grappled with these questions since the early days of evolutionary science in the first half of the nineteenth century. Most obviously, this activity was focused on the decision to create a Chair in Natural Science in 1845, which would be occupied by a recognized scientist. The Chair became "extinct" in the 1930s, but in between times, its holders made important theological assessments of evolution along the way. This article outlines the contributions made by the individuals who occupied this Chair, as well as more recent figures in the evolution of science and theology at New College.

Keywords: Charles Darwin; Darwinism; disruption; evolution; Free Church of Scotland; Lamarckism; natural science; natural selection; natural theology; New College, Edinburgh; science and theology

Introduction

This article contains the (lightly adapted) text of my inaugural lecture as Professor of Natural Science and Theology at the University of Edinburgh, delivered on December 4, 2019 in the University's historic Playfair Library. My intention here was to outline the evolution of "natural science and theology" as an academic subject at Edinburgh, since it goes back a surprisingly long way. Not only was the interaction between the natural sciences and theology an important area of concern at the founding of

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Edinburgh's New College in the 1840s, but its Chair in Natural Science was one of the earliest academic posts created to address the science-and-religion debate directly. There have been many such posts created more recently—especially since the 1960s—but New College lays a reasonable claim to creating one of the first, if not the very first. Moreover, some of the holders of that Chair have held distinctive views on how science and theology should engage, which gain fresh relevance today.

My main title—"Natural Selection at New College"—is a joke, of sorts, since there are two ways it can be read. First, I will spend most of my time charting the ways in which evolutionary science has been received at New College since the 1840s, especially by those who held its Chair in Natural Science. However, second, that Chair is no longer; it did not adapt with the times and it is now extinct, as the standard history of New College (Watt 1946, 224–25) makes clear with a delightful plate headed, "Professors of chairs now extinct" (Figure 1). The three figures shown—John Fleming, John Duns and James Young Simpson—were the three holders of the Chair in Natural Science, and each of them had strong views on evolution that dominated their writing while in post. However, these were not the kind of views one might expect. The noisy creation-evolution debate that we know today is a relatively recent innovation, stemming largely from the 1920s, and it would have amazed the three holders of the Chair—who had sound scientific training—to see the debate presented as a stark choice between believing either the Bible or mainstream science on the origin of species and the history of the earth. The issues were more subtle for the three holders of New College's Chair in Natural Science, and significantly, each of them develops their individual position on evolution at key stages in the historical development of evolution as a scientific idea. Their thinking illustrates the ways that scientists were receiving the new developments as much as were theologians. Each of them also represents a different approach to the wider science-and-religion debate today. These three figures provide us with much of the history of the science-and-religion field in miniature, with the advantage that the contextual factors that complicate any intellectual history—society, politics, religion, geography—are simplified by virtue of the fact that these three people all lived and worked in the same place, answering to the same institution.

My timeline serves as a summary (Figure 2). The story starts with the Disruption of 1843, when the evangelical party of the Church of Scotland broke away to form the Free Church. Said to be the most significant event in nineteenth-century Scottish history, the Disruption split society at every level, not unlike that achieved by the Brexit referendum in today's secular United Kingdom. Of course, the Free Church needed to train ministers, which is why New College was built in Edinburgh in 1846 and other Free Church colleges in Aberdeen and Glasgow in the 1850s. One only needs to look at the architecture of New College and its place on

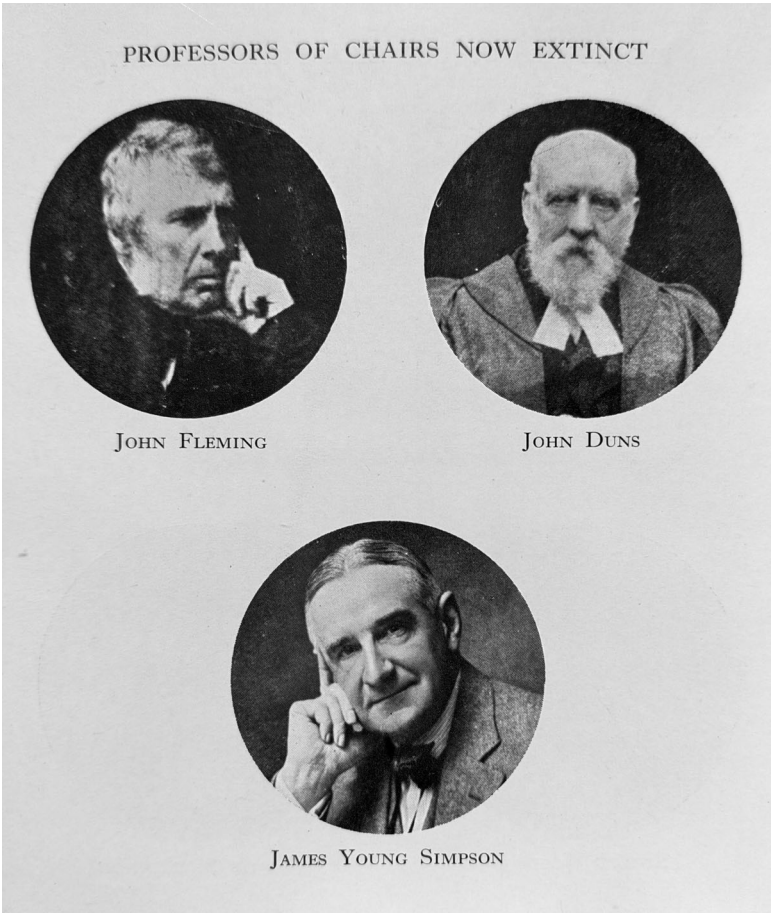

Figure 1. "Professors of Chairs now Extinct." The three holders of the Chair in Natural Science at New College, Edinburgh, reproduced from Watt (1946, 224–25).

