



## Geology, the Imagination, and Speculative Writing: Gideon Mantell's Fossil Poetry in Anna Birkbeck's Album

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This article considers the literary and scientific significance of a poem written by the geologist Gideon Mantell in Anna Birkbeck's album in 1825. 'On a Group of Organic Remains of a Former World' considers a cluster of fossils and asks them to give up information about the prehistoric world in which they had lived. Mantell's speaker is particularly keen to discover whether a race of angelic beings might have inhabited earth before the biblical creation, as this would help to explain why no fossilized human remains had been found by geologists who had discovered innumerable other creatures buried in the rocks. This article considers why Mantell was interested in these questions, why he chose poetry as the best form in which to explore them, and what his contribution to Anna Birkbeck's album tells us about the imbrication of scientific and literary writing in the Romantic era.

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‘On a Group of Organic Remains of a Former World’, a poem by the geologist and surgeon Gideon Mantell, is written in a flowing hand across pages 73 and 74 of Anna Birkbeck’s album. It was almost certainly inscribed there in September 1825 — the year in which Mantell attained scientific fame for discovering Iguanodon, the first dinosaur to be named and described — while the Birkbecks were on holiday in Mantell’s home county of Sussex, where they visited both his home in Lewes and the newly formed Mechanics’ Institute in Brighton. The poem uses Mantell’s own geological discoveries as the basis for imaginative theorizations of earth’s prehistory and seeks to explain the absence of human remains from the fossil record without contradicting the biblical account of creation. Speculative theories of this sort are notably absent from Mantell’s scientific publications at this point in his career as he sought to establish his geological reputation, and both their presence in this poem, and the poem’s presence in the album, illustrate how poetry functioned as a medium for speculation of a type that the geological establishment had sought to exclude from the discipline as they redrew its boundaries in the early nineteenth century.

Mantell was a prolific collector of fossils taken from the quarries and cliffs around Sussex, amassing a collection that he would first display at his own Mantellian Museum, which opened in Brighton in 1833, and then eventually sell to the British Museum.<sup>1</sup> These specimens are both central to the poem and also strangely absent from it: the poem’s title suggests that a specific group of ‘organic remains’ are its subject, but the fossils are neither identified nor described, and are instead recruited as interlocutors. This is a task they are ultimately unable to perform, as the poem’s speaker discovers by asking them a series of unanswered questions about the circumstances of their formation and the world in which they had lived: a prehistoric Sussex whose ‘groves of Palms, and spicy bow’rs’ had been revealed by Mantell’s own highly detailed and localized geological studies.<sup>2</sup> It is therefore a poem that foregrounds the limitations of scientific knowledge by indicating that fossils can reveal much about this vanished world, but not everything. Foremost among the missing information that the speaker really wants to find is an explanation of humanity’s absence from the fossil record. Who, Mantell asks, might have inhabited this extraordinary landscape if it were not humans? In doing so, the poem considers the extent to which fossils, and the speculation they inspire, require us to supplement the biblical account of creation with imaginative fictions of the sort that literary texts seemed best suited to explore.

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<sup>1</sup> For more on the Mantellian Museum, see Dennis R. Dean, *Gideon Mantell and the Discovery of Dinosaurs* (Cambridge University Press, 1999), p. 157.

<sup>2</sup> Gideon Mantell, ‘On a Group of Organic Remains of a Former World’, in *The Album of Anna Birkbeck*, Birkbeck, University of London, pp. 73–74. Subsequent references will be to this edition of the poem.

## Gideon Mantell and Romantic geology

‘On a Group of Organic Remains’, a 28-line poem written in tetrameter quatrains with a simple ABAB rhyme scheme, is both anonymous and undated, though we know it to be one of five poems that Mantell contributed to the album. None of the five is signed, but they are nevertheless recognizable as a group through their common handwriting, the shared presence of a hieroglyphic symbol below each poem, and, in some instances, the addition of Mantell’s address at Castle Place in his home town of Lewes.<sup>3</sup> The poems are not bunched together: one comes at the very beginning of the book, serving as its inauguration, while the other four are grouped near the middle, spanning pages 73–77. Each poem in this latter group identifies Mantell’s house as its place of composition, while the inaugural poem does not. It is, however, dated ‘September 1825’ as is ‘To My Lyre’, the second of the group of four (p. 76). This suggests that all five poems were written at the same time and in the same place, despite appearing in different parts of the album. It also seems reasonable to assume that they must have been among the album’s first entries, given both that a stamp, reading ‘Mrs G Birkbeck. | Album. | September, MDCCCXXV.’, appears on the album’s second page and that no other material is dated any earlier than Mantell’s (although many of the album’s entries contain no dates at all). As we shall see, September 1825 was the month in which the Birkbecks met Mantell for what seems to have been the first time when they visited him in Castle Place. It thus seems likely that Mantell was given the honour of being the album’s first contributor, that he was presented with a blank or near-empty album, and that he wrote its inaugural poem before turning to the middle of the book and writing the others, including ‘On a Group of Organic Remains’.<sup>4</sup> Other poems in the album adopt a similarly non-chronological sequence, suggesting a mode of contribution in which any empty page could be chosen and written upon, irrespective of when or whether the preceding pages had been filled.

