

Vestiges and the Debate before Darwin

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FOOT-PRINTS
OF THE CREATOR:
OR, THE ASTEROLEPIS OF
STROMNESS

Hugh Miller

With an Introduction by
John M. Lynch



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INTRODUCTION

'The Battle of the Evidences':
The Fossil Record Speaks.

Charles Dickens called him 'a delightful writer, an accomplished follower of science, and an upright and good man' (qtd. in Hanham & Shortland, p. 3). His geology was admired by such respected scientists and divines as Archibald Geikie, Roderick Murchinson, William Buckland and Richard Owen. Buckland 'had never been so much astonished in his life by the powers of any man as he had been by the geological descriptions of' the Scottish stonemason turned journalist, Hugh Miller (Hanham & Shortland, p. 65).¹

It is, perhaps, tempting to write-off Miller's works as those of a rank amateur; Millhauser dismisses him somewhat as 'a bank clerk who occasionally published geological items' (Millhauser 1959, p. 126). Yet, although he was trained as a stonemason and worked successively as a bank clerk and editor, he published – with no formal geological training – a series of books that proved highly popular with the public while simultaneously impressing many scientists. Volumes such as *The Old Red Sandstone* (1841), *Footprints of the Creator* (1849²), and his posthumous *Testimony of the Rocks* (1857) present discussions of the latest in geological findings, tempered with Miller's own theistic viewpoint. He obviously impressed the American palaeontologist Louis Agassiz, who named a species of fish (*Pterichthys milleri*) after Miller in 1845, and

¹ Biographical material is presented in Shortland (1995) which also includes Miller's own memoir of the early portion of his life (this was eventually rewritten as *My Schools and Schoolmasters*, 1854). Shortland's 1996 edited volume provides many insights as well as an extremely valuable list of Miller's publications. Bayne (1871) is the standard Victorian life and letters.

² The text reprinted here is the fifth edition of 1861. It differs from the first edition (1849) primarily by the addition of prefatory material, expository notes, and editorial comments by Miller's wife, Linda. Agassiz's introduction was actually written by David Brewster (whom he credits) with a few additions.

uncomfortable. Miller portrayed himself as a rough-hewn 'man of the people', who could see through the hypocrisy of many leaders and intellectuals and could clearly detect when others were straying from the path to Redemption.

The Witness, though officially a Church organ, did not solely deal with ecclesiastical matters. Miller ensured that secular happenings – be they scientific, literary, or political – received extensive coverage. Throughout, the paper reflected the prominent themes of Free Church evangelism, in which seventeenth-century Presbyterianism was reconciled with modern scientific thought, resulting in strong threads devoted to the grandeur of the divine order, the depravity of man and the joy of the Redemption. *The Witness* used the words of John Knox on its masthead: 'I am in the place where I am demanded of conscience to speak the truth, and therefore the truth I speak, impugn it whoso list' resulting (along with the Church's belief in itself as 'the one true Church') in a certain epistemological dogmatism, a view that Miller wholeheartedly endorsed.

Writing almost no scientific papers, Miller used articles in *The Witness* to initially present his ideas, then expanded them into book-length works. These books covered issues as diverse as geology, Church history, local politics and travel. In these (as with all his writings), Miller blended observations of the natural world, tales of the past and present, supernatural themes and his personal experience. All were autobiographical, inward-looking works, in which the author often re-invented himself.³ His reply to Chambers' *Vestiges of the Natural History of Creation*, *Footprints* is one of the few works that was not autobiographical, though it is obviously a very personal work. Its introspective nature and elegant prose allowed Miller, unlike William Whewell or Sedgwick, to produce a readable popular work against Chambers' *Vestiges*.

Miller generally disliked change and opposed those who supported it (Hanham & Shortland, p. 5). This aversion was as strong for political as evolutionary change. For example, he attacked the Chartist movement despite its striving for self-determination (as did the Free Church), and its members having

³ The papers in Shortland's 1996 collection offer many viewpoints on Miller's life and his self-fashioning. The reader should beware, however, of a slight tendency of some contributors to engage in speculative psychoanalysis.

arranged for the rapid publication of an American edition of *Footprints*. Richard Owen described *Old Red Sandstone* as 'the most fascinating book ever written on a geological subject', and Miller had a substantial influence on Sedgwick, Geikie and Lyell.

From early in his journalistic career, Miller shared a certain bond with Robert Chambers. Between 1832 and 1843, he wrote pieces for nine issues of *Chambers's Edinburgh Journal*. These were almost exclusively on topics of local history and folklore, with a single two-part essay on a geological theme ('Gropings of a Working Man in Geology', 28 April and 26 May 1838). Miller's interest in geology only developed in the mid-1830s, and the essay described how he taught himself geology. Like Chambers, he was self-taught in many areas. Both were products of Scotland's educational system which made it possible for the less wealthy to receive a rudimentary education that would enable further intellectual development. Both suffered hardship in their early lives. After reading Miller's autobiographical *My Schools and Schoolmasters* (1854), Chambers wrote to the author saying 'I cannot refrain from congratulating you on the triumphs you have achieved over the great difficulties of your early position, which now appear to me far beyond anything I had previously imagined' (Bayne 1871, vol. II, p. 437).

