

## “Down the Winding Stair”: Victorian Popular Science and Deep Time in “The Golden Key”

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It is sometimes tempting to call George MacDonald’s fantasies “timeless” and leave it at that. Such is certainly the case with MacDonald’s mystical fairy tale “The Golden Key.” Much of the criticism pertaining to this work has focused on its more “timeless” elements, such as its intrinsic literary quality or its philosophical and theological underpinnings. And these elements are not only important, they truly *are* the most fundamental elements needed for a full understanding of “The Golden Key.” But it is also important to remember that MacDonald did not write in a vacuum, that he was in fact interested in and engaged with many of the pressing issues of his day. At heart always a preacher, MacDonald could not help but interact with these issues, not only in his more openly didactic realistic novels, but even in his “timeless” fantasies. In the Victorian period, an era of discovery and exploration, the natural sciences were beginning to come into their own as distinct and valuable sources of knowledge. John Pridmore, examining MacDonald’s view of nature, suggests that MacDonald saw it as serving a function parallel to the fairy tale or fantastic story; it may be interpreted from the perspective of Christian theism, though such an interpretation is not necessary (7). Björn Sundmark similarly argues that in his works “MacDonald does not contradict science, nor does he press a theistic interpretation onto his readers” (13). David L. Neuhouser has concluded more assertively that while MacDonald was certainly no advocate of scientific pursuits for their own sake, he believed science could be of interest when examined under the aegis of a loving God (10). Whatever MacDonald’s perspective on science, however, he was certainly familiar with it, and few scientific disciplines were so frequently discussed and disputed as those introduced by the infant sciences of geology and paleontology. In “The Fantastic Imagination,” MacDonald states that “[t]he best Nature does for us is to work in us such moods in which thoughts of high import arise” (*Complete* 9). And in “The Golden Key,” MacDonald uses nature in this way, alluding to popular science writing in the fields of geology and paleontology in order to evoke a sense of “deep time” that, ironically, helps *contribute* to the timelessness of the tale.

In science, as in so many other aspects of George MacDonald’s thought, we must first turn to Novalis. As with most Romantics, Novalis

was fascinated by the study of nature. Among the aspects of nature that held particular fascination for Novalis was geology: he had done geological work in his life and had firsthand experience of rocks and fossils. He was thus a member of the first generation of thinkers to interact meaningfully with the possibility of “deep time,” the notion that earth might be far older than the traditional 6,000 years posited by many Christian thinkers. One of his most profound reflections on deep time comes in Chapter 5 of *Heinrich von Ofterdingen*, in which Heinrich meets a hermit deep in a cavern. The hermit asserts that miners are “almost astrologers in reverse,” to whom “the earth reveals monuments of the primeval world” (86). He continues,

Whenever I look at the strange old bones found here in such great abundance, whenever I think of the wild era in which the strange, monstrous animals, perhaps driven by fear and anguish, crowded into these caves in big droves and met their death here, and whenever I go back again to the times in which these caves grew together and vast floods covered the lands, then I seem to myself like a dream of the future, like a child of eternal peace. How placid and peaceful, how clear and mild is nature today compared to those violent, gigantic ages! (87)

There is much significant in this passage and the many others like it in Chapter 5. The pluralizing of “floods,” for instance, gives hints that he is looking beyond a single catastrophic Biblical deluge, and his idea of “violent, gigantic ages” alludes to prehistoric, rather than historic, ages. More to the point, this whole scene should be very familiar to readers of “The Golden Key,” as Tangle encounters all three of the Old Men alone in caverns, just like the hermit. Novalis, however, was not interested in geology purely for its own sake; as Heather I. Sullivan notes, geology represents “a mixture of scientific and mystical information,” and “[o]ne of his overall projects is to unite science with literature and philosophy” (351). Indeed, Novalis himself saw the earth itself as interconnected with the individual person, writing, “Our body is a *part* of the *world*—or better, a limb: it already expresses the *independence*, the analogy of the whole—in short, the concept of the microcosm” (*Philosophical* 118, italics original).

If, therefore, the earth is a macrocosm of the human person, then Tangle’s journey deep into the heart of the earth may be read as a mystical journey into her own heart. Bonnie Gaarden suggests that the story “The Golden Key” may be read as a reflection of MacDonald’s own qualified universalism. Mossy is the Christian, who possesses “golden key” of salvation that allows him to bypass many of the travails that Tangle experiences, because Tangle is the “heathen” who does not know Christian truth. She is thus forced to travel farther and deeper, deeper into her own self and deeper into the depths of nature, for it is only by nature that she can

ever learn the truth that Mossy already knows. In order to understand fully the microcosm of Tangle's *spiritual* journey, we must also understand the macrocosm of the earth through which she is journeying. But this task is not quite as simple as it sounds, for there was much debate in the Victorian era about what the earth was—how it was formed, how it developed, how it came to its present form. If Tangle is traveling through nature to God, whose definition of nature is MacDonald using?