Mantell’s inaugural poem, and three of the group of four, are what we might broadly categorize as typical album fare. In the first, Mantell anticipates the album contributions to come as a ‘tribute to Birkbeck’; in another, ‘On a Picture of Cupid Sleeping in a Vase’, he uses ekphrasis to frame an elaborate compliment to someone’s beauty; ‘To My Lyre’ contrasts the endurability of art with the fickleness of love; while the final contribution, ‘To xxxxx’, anticipates the poet’s own death, proleptically describing the grief that his

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<sup>3</sup> Designed by the Sussex architect Amon Wilds, Mantell’s house featured tall, fluted pilasters topped with Ionic-style capitals in the shape of ammonites (which are still intact). This was largely a pun on the architect’s first name, but also suited Mantell’s fascination with fossils and prehistoric life.

<sup>4</sup> Mantell’s contributions to the album were first identified by Wendy Jones, an alumna of Birkbeck’s MA Romantic Studies programme, and I am grateful for her work on this subject.

beloved will feel, and recalling Pierre de Ronsard's famous sonnet 'Quand vous serez bien vieille'. 'To My Lyre' had already been published elsewhere, appearing one month earlier in Mantell's local paper, the *Sussex Weekly Advertiser*.<sup>5</sup> Despite this, it too falls into the category of album writing that Samantha Matthews describes as 'highly polished and unashamedly ephemeral', which is typical of the 'albo-mania' of the 1820s.<sup>6</sup>

If the Birkbecks were looking for a model of how to combine work with study, and the arts with science, they might have found one in Gideon Mantell. 'On a Group of Organic Remains' had also been published in the *Sussex Advertiser* earlier that year, in January 1825, appearing in print just before the most consequential piece of writing that Mantell ever produced: his 'Notice on the Iguanodon, a Newly Discovered Fossil Reptile, from the Sandstone of Tilgate Forest, in Sussex', published in the *Philosophical Transactions of the Royal Society* in February 1825. The proximity of these two publications, and the contents of each, testify both to Mantell's talents as a writer and scientist and to the imbrication of scientific and literary culture in the 1820s. In the former, Mantell speculates poetically on the religiously controversial topic of earth's prehistoric inhabitants; in the latter, he soberly describes the discovery in 1822 of the fossilized remains of a vast land-dwelling reptile — a dinosaur, in other words, although that term had not yet been invented.<sup>7</sup> The year of Mantell's astonishing geological triumph was thus also a year in which he began to publish poetry that encompassed both geological themes and more conventional topics for light verse. He would continue to devote time to both literary modes, publishing two further poems in the *Sussex Advertiser* in 1825 ('Ballad, Founded upon a Recent Affecting Incident' and 'To My Lyre') and a large folding image of a fossil from his collection that he named after his home town: 'Salmo Lewesiensis: A Remarkable Fossil Fish from the Sussex Chalk in the Collection of Gideon Mantell, Esq., F.L.S., etc, Castle Place, Lewes'. His contributions to Anna Birkbeck's album were thus made in a period of simultaneously intense literary creation and scientific recognition, all of which took place while he continued to work as a surgeon in and around Lewes.

Mantell also exemplified how the narrow English education system risked wasting talent through its powerful mechanisms of religious and social exclusion, which again might have made him an attractive figure to the Birkbecks. Born in 1790, Mantell was

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<sup>5</sup> *Sussex Weekly Advertiser*, 29 August 1825.

<sup>6</sup> Samantha Matthews, *Album Verses and Romantic Literary Culture: Poetry, Manuscript, Print, 1780-1850* (Oxford University Press, 2020), p. 6.