Edinburgh's Mound to guess that it was effectively a symbol in stone of the Free Church's defiance against the control of the establishment (Figure 3). Thomas Chalmers, one of the most influential figures in the Disruption, and the first Principal of New College, originally hoped there might be an entire Free Church university on this site (Watt 1946, 26–28). That dream was not realized, but there was a firm conviction that New College students should receive a broad education. Consequently, Chairs in Logic and Moral Philosophy were established, for instance, and distinctively, a Chair in Natural Science, and all this before the College had even been built. Here, we come to the figure of John Fleming, the first holder of the Chair, who operated during the controversy surrounding the early

1843	The Disruption
1844	*Vestiges of the Natural History of Creation*
1845 – 1857	**John Fleming**
1859	Charles Darwin, *Origin of Species*
1869 – 1903	**John Duns** (Lecturer 1864-1869)
1874	**Robert Rainy**, "Evolution and Theology"
1880s – 1930s	"Eclipse of Darwinism"
1904 – 1934	**James Young Simpson**
1929	Unification of United Free Church and Church of Scotland
1935	Merging of New College with the University of Edinburgh's Faculty of Divinity
1930s – 1940s	"Modern Synthesis" of evolution
1996	**Ruth Page**, *God and the Web of Creation*

Figure 2. Timeline of significant events that appear in this article. The principal characters are given in bold, while the important books are given in italics.

evolutionary book *Vestiges of the Natural History of Creation*, published in 1844. Fleming did not live to see Darwin's *Origin of Species* in 1859, but his successor, John Duns, played a full part in the *Origin of Species* debate, as did one of the better-known principals of New College, Robert Rainy. By the time we reach the third holder of the chair, James Young Simpson, the science has diversified significantly beyond Darwin in a phase often referred to as "The Eclipse of Darwinism." Simpson's death coincides roughly with the revitalization of Darwinism—dramatically vindicated by new discoveries in genetics in the 1930s and the structure of DNA in the 1950s—known as the "Modern Synthesis," which has done so much to shape evolutionary science as we know it today, with Darwin at its heart (Smocovitis 2020, 29–31). At any rate, Simpson, working in the Eclipse era, has an entirely different way of working with science compared with

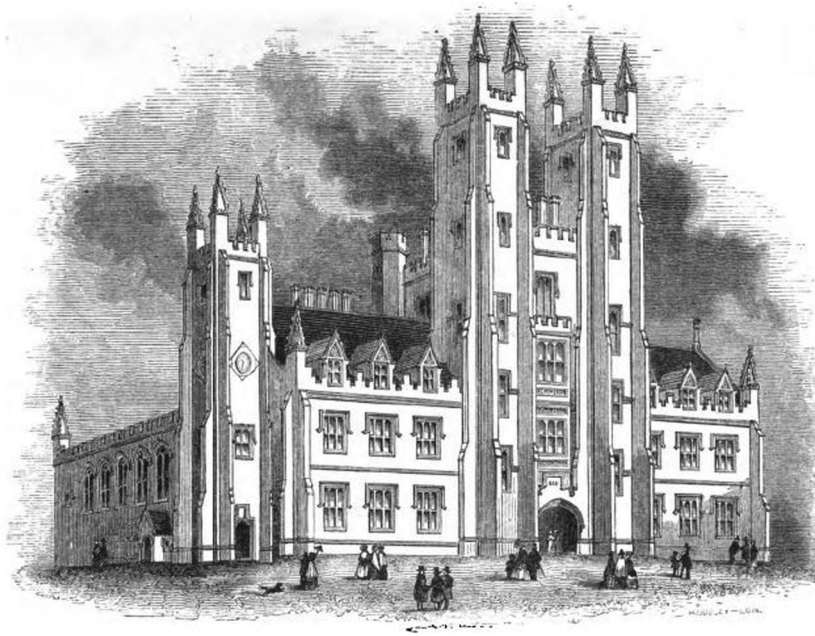

Figure 3. New College, Edinburgh. Reproduced from the frontispiece of *Inauguration of the New College of the Free Church, Edinburgh: November MDCCCL. With Introductory Lectures on Theology, Philosophy, and Natural Science*. London, Edinburgh: Johnstone and Hunter, 1851.

his predecessors at New College. After Simpson's death in 1934, the Chair became extinct, but this is not the end of the story because I will finish by looking at another Principal of New College, Ruth Page, who made a highly original response to evolutionary and environmental science in her 1996 book, *God and the Web of Creation*.

Before I go into these figures in more depth, notice that the existence of the Free Church as an independent institution is book-ended by new phases in evolutionary thinking: *Vestiges* at the beginning in 1844 and the Modern Synthesis, which ended the Eclipse era around the 1930s. This book-ending is presumably coincidental, but it is not coincidental that the Chair in Natural Science was first created at a time of major controversy around evolution.