There were competing theories of the earth and nature among MacDonald's contemporaries. Early in the nineteenth century in 1802, William Paley had famously articulated the conventional view of natural theology, that the study of nature necessarily led the rational person to God. But that notion was being challenged in England and Europe even as Paley was putting pen to paper. The burgeoning field of geology was showing evidence for an earth that was not only older than previously believed, but uniform in its gradual processes, apparently lacking clear evidence of the divine hand. This view was propounded first in England by James Hutton in 1795, then popularized and developed further by John Playfair a few years later, though it was Charles Lyell's *Principles of Geology*, published 1830-33, which really gave geological theories currency. None of these authors concertedly challenged the belief of God's sovereign control over nature; yet the more that science could explain about natural processes, the less it seemed there was for God to do. And for many, the traditional picture of a loving God appeared at odds with the incontrovertible fact of extinction, the widespread destruction of whole orders of life.

Many writers joined into this debate—scientists, philosophers, theologians, poets, and amateurs who were a little of everything. If Novalis laid the groundwork for MacDonald's thought on these issues, there were any number of apologists who could have contributed. One such individual may have been Hugh Miller. A Scotsman like MacDonald, Miller had grown up amid the fossil-rich rock formations of coastal Cromarty, and though an amateur, he was a respected geologist. He was also heartily committed to the inerrancy of the sacred scriptures and worked assiduously to harmonize the science he had learned with the book that he trusted. Many such harmonies were being attempted, most of which are still bandied about today in conservative and evangelical circles. Some followed Philip Henry Gosse's Omphalos hypothesis, suggesting that the world was fully functional in its current form at creation, while others, like the American paleontologist Edward Hitchcock, espoused the interval, or "gap," theory—that the Bible packed an entire creation in between the first two verses of Genesis. But Miller took the position that the "days" of Genesis 1 were meant figuratively to represent geological ages, and that the creation account in fact coincided nicely with geological and paleontological discoveries.

Such a dynamic of temporal correspondences is also apparent in “The Golden Key.” Erin Sheley, who has done the most extensive work on temporality in this story, notes its many allusions to Genesis. She suggests that the journeys of Tangle and Mossy proceed directly from Eden to Heaven, from Genesis to Revelation, from childhood to glorification: “Connecting the two directly creates a spiritual evolution through varying phases of childhood, leaving out the unpleasant ‘middle’ period of adult corruptness, *along with the need to reconcile biblical time with that of the material world*” (337, italics mine). Sheley is likely correct in her contention that MacDonald had better ways to occupy his time than synchronizing chronologies. But even so, traces of Hugh Miller’s scientific exegesis may be observed in “The Golden Key,” particularly regarding the passage of time. Frequently in the story, the actual time elapsed in a scene is much longer than the time experienced by the character, particularly where Tangle is concerned. She learns from grandmother that her apparent one-day trip through fairyland has in fact taken three years (*Complete* 124-26). Her recuperation with the Old Man of the Sea ends “[a]fter about an hour, as she thought,” yet by the end, “[s]he was as whole, and strong, and well as if she had slept for seven days” (136). A similar dynamic is present as she encounters the Old Man of the Fire: “For seven years she had stood there watching the naked child with his coloured balls, and it seemed to her like seven hours . . .” (139). Tangle waits seven years for Mossy to arrive at the rainbow (143). According to Sheley, “These periods of time are given in earthly years, but the rapidity with which they pass for the children indicates their passage in biblical time: if Fairyland is a world of Genesis, these ‘hours’ are like the ‘days’ of Creation, as MacDonald confirms through his repetition of the number seven” (335).

Sheley is certainly right that the “‘hours’ are like the ‘days’ of Creation,” but they are like those days as envisioned by the chronology of Hugh Miller. In any of the above passages, there is a distinction between the time which has *experientially, subjectively* passed and the time which has *actually, objectively* passed. Tangle may *experience* seven hours watching the Old Man of the Fire; but the objective narrator notes that seven years have *actually* elapsed. Miller’s biblical harmonization functions the same way. According to him, Moses’s account in Genesis 1 is based on his experience of the passage of time; he is taken by God on a whirlwind tour of the earth from its formation to the creation of humanity. The account is narrated from his perspective; hence, for instance, the sun and moon are said to be created on the fourth day because that is the first point at which the atmosphere is translucent enough for him to observe them. Prior to that point he could see only sourceless darkness and light. According to Miller,

The revelation has every characteristic of prophecy by vision,—prophecy by eye-witnessing; and may be perhaps

best understood by regarding it simply as an exhibition of the actual phenomena of creation presented to the mental eye of the prophet under the ordinary laws of perspective, and truthfully described by him in the simple language of his time. (182)

By this theory, Moses experiences whole geological ages as “days,” just as Tangle experiences days or years as hours.