<sup>7</sup> It is often claimed that Mantell's wife, Mary Ann, discovered the first Iguanodon fossil — a tooth — but, as Dean notes, the numerous different accounts of these events that Mantell published have tended to obscure the truth (p. 71). See also Virginia Zimmerman, *Excavating Victorians* (State University of New York Press, 2008), pp. 54-55.

the fifth son of a shoemaker and, as a Methodist, had been denied access to the local grammar schools because of his religious beliefs. He was taught to read and write in a local dame school before being educated at a Lewes academy run by a radical Whig named John Button. He then studied privately with an uncle in Swindon before, at the age of 15, being apprenticed to a local surgeon in Lewes (with whom he would eventually partner). Mantell dedicated himself to learning anatomy in his spare time and then studied further in London, eventually obtaining membership of the Royal College of Surgeons in 1811. In 1812 he published his first article on fossils in the *Sussex Advertiser*, whose enduring relationship with Mantell testifies to his position as a prominent local knowledge figure deeply rooted in his home territory.<sup>8</sup> In 1818 he was elected a member of the London Geological Society, and four years later he published his first geological book — the lavishly illustrated *The Fossils of the South Downs; or, Illustrations of the Geology of Sussex* (1822). By 1825, Gideon Mantell had become a powerful illustration of self-improvement and self-enlightenment through diligence, study, and hard work.

Although he would go on to become Victorian geology's foremost popularizer, Mantell's early works were designed to establish his scientific bona fides. His first book, *Fossils of the South Downs*, contains extensive commentary on the 'organic remains' of his native county and is written in a highly scientific register. 'Numerous species of *ammonites*, *nautili*, and *inocerami*, are the most common production of the pits near Lewes', he writes, 'which also contain *turrilites*, *scaphites*, *hamites*, &c.' We learn that these 'remains of testacea very rarely exhibit any vestige of their original shelly covering, but consist of casts of indurated argillaceous limestone, of an ochraceous or a ferruginous colour, more or less distorted by compression'.<sup>9</sup> His descriptions of fossils are written with clarity and precision, with little space given over to any speculation about the wider significance of the discoveries he has made. In this respect, Mantell's debut shows the clear influence of the Geological Society and its founding president George Bellas Greenough, with whom Mantell had been corresponding and exchanging samples for several years.<sup>10</sup> Greenough was particularly keen that geologists should exercise restraint in speculative theorizing because, as Ralph O'Connor notes, 'speculation was a dangerous business in [an] early-nineteenth-century London' whose ruling class vigilantly policed threats to the authority of Church and State, and where it was widely believed that the French Revolution had its origins

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<sup>8</sup> 'On the Extraneous Fossils Found in the Neighbourhood of Lewes', *Sussex Weekly Advertiser*, 23 March 1812 and 6 April 1812. For a full account of Mantell's early years, see Dean, pp. 9–12.

<sup>9</sup> Gideon Mantell, *The Fossils of the South Downs; or, Illustrations of the Geology of Sussex* (Lupton Relfe, 1822), p. 102.

<sup>10</sup> Greenough's views are most clearly set out in *A Critical Examination of the First Principles of Geology; in a Series of Essays* (Longman, Hurst, Rees, Orme, and Brown, 1819). He had been corresponding with Mantell since 1815.

in the intellectual speculations which promoted secularism at best and atheism at worst.<sup>11</sup> Eighteenth-century geologists had often constructed highly speculative and all-encompassing theories of earth's origins that threatened to undermine biblical authority, which placed their nineteenth-century successors under suspicion of being secret radicals. Their response was to redraw the discipline's boundaries, so that they only practised a 'descriptive, empirical science based on the firsthand study of specific local regions and on the gathering of facts and observations' rather than anything that encouraged unorthodox theorizing.<sup>12</sup> They mapped the earth's layers in painstaking detail by taking minute observations where the rock had been exposed in quarries or at cliff faces, and sought causal explanations for these local features in the deep history of fire, volcanic energy, and the shaping effect of water on land across the *longue durée*. Geology had often been identified as a potential threat to the status quo but both Greenough and the society he helped establish were determined to rebrand geology as an empiricist project concerned only with facts rather than the imagination.