The Evolutionary Context to the Chair in Natural Science

By the time of the Disruption in 1843, the relatively new science of geology had established that the earth was far older than the 6,000 or

so years calculated by Archbishop Ussher in the seventeenth century, working largely from the book of Genesis and ancient near eastern records. Of course, Ussher's date for the creation of the earth has been revived by today's young-earth creationists, but in the 1840s, most researchers working in what was then referred to broadly as natural history—geology, mineralogy, botany, and zoology—believed the earth to be immensely old, which meant that the Genesis creation story should be understood rather loosely than as a literal record of six 24-hour periods of creation only a scant 6000 years ago. Free Church evangelicals such as Thomas Chalmers and Hugh Miller proposed figurative readings of the Genesis creation story to reconcile the Bible with this scientific belief in the "deep time" of earth history. In this, they were operating largely within the scientific orthodoxy of the time, at least in Britain, where science was viewed as broadly compatible with the enterprise of natural theology. So much for deep time, which was widely accepted at the time of the Disruption, but what about the origins of life?

Evolution was by no means a new idea, even as early as the 1840s. Among many thinkers who had offered developmental pictures for the history of life, the French naturalist, Jean-Baptiste Lamarck, stands out as probably providing the most important precursor to Darwin's *Origin of Species*. Lamarck proposed a theory of organic progression in the early 1800s whereby a hierarchy of increasing complexity of organisms develops over time (Bowler 1984, 79–82). This is very different from Darwin's later theory of natural selection because Lamarck's theory does not rely on common descent (while it is naturalistic all the same). Like other theories of "progressive development," or "transmutation of species" (what we would now call evolution), Lamarckism was not well-supported in Britain in the first half of the nineteenth century, since there was a strong commitment to special creation (broadly construed), where each species was designed by God rather than having developed naturally. Into this setting, *Vestiges of the Natural History of Creation* was published anonymously in 1844, proposing an evolutionary natural theology that had obvious similarities to Lamarckism. Lapped up by the British public on the one hand and lambasted by prominent geologists such as Adam Sedgwick on the other (Sedgwick 1850), *Vestiges* created a sensation: Queen Victoria, and Abraham Lincoln, for instance, were impressed by the book (Secord 2003, 38, 168–69). Making the comparison with Newton's law of gravitation, which controls all inorganic matter, *Vestiges* proposed a similar grand principle behind the organic world, the principle of "DEVELOPMENT" (Chambers 1844, 360). Together, these principles of gravitation and development could explain the growth of the universe, stars, planets, and the progress of life toward increasing complexity and, of course, toward humankind at the pinnacle. This scheme was set in a rich theological matrix, with many references to the work of the "Divine

Author," but it was obviously naturalistic and resembled Lamarck's view of evolution. For many scientific critics, such as Sedgwick, *Vestiges* played fast and loosely with the science. However, there were also religious concerns.

Special Creation of the Chair

In the newly born Free Church, *Vestiges* created anxiety. A very caustic assessment had appeared in the Church's *North British Review*, warning of the "materialism," "godless fatalism," and "perverted Science" of *Vestiges*, despite the book's popularity (Brewster 1845, 502–503, 507). There were dangers here for society beyond the purely academic, felt the reviewer: the errors of *Vestiges* would be particularly dangerous for the next generation if they were to infect "the mothers of England." In the meantime, John Fleming, who had been a parish minister before moving to Aberdeen's Chair in Natural Philosophy, was quietly engineering an appointment for himself at New College. Fleming, who joined the Free Church at the Disruption, realized that his position in Aberdeen was becoming precarious. It is worth noting that Fleming's scientific credentials were impeccable—he was one of the foremost British zoologists—but so deep was the division caused by the Disruption that he was in danger of losing his job. Fleming wrote to Chalmers in August 1843, suggesting that if the new college in Edinburgh was to be a success, then it would need someone to teach a course in Natural History, or Natural Theology at least (Fleming 1859, LXXXIV–LXXXV). Such a course, explained Fleming, would empower parish ministers and missionaries to talk with farmers, miners and fishermen, as well as to declaim the works of God in nature with authority from the pulpit. Chalmers was persuaded and went about establishing a suitable chair for Fleming at New College.

By the time the new Chair came up for approval before the Free Church's General Assembly, held at Inverness in 1845, the *Vestiges* controversy was well under way, providing the perfect illustration for why such expertise was needed. The Assembly voted unanimously to establish the Chair of Natural Science and to appoint Fleming to it (Watt 1946, 54–55). Fleming was invited to address the Assembly, and he congratulated the Free Church for making such a progressive move in favor of science, especially in light of the gross materialism that was becoming fashionable. Fleming had *Vestiges* in mind, and he made the point that, while of course he had not read *Vestiges* himself, from what he had seen it had clearly come from someone unacquainted with the science. Fleming therefore promised that his new students *would* be acquainted with the science, all the better for their preaching, their conversation with parishioners, and of course, their prayers to their Maker.[1]