Yet the two journalists did not see eye-to-eye on everything. As Shortland notes, 'Miller was at his best when writing about the supernatural... he took it for granted that supernatural forces were at work' (Shortland 1995, pp. 38–9). Chambers, though supportive of Miller's articles, felt a need to haul him back: 'if you could avoid superstition and improbability... I should be better pleased with your productions' (letter of March 1838; Shortland 1995, p. 41). Nearly twenty years later Chambers would make his own foray into spiritualism and the supernatural (Millhauser 1959, pp. 175–85).

Miller's journalistic career received a boost with the foundation of *The Witness* in 1840. The paper was formed by the nascent Free Church of Scotland, and Miller midwifed the first issue on 15 January. As one of the most prolific journalists of his age, Miller produced around 10,000 words a week and contributed to over 1,800 issues of *The Witness*. The journal became one of the leading papers in Scotland and, appearing twice weekly, prominently featured its editor's hard-hitting 'aggressive' polemical style, a style which made the leaders of the Free Church somewhat

seem to bear directly on that development hypothesis... that would fain transfer the work of creation from the department of miracle to the province of natural law, and would strike down, in the process of removal, all the old landmarks, ethical and religious. (*Foot-prints*, p. 11)

Foot-prints begins with an account of Miller's discovery and proceeds to outline how the development hypothesis removes ethical and religious 'landmarks'. While noting that one cannot dismiss the hypothesis solely on the grounds of its ties with atheism (pp. 12-13), he clearly outlines some perceived logical consequences of the idea, specifically that the 'vitalities' of living creatures are either 'individually and inherently immortal and undying, or that human souls are *not* so...if man be a dying creature... what does it really matter to him...whether there be a God or no?' (pp. 13-14). Here lies the root of Miller's objections. Like many observers, he believed that transmutation degraded not only the worth of man, but also led to unbelief and often active denial of God's existence; 'though the development theory is not atheistic, it is at least practically tantamount to atheism' (p. 14). However, rather than fighting transmutation with theological arguments, it was his opinion that the 'battle of the Evidences will have as certainly to be fought on the field of physical sciences, as it was contested in the last age on that of the metaphysics' (p. 19).

While on his travels, Miller had noted a gradation in salinity between Lochs Strenness and Harray, and suggested that this should lead to variation in the plants shared between the two lochs where one species should blend into another as the environment gradually changed. Miller held that the observed lack of such a gradation mirrored the particulate nature of the fossil record, and thus implied that transmutation did not (and does not) occur. Indeed, the environment plays a larger part in Miller's general refutation of transmutation. He notes that if we are to look for the signs of progress in the history of the world, it is the environment we see progressively changing, not the inhabitants (*Foot-prints*, p. 276). The 'reasoning brain' (man) was not produced until the environment had gone through 'a slow but thorough process of change, during which, at each progressive stage, it had furnished a platform for higher and still higher life'. However, the 'reasoning, calculating brain' did not come into existence through a naturalistic process, but was 'moulded by the creative finger... Such

similar social roots as Miller himself. His attitude to geological controversy was generally confrontational, with his martial style of prose reflecting his belief that he was fighting an enemy. This reflected the 'masculine', robust nature of geology at that time. The act of 'doing' geology was perceived as a manly, rough act that involved direct interaction with the world around the observer. Geology was actively experienced, not witnessed second-hand through the writings of others. Robert Dick wrote, 'When I need to know what a rock is, I go to it. I hammer it; I dissect it. I then know what it really is', and Edward Forbes felt that 'a man, to be a true geologist, must have a body as well as a soul. No muncing town-dandy or sickly bookworm is likely to thrive in the profession' (quoted in Shortland 1996, p. 29). Herein, perhaps, lay some of Miller's aversion to the writings within *Vestiges*; its author was clearly writing from second-hand knowledge and the work lacked 'original observation' (*Foot-prints*, p. 247).⁴

Geology was to Miller, as others, a hands-on experience, and every summer he would take a break from editing *The Witness* to tour Scotland and study its geology. These tours resulted in material for many articles that appeared in the journal, and one in particular would result in Miller's response to *Vestiges*. In 1848, Miller found himself in the Orkney Islands where he discovered part of the hyoid bone of a large extinct fish of the genus *Asterolepis* ('in all probability the oldest vertebrate remains yet discovered in Orkney'; *Foot-prints*, p. 5). The presence of this large fish in ancient strata would become central to his argument against *Vestiges*. Miller had previously accepted that the fossil record for the Old Red Sandstone in which *Asterolepis* was found was one of smaller forms giving rise to larger (*Foot-prints*, p. 7). Clearly, the presence of 'the most gigantic ganoid of the Old Red Sandstone' before the smaller forms meant that the trend was one of degradation rather than progressive transmutation (*Foot-prints*, p. 6). Therefore, Miller spends the majority of *Foot-prints* emphasizing the size and complexity of the specimen, thus leading the reader to his thoughts on degradation. A second observation made that summer also impressed itself on Miller's mind - the 'curiously mixed, semi-marine, semi-lacustrine vegetation of the Loch of Strennis'. Miller felt that these facts, taken together,