Mantell seems to have taken Greenough's strictures to heart, telling him, in a letter written in August 1819, that his 'work will be of infinite advantage to Geology' and that he has now 'given up *theory* and shall content myself hereafter with matters of fact'.<sup>13</sup> Yet although this renunciation is more or less maintained in Mantell's early geological works, it does not hold in his poetry, and 'On a Group of Organic Remains' offers a strikingly speculative counterpart to, and extension of, Mantell's geological writing. Where his first scientific publications restrict themselves to dry, factual observations, his poem considers the likelihood of earth having been the habitation not only of the plants and creatures represented in his fossil collection, but also of a hitherto unimagined race of immaterial, spiritual inhabitants. These pre-Adamite 'Celestials', Mantell suggests, might have lived on earth in a 'terrestrial Eden' into which death and decay had yet to come, and could 'love, and live' without leaving any trace to be discovered by future fossil hunters. That he chose to ask these questions in verse both underlines how difficult it had become to speculate in geological writing and reinforces recent critical claims regarding literature's crucial role in the scientific culture of

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<sup>11</sup> Ralph O'Connor, 'Facts and Fancies: The Geological Society of London and the Wider Public, 1807-1837', in *The Making of the Geological Society of London*, ed. by C. L. E. Lewis and S. J. Knell, Geological Society Special Publications, 317 (Geological Society, 2009), pp. 331-40 (p. 331).

<sup>12</sup> Adelene Buckland, *Novel Science: Fiction and the Invention of Nineteenth-Century Geology* (University of Chicago Press, 2013), p. 4. As both Noah Heringman and O'Connor point out, this was at least in part a piece of rhetorical sleight of hand by the Geological Society, whose members repeatedly indulged in theoretical speculation both in public and private, despite its claims to the contrary. See O'Connor, 'Facts and Fancies', p. 332; and Noah Heringman, *Romantic Rocks, Aesthetic Geology* (Cornell University Press, 2004), pp. 269-71.

<sup>13</sup> Mantell to Greenough, 2 August 1819, London, UCL, Greenough Papers, GREENOUGH/B/4/M/8.

the 1820s, showing how it offered a medium in which speculative thought could be disseminated, operating in tandem with more empirical texts to advance knowledge.<sup>14</sup>

### Organic remains and celestial beings: Mantell's speculative verses

When Mantell was admitted to membership of the Geological Society in 1818 it had been as part of a network of regional enthusiasts, whose passion for fossils could be harnessed by wealthy men of science in London who possessed the means to devote themselves to their studies without having to worry about earning a living.<sup>15</sup> His membership was recognition that 'he could be trusted to be a reliable country member who would not venture into geothory', according to Martin Rudwick.<sup>16</sup> By the time he met George and Anna Birkbeck in September 1825, however, Mantell was newly established as both a notable member of his home county's intelligentsia and a figure of national repute following the publication of the paper by the Royal Society earlier that year which announced his discovery of 'the teeth and bones of a fossil herbivorous reptile, in the sandstone of Tilgate forest'. Mantell named the new creature 'Iguanodon', because of the similarity of its teeth to those of the modern iguana.<sup>17</sup> Its identification was a major scientific development; the existence of massive prehistoric marine animals was well established by 1825, but until Mantell's discovery of Iguanodon it had not been suspected that great land saurians had existed (the name *dinosaur* would be coined by Robert Owen in 1842 but was not commonly used until the end of the nineteenth century).<sup>18</sup> In the final weeks of the same triumphant year, Mantell would be elected to membership of the Royal Society. He was not in the social circle of the Birkbecks, but perhaps his history of educational exclusion, autodidacticism, and eventual rise to prominence appealed to their own recognition of the need for new modes of education. It is no surprise that visitors to the county, with keen interests in education, science, and the arts, would wish to meet with such a man.

The Birkbecks spent time in Sussex in the summer of 1825, with George addressing the inaugural meeting of the Brighton Mechanics' Institute, an organization that had

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<sup>14</sup> See Ralph O'Connor, *The Earth on Show: Fossils and the Poetics of Popular Science, 1802-1856* (University of Chicago Press, 2007). For more on the connections between literature and geology in this period, see Heringman, *Romantic Rocks*; Buckland, *Novel Science*; and Zimmerman, *Excavating Victorians*.

<sup>15</sup> O'Connor, 'Facts and Fancies', p. 332. In his letters to Greenough Mantell writes frequently of the many interruptions that have delayed his work, and often apologizes for not responding to Greenough's queries more speedily.

<sup>16</sup> Martin J. S. Rudwick, *Worlds Before Adam: The Reconstruction of Geohistory in the Age of Reform* (University of Chicago Press, 2008), p. 63.

<sup>17</sup> 'Notice on the Iguanodon, a Newly Discovered Fossil Reptile, from the Sandstone of Tilgate Forest, in Sussex', *Philosophical Transactions of the Royal Society of London*, 115 (1825), pp. 179-86 (p. 179), doi:[10.1098/rstl.1825.0010](https://doi.org/10.1098/rstl.1825.0010).