John Fleming

And so Fleming begins his new work at New College in 1845 aged 60, which is to be the last phase of his life. He seems to publish relatively little during this time, at least when compared with his prodigious scientific output while he was a parish minister, including his *Philosophy of Zoology* of 1822, his encyclopedic *History of British Animals* in 1828, and an influential article of 1826 that poured scorn on those who interpret the earth's geology in terms of Noah's flood (Fleming 1826). What we do have from this last phase is his posthumous *Lithology of Edinburgh* and several accounts of his curriculum in Natural Science at New College (Fleming 1846, 1851). True to his word, his teaching presents an overview of what was then the state-of-the-art in mineralogy, chemistry, biology, and geology.[2] As one might expect, *Vestiges* comes in for special attack in Fleming's lectures, along with other evolutionary works, which Fleming condemns as "crude generalizations from imperfect or misunderstood data…fostering errors of a very dangerous kind…visionary and loathsome materialism" (Fleming 1851, 218, 222). Today, we might regard this as a sign of Fleming's personal theological agenda, but in his day, it is clear that Fleming thinks he is speaking as a scientist from the material evidence. Throughout, he has a clear preference to present science as science, letting it speak for itself without introducing unnecessary theological or philosophical glosses. In the relatively few occasions when he does introduce theological glosses, he assumes that the science *should* point to the divine purpose that God has invested in nature: scientific evidence that nature has been deliberately designed by a "SUPREME INTELLIGENCE" (Fleming 1846, 41). In all this, Fleming is typical of many British scientists of his time, so steeped in natural theology that it is barely distinguishable from science. Or so we might conclude today. However, all that is to change with Darwin's publication of *Origin of Species* just two years after Fleming's death.

John Duns

By the time Fleming died in 1857, *Vestiges* had been out thirteen years, and evolution was no longer the fresh challenge it had been at the foundation of New College. Questions arose as to whether a replacement should be found for Fleming so that the Chair might be continued, whether it was time to abandon the teaching of science, and whether the other Free Church colleges should also teach the natural sciences (Watt 1946, 53–57). In the face of no clear agreement other than that Fleming had done a good job, the compromise was reached to replace Fleming by a Lecturer in Natural Science on a yearly basis. Several incumbents went by in quick succession before the General Assembly agreed to increase the tenure to three years, appointing Dr. John Duns, Minister of Torphichen (Watt 1946, 54–55). Duns appears to have acquitted himself well because

in 1869, funds became available to endow the Chair, and Duns was promoted to Professor of Natural Science.

However, Duns is a very different kind of character from Fleming. Having originally studied Medicine, he has a foundation in biology (Ritchie 2004), but he does not contribute to any sciences as a leading researcher, or at least not in the way that Fleming had. Additionally, Duns is concerned with distinguishing natural science and theology from each other, making Duns sound significantly closer to our time than Fleming. We now need to speak of a *relationship* between science and theology, Duns (1860a, 4–9) thinks, sometimes of mutual influence, and sometimes of conflict, but not of identity. The books of "Nature" and of "Revelation" (i.e., Scripture) are each set apart from the other in order that they may declare their own "characteristic message," he says (Duns 1860a, 7). Another distinctive move that Duns makes is to introduce the kind of militaristic metaphors that are so typical of today's science-religion debate. Duns tells his trainee ministers that they need to *understand* science: to fight the false friends of the Church who have already grasped the weapons of science (Duns 1860a, 9). Why this sharpening of categories and language from Fleming just a few years earlier? The answer is that by now, the Darwin debates are in full swing.

I will assume that *Zygon: Journal of Religion and Science* readers are broadly familiar with Darwin's theory of evolution by natural selection, but I will make the distinction with Lamarck's earlier system that had influenced *Vestiges*. In Lamarck, evolution forms an effective ladder of progress toward increased complexity with time: individual species evolve, but there is also an overall teleology or organization built into the scheme of life beyond the fate of an individual species. This means that although it is a naturalistic theory of evolution, it is easier to think in terms of natural theology with Lamarck than it is with Darwin to interpret Lamarck's scheme in terms of divine purpose. Unalloyed natural selection, on the other hand, has no ladder of progress and no grand overall teleology. If Fleming had seen *Vestiges* as a threat to his view of special creation, Darwin provides a far greater threat in Duns' eyes.

Duns does not hold back. Just six months after the publication of *Origin of Species* in 1859 and several years before he became firmly established at New College, Duns published one of the earliest and most scathing reviews of *Origin*, criticizing Darwin on both scientific and theological grounds. "If notoriety be any proof of successful authorship," Duns begins, "Mr. Darwin has had his reward" (Duns 1860b, 455). Scientifically, the evidence speaks against Darwin, Duns argues: there are no transitional forms between species in the fossil record, and the evidence points to permanent forms designed by the Creator. Throughout his review, Duns points to scientific evidence for the permanence and fixity of the species and to the success of science in uncovering the divine taxonomy. God keeps species

persistently distinct from each other in the "great scheme of life," according to which every creature has an allotted place, "which is theirs in virtue of the special arrangements of the Creator, and beyond which they cannot pass" (Duns 1860b, 463). The species do not evolve; rather, it is science that evolves, as observers slowly realize the correct ways to interpret every creature's "true place in nature." This scientific convergence on the Creator's preordained taxonomy gives us confidence, thinks Duns, that "we are rightly interpreting the Divine plan." However, Darwin is not interpreting it correctly, according to Duns, since Darwin is almost "Lamarkian" in regarding "the doctrine of the immutability of species as the dead fly in the precious ointment" (Duns 1860b, 463–64). Clearly, the permanence of species is a fundamental "doctrine" for Duns; it is the basis of his scientific and theological argument against Darwin.