While Genesis is in the back of MacDonald’s mind, however, he also evokes another, more contemporary creation account in “The Golden Key.” Writers like Miller had been responding to theories of the earth that threatened the reliability of the Bible’s statements on creation. Hutton, Playfair, and Lyell advocated an ancient earth with gradual, uniform processes; paleontologists like Georges Cuvier, Gideon Mantell, and Richard Owen were calling attention to the disturbing fact of extinction; astronomers including William and John Herschel and John Pringle Nichol were advancing the “nebular hypothesis,” that our solar system and others were formed out of nebulae; and naturalists such as Jean-Baptiste Lamarck posited transmutation, the forerunner of evolution, by which established species might gradually adapt and transform naturally into whole new forms of life. Not all of these scientists sought to undermine biblical authority, and even if they did, they were too canny to say so, though their ideas were nonetheless potentially damaging to traditional interpretations. But as compartmentalized, specialized accounts, they posed no significant threat. The real danger truly emerged in 1844 with the publication of *Vestiges of the Natural History of Creation*.

*Vestiges* was published anonymously, and its authorship remained a secret for almost forty years. The book was a grand journey through creation that gathered together strands from all the sciences to create a single sweeping account. Beginning with the formation of the earth according to the nebular hypothesis, *Vestiges* proceeds through every geological era, briefly noting its characteristics, then follows the development of organic life via transmutation. Though it took a conciliatory rather than an adversarial tone regarding Scripture, many readers could not help but observe that it was its own variant Genesis, certainly not consistent with the Mosaic cosmogony as conventional Victorians saw it. Despite this fact, or perhaps because of it, *Vestiges* was wildly popular; Darwin’s *Origin of Species*, though published only fifteen years later, did not decisively surpass *Vestiges* until the late 1880s (Secord 526). The book’s author, Robert Chambers, was in many ways very like Hugh Miller, as Charles Coulston Gillispie has observed. They were both Scottish, both amateur scientists interested in multiple disciplines, and both editors of periodicals; most importantly, both “were more enthusiastically interested in the meaning of science than in science itself” (159). For Miller, science rightly understood would always support the Bible rightly

understood. Chambers operated under no such restrictions, asserting “that the first chapter of the Mosaic record is not only not in harmony with the ordinary ideas of mankind respecting cosmical and organic creation, but is opposed to them” (155).

Though MacDonald may have used Miller’s explanation of the Genesis chronology in “The Golden Key,” the story also interacts with the “cosmical and organic” speculations of *Vestiges*. MacDonald was certainly familiar with the book; he began tutoring in London in 1845, the year its popularity began to soar, and as James Secord has detailed, *Vestiges* was the topic of conversation in the city during the late 1840s (155-90). By 1859, Secord writes, “*Vestiges* was the one book that all readers of the *Origin of Species* were assumed to have read” (39). The influence of *Vestiges* may be evident in other fantasies MacDonald wrote. In the “cosmical” realm, for instance, he shows an apparent familiarity with the nebular hypothesis at the beginning of *The Princess and Curdie*, when he describes caverns that have been “waiting for millions of ages—ever since the earth flew off from the sun, a great blot of fire, and began to cool” (MacDonald, *Princess* 174). The process of the earth’s formation here bears little resemblance to Genesis, but instead envisions the earth as “a child of the sun” (Chambers 23), as *Vestiges* puts it. According to the nebular hypothesis, the solar system began as a massive “fire-mist.” Little fragments broke free and cooled into planets, while the rest coalesced into the sun, much like MacDonald’s description. Indeed, Roderick McGillis explicitly connects this passage in *The Princess and Curdie* with *Vestiges* (356). In the “organic” realm, meanwhile, the imprint of *Vestiges* may be seen in MacDonald’s use of evolution. Other writers have already remarked on the evolutionary aspects of MacDonald’s fantasies. Stephen Prickett observes that MacDonald’s “evolutionary models seem to owe more to Lamarck than Darwin, but very little directly to either” (82), which makes sense, given that the “development hypothesis” of *Vestiges* does not accord perfectly with the views of either naturalist. In fact, the Christian MacDonald may have found more in common with Chambers, for whom the mechanism of progression is, at least on paper, the hand of God: “These creatures are all of them part products of the Almighty Conception, as well as ourselves” (235).