<sup>18</sup> Buckland, p. 326.

been inspired by the institution he had helped to establish in London, and which would later be renamed Birkbeck College. Mantell called on George Birkbeck in Brighton on 10 September, while on 12 September Mantell's journal notes that

Dr and Mrs Birkbeck, and several of their friends, called on us, and accompanied us to the Rocks at Uckfield, from thence to Fletching, and returned to Castle Place by Chailey. We took tea at the Sheffield Arms at Fletching (visited Gibbon's tomb), coffee at my house, and the Dr and friends left us at ten for Brighton.<sup>19</sup>

It seems likely that the poems in Anna's album were either inscribed, or requested, during this lengthy visit, which took the party on a near thirty-mile loop around Mantell's Sussex. Their friendship, however, does not seem to have developed much after this trip despite Mantell's significant presence in Anna's album. Mantell met George Birkbeck once more in Brighton in 1825, and called on him in London in February 1827, but on neither occasion does his journal mention Anna.<sup>20</sup> He next records meeting the Birkbecks in Oxford in June 1832, where they were all attending the second meeting of the British Association for the Advancement of Science, though on this occasion, however, he mistakes their names and describes them in his journal as 'Dr and Mrs Birkbank', suggesting that he possessed a rather hazy sense of who they were.<sup>21</sup> Both men would later provide glowing testimonials that were used to advertise 'Coles' Patent Trusses' (for 'the relief and cure of hernia') but otherwise they largely vanish from each other's lives.

Nevertheless, this first meeting seems to have gone well and the tour upon which Mantell took his guests had been selected for a mixture of aesthetic, literary, and scientific interest, taking in local beauty spots which Mantell had also written about in *The Fossils of the South Downs*, as well as the tomb of Edward Gibbon. Mantell's book had described their first stop, the rocks at Uckfield, as a scene of 'considerable beauty and picturesque effect' caused by the 'diluvian action' of water on sandstone across time. Perhaps he led his London guests along the 'path that leads to this interesting spot', which, 'by a circuitous route, conducts the spectator to the centre of a wood, when a beautiful lake, nearly surrounded by rocks, suddenly opens to the view'.<sup>22</sup> Fletching, too, features

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<sup>19</sup> *The Journal of Gideon Mantell: Surgeon and Geologist*, ed. by E. Cecil Curwen (Oxford University Press, 1940), p. 55; and *The Unpublished Journal of Gideon Mantell*, ed. by John A. Cooper (Royal Pavilion and Museums, 2010), p. 28.

<sup>20</sup> *Journal*, ed. by Curwen, pp. 72, 103; *Unpublished Journal*, ed. by Cooper, p. 28.

<sup>21</sup> *Journal*, ed. by Curwen, p. 103.

<sup>22</sup> *Fossils of the South Downs*, p. 26.



a fine lake, overhung with sandstone rocks, and crested with a noble wood, near the seat of the Earl of Sheffield, [...] another example of the picturesque scenery, to which the irregular surface of the sandstone gives rise in certain situations. (p. 27)

In a later work Mantell names the stone at all three locations as examples of ‘Horsted sand’, composed of ‘grey, white, ferruginous and fawn-coloured sand, and friable sandstone, with abundance of small portions of lignite’. The fossils found in this stone, Mantell notes, tended to be ‘traces of carbonised vegetables’ which are ‘too imperfect to admit of being determined’ with any greater precision.<sup>23</sup> This precise recording of local conditions reflects Greenough’s vision of how geology ought to be conducted. It was a strategy that had helped to restore geology’s reputation as a legitimate field of scientific enquiry, and this growing acceptance manifested itself through the emergence of institutions such as the Geological Society, and the appointment of William Buckland as a reader in geology at Oxford in 1819.<sup>24</sup>

Yet in taking the Birkbecks on this tour, and in writing his poem on fossils in Anna’s album, Mantell signals a desire both to progress beyond the restrictive model of geology espoused by Greenough and to communicate geological information to a wider and less specialist audience. This desire aligns him with figures such as Buckland and Charles Lyell, who each sought to build upon geology’s hard-won respectability by maintaining the fundamental work of making detailed field observations while also engaging with a wide range of popular literary forms. Mantell, self-taught in the scientific methodologies of his new discipline but with an extensive literary knowledge (he was a dedicated Byronist) and no little authorial flair, was particularly well suited to this task and would go on to become one of geology’s most effective public advocates, writing several accessible introductions to the topic including *Thoughts on a Pebble* (1836), *Petrifactions and their Teachings* (1851), and *The Medals of Creation; or, First Lessons in Geology, and the Study of Organic Remains* (1844), a book whose title can also be found in the poem’s opening lines. 1825 thus finds Mantell poised between two modes of geological writing: one from which anything that risked overstimulating the imagination had to be excluded if it was to gain acceptance from geologists who already viewed him with a certain *de haut en bas* suspicion; and another in which imagination

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<sup>23</sup> Gideon Mantell, *Illustrations of the Geology of Sussex* (Lupton Relfe, 1827), pp. 28, 35, 77.