In viewing the origin of species through the lens of this grand taxonomic natural theology, Duns ' sympathies lie more with *Vestiges* than *Origin*. Here is what he says:

> We believe there is good reason for affirming that everything which is false, as to the scheme of life in the worthless development theory, is contained in the "Origin of Species," and a great deal in addition which is more mischievous and profane than anything to be met with in the "Vestiges." Were it possible that the terrible alternative could ever be, "receive either the 'Vestiges' or the 'Origin of Species'"…we would without hesitation choose the former. Both are burlesques on true science; but the "Vestiges" contains views less dishonouring to the Creator, and less antagonistic to common sense, than those met with in the "Origin of Species," and this is affirming much. However low the views of God in the former, there is more respect shown for those great laws of life, which are manifestations of His will, and whose constant regularity we would no sooner question than we would our own existence; but in the latter there is nothing of this. (Duns 1860b, 480)

Vestiges might be bad, suggests Duns, but *Origin* is just awful.

This highly negative view of Darwin characterizes much of Duns' later writing, and right to the end of his career at New College Duns continues to attack evolution in general and Darwinism in particular. In its place, Duns promotes an undiluted version of special creation and design, enlisting the Bible, natural theology, and the natural sciences themselves to his aid:

> All geology, all botany, and all zoology, testify that species have a real and permanent existence in nature; that they have continued thus under every variety of influence; and that, in each case, they have been ushered into being by the creative act of an All-wise and All-powerful God. (Duns 1863, 568)

Science is united with the Bible, argues Duns, in witnessing to special creation. The Genesis creation stories tell us nothing of development in species, since every creature is made after its own kind. Evolution is simply

not supported, either by science or by scripture; he insists: "on this subject the testimony of Science and the Bible is one" (Duns 1863, 558). Natural theology, likewise, tells against evolution. For example, Duns asks why Carboniferous rocks show abundant evidence of land plants but not of herbivorous land animals to eat them. After all, if evolutionary theory is true, then where there is food there also ought to be animals adapted to eat it (Duns 1866, 130). This problem for evolutionary thought can be turned into a "magnificent argument in natural theology," Duns thinks. These plants lived and died so that coal would be laid down in the Carboniferous coal measures, ready for humans born millions of years later. The design argument succeeds where Darwin fails. Or so Duns would have it.

Rainy's Lecture

It is fair to say that Duns is out on a limb, even at New College. The Darwin debates were heated on both scientific and theological grounds, but within a decade or two, most biologists and geologists had come around to evolution in general terms, even if Darwin's particular version of it continued to provoke debate. In addition, there were influential theological voices in Edinburgh—including in the Free Church—who were willing to make peace with evolution. Ironically, one of the more prominent was the Principal of New College during Duns' time, Robert Rainy, or "Dr Misty" as he was popularly known, owing to his readiness to concede contemporary cultural developments rather than defend the Church against them (Livingstone 1999, 11). In his inaugural address for the 1874–1875 session at New College ("Evolution and Theology"), Rainy pours oil on troubled water. We live in a time of increasing skepticism of the Christian faith, he begins, and the relationship between science and religion is entangled in all discussions of the legitimacy of the Christian revelation (Rainy 1874, 4–5). The biggest question of all concerns evolution, since it is usually assumed that this puts the Creator out of the picture: no longer active in creation. However, points out Rainy, this is not actually much of a problem for theology. The same question arises when we think about the beginnings of Christianity in the first and second centuries: is the origin of Christianity divine or mundane? We know that the Church dealt with this question long ago, and we can adopt the same answer for evolution, suggests Rainy (1874, 6–7). Think of it this way: suppose evolutionary theory became so successful that it explained every detail of life, even its very beginnings. One might expect this to be a challenge for the religious believer, who would like to think that life has divine origins. In contrast, the believer would not be deterred, thinks Rainy, but would simply realize that the point of divine origination should be pushed further back. Faith is not built on any "quantum" of divine interference, he points out, so much as the "persuasion of Divine glory": revelation (Rainy 1874, 9–10). Rainy

goes on to address the issue of human origins, a notorious sticking point ever since the publication of *Origin of Species*. Rainy reassures his listeners that they have nothing to worry about here either. It is the question of divine origination again, and if origination is moved into the spiritual domain then science cannot touch it. Humans possess "the incommunicable quality which, as a celestial spark, burns in the race," he proclaims (Rainy 1874, 16). Humans are the spiritual animals: that is what sets us apart as made in the image of God. For myself, I cannot help thinking that Rainy simply redefines the problems so that science cannot get at them, but to be fair this is how much theological thinking—even today—continues to reassert human uniqueness in the face of challenges from evolutionary biology. However, it seems to do the trick in Rainy's case because according to the reports in *The Scotsman* newspaper, Rainy's lecture is peppered with enthusiastic applause from the audience, and he seems to answer a widely felt need in Edinburgh in the 1870s to make theological peace with evolution (Livingstone 2014, 58–59). Rainy might echo the same militaristic language of conflict between faith and science as that used by Duns, but Rainy's tactic is one of rapprochement, not militancy.

However, Duns, still occupying the Chair in Natural Science, feels no such need to make peace, and he continues to wage war on evolution for nearly another thirty years until his retirement in 1903. At that point, again, the question of whether the Chair should be discontinued returns. Again, the arguments in Free Church committees and assemblies are finely balanced, as before. The decisive difference is that by now the Chair has been endowed, and the balance tips in favor of appointing again, with the proviso that the new Professor should also cover science teaching in the Glasgow Free Church college as well as at New College. James Young Simpson, freshly ordained after training at New College and the beginnings of an academic career in biological research before that, is duly appointed, and he spends thirty years shuttling back and forth between New College and Glasgow before his death in 1934 spells the final end for the Chair.