A spiritualized form of this development occurs in “The Golden Key” when the air-fish becomes the aëranth. Obviously, this transformation is hardly a statement of scientific theory, and Prickett’s comment about the idiosyncrasy of MacDonald’s brand of evolution is probably more helpful than Richard Reis’s broad assertion that the creature’s development is “obviously parallel to Darwin’s discovery that . . . evolution through inferior stages is necessary” (132). The figure of the air-fish may in fact be more interesting in the way it reconciles the seemingly disparate ideas of Hugh

Miller and Robert Chambers. The very presence of the fish itself is important, and not simply because the fish is a traditional Christian symbol. Curiously enough, fish were at the forefront of debates regarding the earth's antiquity. As Aileen Fyfe has extensively detailed, both evangelical apologists and more skeptical writers capitalized on a boom in fossil fish discoveries, particularly in the 1840s. Fyfe especially focuses on William Charles Linnaeus Martin's *British Fish and Fisheries* "to show how its writer created a narrative voice that led the reader through natural history, God the Creator, his Revelation, and the Atonement" (139). However, there was perhaps an added personal interest in the subject for Scottish writers like Miller and Chambers, since many of the fish being discussed were from Scotland's side of the Old Red Sandstone. Chambers would invoke such fish early in *Vestiges* as part of the apparent gradation from less sophisticated life-forms to more advanced ones, a topic he picks up later when discussing embryology: "It is not premature to remark how broadly these facts seem to hint at a parity of law affecting the progress of general creation, and the progress of an individual foetus of one of the more perfect animals" (71). Miller fought fish with fish. His response to *Vestiges* was *Foot-Prints of the Creator: or The Asterolepis of Stromness*, a 300-plus-page book structured almost entirely around the fish of its title, the *Asterolepis*. So when MacDonald wrote a story with an evolving fish, he was stepping into the midst of a scientific battle royal.

According to "The Golden Key," "It was a curious creature, made like a fish, but covered, instead of scales, with feathers of all colours, sparkling like those of a humming-bird. It had fins, not wings, and swam through the air as a fish does through the water. Its head was like the head of a small owl" (*Complete* 124). After being eaten, the fish then becomes "[a] lovely little creature in human shape, with large white wings" (128) called an aëranth. The air-fish bears a vague resemblance to fish depicted in Miller's *Testimony of the Rocks*, especially the *Platax Altissimus* (95, fig. 56). Even so, it is clearly MacDonald's own creation, and overall, these descriptions tend more to suggest the "development hypothesis" of *Vestiges*. The fish's liminal existence, between air and water, already marks it as a seemingly transitional creature. When it transforms into the aëranth, it becomes a completely different being, telling Tangle, "I am a fish no longer. I am an aëranth now" (134). And its progression from fish-form to human-form follows Chambers' belief in embryological recapitulation: that animals in their fetal state progress through every prior evolutionary stage, from most primitive to most advanced. A human "gradually passes through conditions generally resembling a fish, a reptile, a bird, and the lower mammalia, before it attains its specific maturity" (Chambers 199).

If MacDonald's fish is an emblem of spiritual evolution, it is thus appropriate that fish are guiding Tangle throughout "The Golden Key."

Since the unregenerate Tangle can only learn about salvation through nature, she must follow Nature along every step. Those steps of course begin in fairyland, but MacDonald’s fairyland here is quintessentially English. The fairies “want the whole earth nice and clean,” and they “have an exceeding dislike to untidiness” (*Complete* 123). But the farther Tangle travels, the deeper into true Nature she descends, and the more primeval the landscape becomes. The stops on her journey would be familiar to the Victorian audience, because they retrace the stages of the earth’s formation as described in *Vestiges*: first fire, then earth, then water.

Tangle’s descent leads her “down the winding-stair” (137). Since elsewhere the “winding stair” leads heavenward, to the Country from Whence the Shadows Fall (122, 144), one might expect its opposite direction to represent a descent into hell. According to Fernando Soto’s reading of “The Golden Key” through the lens of Greek mythology and philosophy, the imagery may be associated with Hades (112-13). More explicitly, Giorgio Spina connects this episode with Dante’s *Inferno* (21-22). Given MacDonald’s own education and Platonic inclinations, these interpretations may in part be correct. Yet, if one sees the Country as a culmination, a final *telos*, traveling *down* the stair could be seen as leading one to the *beginning* of the journey—in this case, the beginning of the earth. But there is also a circularity to the journey—it is a *winding* stair, after all—and so it is not at all surprising that Tangle must travel back to the beginning before she can reach the end.