<sup>24</sup> Mantell was shut out from this and similar posts by his Dissenting background, and his career diverged from that of his friend Buckland, with Mantell often struggling for money, and looking for ways to fund his collecting. Mantell was never excluded from the learned societies in the manner of those who Heringman describes as ‘knowledge workers’ (most notable among whom is perhaps Mary Anning) but he nevertheless still suffered exclusion on the basis of class and religion. See Noah Heringman, *Sciences of Antiquity: Romantic Antiquarianism, Natural History, and Knowledge Work* (Oxford University Press, 2013).

and observation might combine in a more speculative yet accessible style and appeal to a wider audience of non-specialists.

The strains of philosophical, religious, and cosmological thought that had characterized earlier phases of geological research did not simply vanish as its disciplinary boundaries solidified and its scientific respectability began to emerge. Mantell's poem models the role that literature played in facilitating these modes of thought and provides an opportunity to consider the generative intermingling of literature and geology in the 1820s, showing how one leading geologist used verse to advance speculative ideas that were considered ill-suited to the scientific publications upon which his scientific reputation depended. As the poem is relatively short, and almost totally unknown, it is perhaps worth including it in full within the body of this article:

Relics of a former world!  
 Medals of Creation's birth!  
 Ere Hist'ry her page unroll'd,  
 Or man was tenant of the earth;

Say, in those early days of Time  
 Did Angel spirits dwell below?  
 And free from passion, pain, and crime,  
 In this terrestrial Eden grow?

'Mid groves of Palms, and spicy bow'rs,  
 Whose verdure never knew decay,  
 And blooming with perpetual flow'rs,  
 Gave out their sweets eternally;

Did those Celestials love, and live,  
 And quaff eternal happiness;  
 Enjoying all this world can give,  
 But free from man's infirmities?

Or was the Earth, as now, th'abode  
 Of Beings doom'd like me to err,  
 Whose path-way to the throne of God,  
 Led through the gloomy sepulchre?

We seek in vain from ye to know,  
 Relics of Ages long gone by!  
 Enough! Whate'er man's fate below  
 He'll live in bliss beyond the sky!

Yes! Man, the erring child of Heav'n,  
 Tho' toss'd on this life's troubled sea,  
 His failings, and his sins forgiv'n,  
 Shall rise in Immortality!

Ralph O'Connor has detailed the reciprocal links between poetry and geology in this period and it is clear, to take one example, that Mantell's interest in Byron was at least matched by Byron's interest in geology.<sup>25</sup> Both *Cain* (1821) and Canto IX of *Don Juan*, published in 1823, reveal the poet's engagement with Georges Cuvier's theories about earth's deeper history. The extent of Mantell's desire to combine literary and scientific culture can be seen in his own poem's opening lines, where a little excavation uncovers hidden strata of quotation and allusion to both recent poetry and other geological writing. Indeed, the poem opens with a direct (albeit unacknowledged) quotation from Byron:

Relics of a former world!  
 Medals of Creation's birth!  
 Ere Hist'ry her page unroll'd,  
 Or man was tenant of the earth.

The phrase 'Relics of a former world' had appeared two years previously in Canto IX of *Don Juan*, in which Byron had alluded to Cuvier's work. Cuvier held that both natural history and geology could be explained by a series of catastrophic events, which had caused the mass extinction of species and their replacement by entirely new species. He argued that humanity's absence from the fossil record suggests that mankind's creation must have followed the last great catastrophe in nature, that mankind thus had no connection to earth's prehistoric inhabitants and had therefore been created separately. He also claimed that mankind would have been unable to survive such a cataclysm given our relatively puny size when compared to the massive animals that did become extinct, and that earth's inhabitants were getting progressively smaller

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<sup>25</sup> See O'Connor, *The Earth on Show*, pp. 325–57.

with each new creation.<sup>26</sup> This idea seems to have inspired Byron who goes further than Cuvier in *Don Juan*, as Noah Heringman points out, by speculating not just on humanity's origins in relation to prehistory, but also on its future in a similarly extended timescale. Whereas Cuvier 'precludes the possibility of biological continuity between humans and earlier species', Byron allows himself to imagine a future geological record in which our own fossilized remains appear monstrously large to earth's even tinier inhabitants.<sup>27</sup> Byron imagines the familiar things of nineteenth-century England being dug up by future generations as 'relics of "a former world"', discovered only 'When this world shall be former, underground [...] | Like all the worlds before'.<sup>28</sup> By borrowing Byron's line Mantell signals his participation in this mingled scientific and literary discourse, and perhaps also his intention to emulate his poetic hero by using poetry to speculate on man's place in creation.