James Young Simpson

Simpson is entirely unlike Duns, and unlike Fleming. Simpson does not question the legitimacy of evolutionary science, nor does he argue over the evidence. He does something quite different. He takes evolution as a given and uses it as a springboard to develop his own mystical view of science, cosmology and human origins. In this, Simpson is not unique. His predecessor at Glasgow, Henry Drummond, did much the same in his bestseller of 1883, *Natural Law in the Spiritual World* (Livingstone 2014, 39). The title says it all. Drummond turns evolution—the biological laws of nature—into a source of moral and theological guidance. This is a

spirituality of evolution, a new kind of natural theology. No longer concerned with providing evidence of God's existence through design, Drummond now uses nature as his entire framework for interpreting theological convictions, as in his famous thesis statement: "The position we have been led to take up is not that the Spiritual Laws are analogous to the Natural laws, but that *they are the same Laws*. It is not a question of analogy but of *Identity*" (Drummond 1888, 11). This is a new approach, then, to the problem of science and religion. Instead of fighting each other, as Duns and Rainy had it before, science and religion now need to merge into a single entity. Of course, Fleming had them merged long before any of these characters, but largely because his pre-Darwin categories were insufficiently advanced to do much else. However, now, post-Darwin, a deliberate hermeneutical strategy is called for, and in common with later thinkers who have taken a similar mystical approach to uniting science and religion (such as Teilhard de Chardin), Drummond employs a significant degree of imaginative and literary skill to make it work; Simpson, who is a great admirer of Drummond, says of Drummond that he "was not so much a biologist invading the world of religion as a poet invading and capturing the world of science" (Simpson 1901, 100). Indeed, Simpson follows in much the same path himself, integrating evolution and theology into a similarly mystical and rhetorical vision of nature. Happily for Simpson, he does not suffer from the accusations of heresy that Drummond had faced (Livingstone 2014, 22). By Simpson's day, the outrage has worn off, and there are now a number of clergy and theologians exploring this "new natural theology" (Bowler 2001, 122–23), which is characterized by an imaginative and mystical synthesis of evolution and theology.

Scientifically, Simpson is operating in the phase known as the "Eclipse of Darwinism" in the early twentieth century. Quite simply, Darwin's natural selection has gone out of fashion for a time (or, at least, has been stifled by a proliferation of alternative evolutionary approaches) and will not return until around the 1930s, when Modern Synthesis began to form. In the meantime, proponents of the "new natural theology," such as Simpson, are free to exploit the teleological accounts of evolution that flourish in the Eclipse period, which is more typical of Lamarck than of Darwin.

Simpson's evolutionary thought resembles the much better-known Teilhard de Chardin, who, like Simpson, is more Lamarckian than he is Darwinian and who also uses biological evolution as a springboard to develop his own mystical view of science, cosmology, and human origins. Simpson's first major theological book, *The Spiritual Interpretation of Nature* (1912), is saturated with a progressive view of evolution as God's preferred method of creation. Similar to others in the "new natural theology" movement, Simpson believes that the development of mind was a key driving force in evolution, inevitably precipitating human self-consciousness (Bowler 2001, 131–32, 237–38). The evolution of mind gives Simpson a way to naturalize the spiritual dimension of humans, or, equivalently, to

spiritualize our physical development, since we alone have come into "direct relationship with the Ultimate in its most personal aspect" (Simpson 1912, 319–20). Speaking of the transcendence of the material through mind, Simpson points out that miracles can no longer be understood—either in scientific or theological terms—as violations of the fabric of nature. The advance of science has revealed many wonders to us which beforehand might have been regarded as simply miraculous and inexplicable in naturalistic terms. Although there is still much that is not understood about reality, we are increasingly aware that there are close relations between the physical and spiritual—the "power of mind over matter," for instance—which help us to apprehend miracle stories of faith, such as Jesus' miracles of healing. Simpson's point here is to suggest that perhaps Jesus possessed an unequalled power of suggestion that was able to liberate those who suffered in his day from their fears and sicknesses (Simpson 1912, 355–56). Moreover, the evolution of mind in the universe must point to the continued existence of our minds after death. Human immortality must be a consequence of the evolutionary process, thinks Simpson, because otherwise God's constitution of Homo sapiens as the spiritual animal would render the laboring of the universe toward humans pointless (Simpson 1912, 368–71).

Much of this is developed in more visionary form in Simpson's later books, as in his most mature work, *The Garment of the Living God*, published posthumously in 1934. Here, Simpson sees evolutionary science as making a crucial junction with theology. Earlier in history, science had to conform to religious thought, he thinks, and then as science advanced rapidly in the Scientific Revolution, it was theology that fell behind. However, now, he says, "we are on the threshold of a New Natural Theology," where science teaches us of nature's progressiveness and of her manifestation of "an Infinite Mind-Energy" (Simpson 1934, 127). This latter term—the "infinite Mind-Energy"—is difficult to interpret, but it seems to be key to Simpson's theological vision at this stage, since he uses it to capture both natural and supernatural drivers of evolution, but without clearly distinguishing between them. Thus, on the one hand, we find that Infinite Mind-Energy has an empirical/physical component—the energy of the universe (the "Infinite Energy")—and it works to realize the progressive self-awareness of the universe through the appearance of humankind and (especially) of the human mind (Simpson 1934, 161). However, Simpson's terminology of Infinite Mind-Energy also connotes the creative and ultimate omnipotence of God himself (Simpson 1934, 163–64, 246). Similarly, Simpson's "New Natural Theology" teaches us of the significance of "freedom," another of his wide-ranging key words (Simpson 1934, 127n.3). Like the "infinite Mind-Energy," "freedom" is implicated in both the physical and spiritual dimensions of Simpson's evolutionary view. On the one hand, physical evolution brings "freedom."