After leaving the “modern” world of fairyland, Tangle encounters the Old Man of the Sea. His presence is completely appropriate, since she is traveling backward in time and the “water” stage of earth’s prehistory is the most recent of the three. Chambers devotes his fourth and fifth chapters to this era when “no dry land as yet existed” (72). It is no coincidence that, when Tangle meets the Old Man of the Sea, she sees in “the heart of the great deep green ocean . . . the most curious creatures, some very ugly, all very odd, and with especially queer mouths” (*Complete* 135). MacDonald’s vague description leaves much to readers’ imaginations; but many readers might have recalled Chambers’ own enumeration of the denizens of Silurian and Devonian oceans.

The next figure Tangle meets is the Old Man of the Earth. According to the Old Man of the Sea, “He is much older than I am” (135). And at first Tangle sees him as “an old man bent double with age” (137). However, “The moment she looked in his face, she saw he was a youth of marvelous beauty” (137). This apparent dichotomy makes perfect sense. He is old because he is from a period of time more distant from the present than the Old Man of the Sea; yet for that very reason, he represents the earth at an earlier stage in its development—the earth in its youth. He is “the *solidifying* crust” (Chambers



14, italics original), the earth after it has cooled and hardened, but before the waters have covered its surface, what Chambers calls the “Era of Primary Rocks,” during which time “the great bulk of the solids of our earth were agglomerated directly from the nebulous or vaporiform state” (47). The earth then was much like the moon is now.

Tangle’s final descent to the end of the beginning brings her to the Old Man of the Fire, “the oldest man of all” (*Complete* 138). Why at this point is MacDonald missing an element? Building on Hugh O’Connor’s identification of Poseidon with the Old Man of the Sea (52), Soto argues that the Old Men of the Sea, the Earth, and the Fire represent siblings Poseidon, Hades, and Zeus respectively (109), the Air not being represented in this triumvirate. John Docherty, meanwhile, believes that “as the three whom [Tangle] perceives appear progressively younger (while actually the opposite is true) she could not be expected to be able to see the Old Man of the Air” (129). These explanations may indeed be legitimate, yet a deep time reading of “The Golden Key” suggests another possibility: that MacDonald omits an Old Man of the Air simply because there was never an age when the earth was made entirely of air. According to *Vestiges*—at least its early editions—the earth began as a nebular “fire-mist.” So when the Old Man of the Fire affirms, “I am very, very old” (140), he is telling the truth, since he represents the birth of our world, perhaps even our solar system. Like the Old Men of Sea and Earth, the Old Man of the Sea juxtaposes age and youth, being “a little naked child” (139) with “an awfulness of repose on [his] face” (140). He is the most ancient era in earth’s prehistory, and the earth at its youngest stage. The balls he plays with could be the earth’s molecular structure, or perhaps each one is “one of a series of eleven” (Chambers 1) globes that comprise the solar system. Either way, they clearly connote antiquity and origins. Being so close to the origin not only of our solar system but of all the cosmos, he is nearer than any to the Platonic, heavenly Country from Whence the Shadows Fall. “I go there myself sometimes” (140), he tells Tangle. But he also tells her, “[Y]ou could not go my way; you are not old enough” (140). Tangle has been traveling backward, back to the ancient, primordial world that is the child’s home. As the representative of the origin of the earth and thus the final step down the road of salvation by nature, he is able to direct her at last to the place that Mossy arrives at with much less hardship because of his golden key. As Dieter Petzold points out, nature at its cruelest in MacDonald “appears as a test or as spiritual training” (6), in Tangle’s case a purgatorial preparation for salvation. Consonant with MacDonald’s theology, one way or another, both lovers finally get to their destination, however different their paths.

Hugh Miller, Robert Chambers, and many of the beliefs the two advocated have been largely occluded by history now. But for a time, their

works were widely read, and a writer like George MacDonald could expect his own readers to be familiar with what they had written. A good many Victorians could recognize the traces of Miller’s chronology or follow Tangle steps back through the pages of *The Vestiges of the Natural History of Creation*. The testing, the purgation, she must endure to join Mossy is even more substantial than is often recognized. If “The Golden Key” is read the way a Victorian would have read it, the full scope of the “unsaved” Tangle’s journey suddenly becomes apparent. That journey involves more than simply a series of physical perils occurring over the course of a few days, or even a few years. She must travel through deep time, through billions of years to the very nascence of our world. Only then can she be reunited with the boy who possesses the golden key. She comes via a tangled route indeed.

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