The poem's second line features another quotation, although its provenance is slightly more complex than the first. Mantell probably came across the phrase 'medals of creation' in the work of his friend James Parkinson, a surgeon and sometime political radical who was a founder member of the Geological Society (and for whom the condition Parkinson's Disease is named). It can be found in his book on fossils *Organic Remains of a Former World* (1804), which also provided Mantell with his poem's title. Parkinson, however, claims that the phrase is not his own but has itself been borrowed from 'the illustrious Bergman', who, Parkinson suggests, 'elegantly describes fossils, as the MEDALS OF CREATION'.<sup>29</sup> It is true that the Swedish chemist and mineralogist Torbern Bergman did indeed figure fossils in this way, thus originating the metaphor, but because his book was written in Latin he describes them not as 'medals of creation' but rather as '*nummorum memorialium*' ('memorial coins').<sup>30</sup> Bergman's work had been translated into English as early as 1791, but his translator had rendered the passage in which the phrase appears much more prosaically than it appears in Parkinson's version: 'they resemble a series of ancient coins in the testimony they bear to the convulsions and revolutions of our globe, on which historical monuments are wholly silent.'<sup>31</sup> The elegant phrasing of 'medals of creation' thus seems to result from Parkinson's own rather more poetic translation of Bergman, which Mantell extends and adapts to provide a useful rhyme for 'earth' upon which to close the poem's first stanza.

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<sup>26</sup> I am indebted to Martin Rudwick's *Worlds Before Adam* for its helpful account of Cuvier's thought.

<sup>27</sup> Noah Heringman, *Deep Time: A Literary History* (Princeton University Press, 2023), p. 73.

<sup>28</sup> *Lord Byron: The Complete Poetical Works*, ed. by Jerome J. McGann, 7 vols (Clarendon Press, 1980–93), V: *Don Juan* (1986), IX. 37.

<sup>29</sup> James Parkinson, *Organic Remains of a Former World*, 3 vols (Robson, 1804), I, pp. 7–8.

<sup>30</sup> Torbern Bergman, *Meditationes de systemate fossilium naturalium* (Florence: Tofani, 1784), p. 40.

<sup>31</sup> Torbern Bergman, *Physical and Chemical Essays Vol. III* (Edinburgh: Mudie, 1791), p. 236.

As we shall see, Mantell eventually shares his friend's anxiety about poetry's capacity to lead geologists towards excessive speculation, but any such anxiety is absent from the poem's early lines, which show his belief that the fossil record helps establish a new and unwritten history which begins long before humanity became the earth's 'tenant'. This willingness to consider imaginatively expanded accounts of earth's past and future characterizes each of the writers whose works inform Mantell's opening stanza: Byron considers man's eventual disappearance from the earth and replacement by a successor species; Cuvier distinguishes between man's creation and an earlier creation that precedes human history; so, too, does Parkinson, who draws on Bergman to argue that these 'medals' testify to the existence of a vanished world, and teach us 'that innumerable beings have lived, of which not one of the same kind does any longer exist' (I, p. 8). Each of them sees no contradiction between the biblical account of creation and the emerging geological record, with Parkinson viewing his task as being 'to endeavour to find out the ways of God in forming, destroying, and reforming the earth', without allowing 'imagination' to 'take the place of judgment', which might render his speculation similar to 'the fictions of poets' (I, pp. 13, 14). Digging beneath the surface of these opening lines thus reveals a series of layered allusions to poetic and scientific texts that advance speculative theories about earth's past and future that are careful to remain consistent with the biblical account of creation. In its compositional juxtaposition of quotations from poets and geologists we might also discern a synthesis of science and art of a sort that corresponds neatly to the new form of education that was being promoted by the Birkbecks and their colleagues in the new mechanics' institutions. The words and ideas of Byron, Cuvier, Bergman, and Parkinson mingle together in an opening stanza that exemplifies both an imaginative and an educational ideal.

Mantell has clearly chosen his allusions with great care, and his rationale for invoking this select group of peers becomes clear in the poem's middle stanzas as he goes on to make his own speculations about earth's distant history, apostrophizing his fossils and demanding that they answer a series of questions. 'Say', he asks them,

in those early days of Time  
 Did Angel spirits dwell below?  
 And free from passion, pain, and crime,  
 In this terrestrial Eden grow?