⁴ Ironically, Chambers published more scientific papers than Miller (see Millhauser 1959, pp. 213-14 versus Shortland 1996, pp. 369-70).

incalculably ancient universe into a hastily run-up erection of yesterday' (qtd. in Rosie 1981, p. 78). Such thinking was due to an 'erroneous reading of the Mosaic account' (*Foot-prints*, p. 255). To experience fully Miller's version of the history of the world, one must consider his *Testimony of the Rocks* (1857), which he completed on the day of his suicide in 1856. In this, Miller equates the biblical 'day' with an indefinite period of time (*Testimony*, p. 175) and identifies specific geological eras with days in Genesis; Day Three was the Palaeozoic, Day Five the Secondary, and Day Six the Tertiary (pp. 200–203). In this 'Mosaic Vision of Creation', Moses (as author of Genesis) had not himself witnessed the events he described, but had them revealed to him in a panoramic fashion (pp. 179–210). The world was experiencing the Seventh Day, a period of creative rest, which implied that humans could not be evolving into higher beings, as suggested by *Vestiges*. During this period 'the work of Redemption is [God's] Sabbath day's work' (p. 176). Miller was thus adopting a theory now known as 'Day-Age' which radically departed from Biblical literalism, yet while preserving the Mosaic account as a framework.

Yet Miller was not quite as liberal when it came to the souls of believers. It was the redemptive work of this final period that was all important to Miller and offered him a further reason for rejecting transmutationism, for,

it is the fact that man must believingly co-operate with God in the work of preparation for the final dynasty, or exist throughout its never-ending cycles as a lost and degraded creature, that alone renders the development hypothesis formidable. (*Foot-prints*, p. 299)

Without this co-operation, transmutation threatens the 'destiny of every individual' and would lead to an inability to 'enjoy the fullness of eternity among the glorified and the good' (*Foot-prints*, p. 300).

Miller was clearly seeking a grand theory that would unite the scientific with the theological. In this, he was very much like Chambers. Michael Shortland has highlighted a number of reasons why Miller engaged in such a venture: a personal bias toward speculation, his wide reading, the bias in Scottish education to philosophical ideas, and the Calvinist emphasis on a highly structured, comprehensive system of belief (Shortland 1995, p. 44). Interestingly, with the exception of the influence of Calvinism,

seems to be the true reading of the wondrous inscription chiselled deep in the rocks' (*Foot-prints*, p. 277). For Miller, the fossil record depicts discrete natural kinds in ascending order, leaving no evidence of the continuum that *Vestiges* would require. Distinct kinds were created at different stages as complex forms, only to degenerate and eventually become extinct. And why did these forms degenerate? Miller felt that this was part of the divine plan in that, for example, the extinction of the 'giants of the reptile dynasty' prevented their predation on carnivorous mammals and thus 'horrid, exterminating war' (*Foot-prints*, p. 284). While one could not say what caused the degeneration, its reason was (to Miller at least) obvious (p. 285). This view had the advantage of justifying the Great Chain of Being; the Creator added to the end of the chain by direct creative acts, while degenerative trends filled in the spaces between the lower links (p. 286).

Miller's overall point is clear; God *could* have used transmutation to create the living world, but he most certainly did not do so, and 'no geological fact nor revealed doctrine' disagrees with this statement (*Foot-prints*, p. 278). The Creator was not 'a mere animal-manufacturing piece of clock-work, which bears the name of natural law' (p. 248). More importantly, for Miller it was observation of nature rather than theological argument that led him to such a conclusion. Unlike Chambers, whose 'development hypothesis was complete at a time when his geology and zoology were rudimentary and imperfect', Miller felt that he approached science in a true inductive fashion, with theories following observations, not *vice versa*. This held for those who used Scripture to elucidate God's creative method as much as for those who used observations of the natural world: 'No geologist worthy of the name *began* with the belief, and then set himself to square geological phenomena with its requirements' (*Foot-prints*, p. 255). Specifically of transmutation he wrote, 'it is not the illiberal religionist that rejects and casts it off; – it is the inductive philosopher' (p. 262). Seeing himself as a 'true geologist' Miller dismissed the development hypothesis on the grounds that 'the stones of the field... have risen in irresistible warfare against [the Vestigenarian] in the Creator's behalf' (p. 267).

There is a danger in portraying Miller as a fighter against modern geological ideas. Although he was adamant that God created the universe and its inhabitants, he objected to those who would 'huddle the whole [creation] into a few literal days, and convert the

Chambers shared all these possible explanatory factors. Ironically, the sole popular work successfully to attack *Vestiges of the Natural History of Creation*, a work that would eventually sell more volumes than the one that spawned it, was written by a man who shared so much with Robert Chambers. Out of little differences, great divergences in world view apparently come.

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