"Where life is, there is a measure of 'freedom'"; he tells us: "even the single-celled forms of life practice the method of 'trial and error,' and learn in their small way by experience. Evolution may be interpreted as the winning of freedom," he says (Simpson 1934, 149). On the other hand, "freedom" is the "outstanding characteristic" of human spiritual evolution toward Christ (1934, 270). Freedom connects physical evolution with spiritual desire. While single-celled organisms search for freedom in their own way, for Homo sapiens, the spiritual being, freedom is the desire to achieve union with Christ, which is "the last stage of human Evolution on this terrestrial plane," he says (Simpson 1934, 271). Like the "Infinite Mind-Energy" then, "freedom" provides Simpson with a way to negotiate a progressive and transcendent vision of evolution, merging the natural with the supernatural—the physical with the spiritual—in such a way that there is no longer a clear distinction between these different categories of reality. If his rhetoric has a touch of pantheism about it, then it is worth reflecting on the fact that other evolutionary theologians influenced by Lamarckism—Teilhard de Chardin most famously—have rejected the hard natural-supernatural dualism of our times in a similarly mystical and visionary fashion.

There is much more that could be said about Simpson, since he is certainly the most forward-looking and theologically constructive of the three holders of the Chair in Natural Science (especially in light of the defensiveness of his predecessors, Fleming and Duns). However, I want to take Simpson's term, "freedom," and carry it over to my final thinker, Ruth Page. Before I come to her though, I need to describe the extinction of the Chair. In Simpson's recent years, the future of the Chair in Natural Science again starts to look precarious. The churches had already reunited in 1929, and negotiations are underway to merge New College with the University of Edinburgh's Faculty of Divinity, which finally comes to pass in 1935. These negotiations include the creation of four new "Church Chairs" in the University—so that the current New College postholders in traditional areas such as systematic theology, biblical languages, and church history would be retained—but there is conspicuously no provision for a Church Chair in Natural Science. Presumably, it is felt that there would be plentiful scientific resources available elsewhere in the University without the need for a Chair in Natural Science in the newly refashioned Faculty of Divinity. Simpson complains publicly in a letter to *The Scotsman* that the Church needs to look outward rather than continue to invest heavily in its "semi-medieval" curriculum (Simpson 1933). When Simpson dies suddenly in 1934, the decision is taken to axe the Chair completely, on the grounds that science truly does belong in another faculty. Thus, the Church of Scotland and New College opt decisively to remove the natural sciences from the theological curriculum after eighty-nine years of integrating them.

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With the Chair extinct, interest in the theological problems and opportunities of evolution goes into hibernation at New College for generations. It is striking that T. F. Torrance, one of New College's most illustrious theologians of recent decades—and known especially for his deep engagement with the natural sciences—had very little to say about the life sciences; Torrance's silence on evolution is deafening (with some brief exceptions, e.g., Torrance 1998, 122–23). Instead, the next assessment of evolution after the extinction of the Chair—and it is a very significant assessment to my mind—comes from Ruth Page, Principal of New College (1996–1999), in her book of 1996, *God and the Web of Creation*. However, this means that the gap in the geological record between Simpson in 1934 and Page in 1996—more than sixty years—is huge in the history of evolutionary science, and we have no missing link to ground the transformation of Simpson's ethereal mysticism into Page's down-to-earth environmentalism. All we can say is that, just as with the three holders of the Chair in Natural Science, Page's theology of evolution is shaped strongly by the concerns of her own day, but by now these are also live concerns for us, namely, the pressing environmental crisis. Like Simpson before her, Page takes the shape of evolutionary biology of her time for granted and makes radical claims about the nature of God from it. However, unlike Simpson, Page is not at all interested in mystical rhetoric. In fact, Page is notable for her scathing attacks on design and on attempts to carve out the uniqueness of humans in the evolutionary edifice. Evolutionary science has, by the 1990s, evolved markedly from the Eclipse period of Simpson's day and is firmly embedded in the Modern Synthesis. Unlike Simpson, Page's view of evolution is strikingly Darwinian. For the first time in New College history, Darwin has a champion.

Page's overall aim is to rethink the Christian doctrine of creation. Traditional readings of this doctrine rely on two key starting points, but these introduce obstacles for engagement with our contemporary situation (Page 1996, xiv–xviii). The first starting point foregrounds the doctrine in the ancient biblical creation stories, an exercise that introduces foundational inconsistencies in light of the ecological crisis and modern evolutionary science, thinks Page (1996, xvi). It is often asserted in such readings of the doctrine of creation that nature was originally perfect, while evil was introduced into the world through an original act of human sin. This is because Christian views of creation are too often based on metaphysical speculations from the Genesis creation stories, Page says, reinforced with an idealized view of nature where all is harmony (Page 1996, xvii). However, we now know that there never was a golden age in nature, and neither was there a fall from such a hypothetical golden age; in thinking through God as Creator, we need to engage with the evolutionary science of the here

and now. The second starting point insists upon God 'causing' creation, an interpretative decision that wraps up God's creative and providential activity in questions of determinism or indeterminism. Effectively, God is assumed to be a micromanager of the world. Page (1996, xviii, 24) argues for another option, where instead of *determining* the world at its creation, God creates a *determinable* world for the creatures by creating possibilities for the exercise of their freedoms. Accordingly, Page dismisses the conventional questions in the science-and-theology field about how God acts in the world, questions that have been dominant since the time of Newton. Instead, natural selection should make us realize that God's relationship with the world is entirely different from that of a force or a cause. There is no divine "push," she says (Page 1996, 16–17), whether of primordial particles after the Big Bang, or of organisms up the evolutionary ladder, or in human lives. God does not *cause* things to happen, whether for good or bad—God does not even create new species through evolution—instead God creates *possibilities* for creatures to explore and evolve into. The evolutionary process is not "divinely designed," says Page (1996, 8–9), but it provides *freedom* for the creature to respond to the possibilities gifted by God.

Of course, back in the Eclipse era, Simpson had also defined evolution with "freedom" as his interpretative key, although Page seems unaware of Simpson. However, Page is not interested in the mystical and glorious rhetoric of the Eclipse era. For one thing, the freedom that God has bestowed on creation also means that creatures are able to inflict great suffering on each other. Nevertheless, every suffering creature matters to God, Page thinks (1996, 104). Above all, she insists—and in stark contrast to the explicit calls upon divine teleology employed by her predecessors at New College, by Fleming, Duns and Simpson—there is no teleology implanted into nature from the outside, no divine force directing the unfolding of life, and there is no teleology in the direction of how a species evolves. In other words, as well as no divine "push" guiding evolution, there is no sense of evolutionary progress and no divine design in creatures. Instead, there is only the freedom of every creature to explore and to experience the love of God in its own domain and in its own way. Page (1996, 63–73) calls this "teleology now!": the freedom of each individual creature to live its life subject only to God's love, constrained only by the limits of God's possibilities and freedom. God lets every creature be but is also its companion at every turn. This means that although Page's God may not act directly in the world as a divine push, God is no less immediate for that, once we have replaced our Newtonian fixation with Darwin. This point allows Page to explore the doctrine of creation and its relevance to the ecological crisis using another feature of the evolutionary landscape that is popular in theology, namely, the idea that all creatures—humans included—are strongly interconnected; there is a web of creation.

Page's book was published in 1996, and it still strikes me as fresh and innovative, especially since much of the discussion of evolution in the science-and-theology world continues to make use of categories that she rejects on the grounds that they are outmoded. Hence, despite Page's arguments, divine action continues to be largely Newtonian—cause and effect, like so many billiard balls—and theistic evolution continues to be more Lamarckian than Darwinian: top-heavy with teleology, and probably more at home in Simpson's Eclipse era than the present day. As a result, Page's Darwinism is still just a bit too Darwinian for much of the modern science-and-theology field. I hope that her day will come.

Conclusions

To move toward an ending, I have presented well over 150 years of New College thought on evolution. It is easy to demonstrate that every stage shows the signs of its times in scientific terms—Fleming's opposition to *Vestiges* on the scientific grounds of his day, Duns' opposition to Darwin at a time of active scientific debate about natural selection, Simpson's embrace of Eclipse evolutionism, and Page's embrace of the Modern Synthesis and ecological science—and yet every thinker here can also be connected with an existing school of thought in *today's* science-and-theology field. Theological thought on evolution does not evolve so much as diversify; a key difference between the natural sciences and theology as distinct fields of enquiry.

And what of evolution in New College's present? The most significant move in the last decade has been to establish postgraduate programs in science and religion. By all reasonable measures, the subject is flourishing at New College, with upward of 200 postgraduate students having passed through our Science and Religion programs over the past decade, and several members of staff (myself included) appointed solely to develop this area. We engage with evolutionary science on a near-daily basis. Hence, although the Chair in Natural Science may have become extinct in 1934, these recent programs represent its resurrection, at least in spirit. For that reason, when I was asked what my new title as Professor should be, I suggested "Chair in Natural Science and Theology," as a nod to our illustrious past, while recognizing that the theological component now needed to be made explicit.

This point gives me an opportunity to declare a sort of manifesto for myself. If you turn to my page on the School of Divinity's website, you will see I describe myself there (somewhat pretentiously perhaps) as a "physicist working in a theological environment." That is not to trumpet my scientific credentials so much as to emphasize how I personally view my role, continuing the work of my ancestors in Natural Science at New College. Of the figures I have brought before you, it is John Fleming with whom

I feel most in tune. He was not particularly interested in apologetics like Duns and Rainy, and neither was he interested in synthesizing science and theology, like Simpson and Page. Instead, he was concerned with presenting science as science and letting the theological questions flow from that. I'm often asked by students and colleagues working in the science-and-theology field why I do not share their concern for apologetics, for the defense of theology in the face of hostility from science (or from scientism, at least). It is true; I do not share this concern. Fundamentally, I believe that the doing of good science will always lead to good theology; my conviction here flows from the empirical observation that the science-and-theology dialogue flourishes in positive and constructive engagement with our best current science. However, like Fleming, I also believe that the doing of science is a theological activity in itself.

Notes

1. Fleming's speech is described in the Free Church's newspaper, *The Witness* (edition of August 30, 1845), in its coverage of the General Assembly's proceedings on Tuesday, August 26, 1845.
2. Fleming does not treat physics at any depth, because he seems to consider that subject as falling within "physical science" rather than "natural science" (Fleming 1851, 215).

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