Mantell here suggests two possible ways to explain the absence of human remains from the fossil record: firstly, he considers whether earth's earliest inhabitants were

spiritual rather than physical beings, and thus lacked material bodies that could leave any evidentiary trace among the geological strata; secondly, he considers that these spirits might have been free from the ‘passion, pain, and crime’ which only entered the world, according to the Mosaic account of creation, with man’s Fall. These bodiless and immaterial ‘Celestials’ might have enjoyed ‘all this world can give, | But free from man’s infirmities’, the most prominent of which — another result of the Fall — is death. With no bodies, and no death, there would be no possibility that these pre-Adamite inhabitants of earth left fossils to be discovered by future geologists.

Speculative theories of earth’s pre-biblical history became increasingly prominent in the mid-nineteenth century among those who ‘sought to retain harmony between science and scripture’ by backfilling the vast tracts of deep time with explanatory narratives that supplemented, without ever contradicting, the biblical account of creation, but Mantell’s speculation is a strikingly early example of this strand of thought.<sup>32</sup> As David Livingstone has shown, these pre-Adamite theories appealed to mid-century writers convinced by new geological narratives about the earth’s age, and made it possible for both religious believers and university authorities to believe ‘that they had nothing to fear from this branch of science’ (pp. 84–85). Mantell was not unique in arguing that the absence of fossilized human remains might be explained by the presence of angelic beings as earth’s prehistoric inhabitants, but his poetic treatment of the theory appears more than two decades before any of the prose examples cited by Livingstone, whose book on pre-Adamite thought remains the most substantial treatment this topic has received, and which identifies the emergence of geology as a key reason for the efflorescence of these theories. Among those advocating for the existence of pre-Adamite inhabitants of earth are John Thomas, one of the founders of the Christadelphians, who attempted to explain the geological record by positing a race of fallen angels inhabiting earth in his *Ielpis Israel* (1849), and the Anglican clergyman Henry Christmas who suggested in *Echoes of the Universe* (1850) that human remains were absent from the fossil record because God had transported pre-Adamite man to ‘a station nearer to the Almighty’s throne’.<sup>33</sup> A version of this theory was developed by Isabelle Duncan in *Pre-Adamite Man; or, The Story of our Old Earth and Its Inhabitants* (1860), perhaps the best known of these texts, which suggested

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<sup>32</sup> David N. Livingstone, *Adam’s Ancestors: Race, Religion, and the Politics of Human Origins* (Johns Hopkins University Press, 2008), p. 81. In *Deep Time*, Heringman has also convincingly demonstrated that the concept of deep time, and the process of speculating about life before the advent of written records, began before geologists put dates on earth’s strata. In this respect, Mantell’s theories might be connected to a much wider visionary tradition.

<sup>33</sup> Rev. Henry Christmas, *Echoes of the Universe: From the World of Matter and the World of Spirit* (Hart, 1850), p. 93.

that these ex-inhabitants of earth became ‘the Angel host, whose mysterious visits to our world are so often recorded in the Bible — whose origin is so obscure — whose relations to Adam’s family are so close, yet so unexplained’.<sup>34</sup>

Mantell’s poem predates these examples considerably and is rendered more striking because of his practical experience in fossil hunting and geological research. Where later pre-Adamite theories were typically written by theologians with some knowledge of geology, Mantell’s was the product of his own scientific investigations. The potential that fossils could provoke such a powerful imaginative response and engender such fantastical speculation was a recurring theme in the work of James Parkinson. ‘When the mind has dwelt a while on objects so well calculated to impress it with astonishment’ as fossils, he argues, then it is inevitable that ‘fresh subjects for conjecture, and most interesting contemplation, will arise’ (I, p. 11). Looking at and thinking about fossils ‘widen[s] the views of the natural philosopher; by opening to him, fresh fields of observation; and [...] showing him a glimpse of other creations’. These, in turn, reveal to him both ‘the immensity of animated nature, and of the power of the great Creator of all things’ (I, p. 12). For Parkinson, like many of those who responded imaginatively to geological research at this time, the cultivation of wonder at the contemplation of geology’s expanded timescales could be a conduit for renewed religious inspiration, rather than a pathway to a crisis of faith.

Ultimately, however, such speculative freedom reaches its limit point for Mantell even within the safe space created by poetic form, which he reaches when he considers an alternative — and more religiously daring — prehistoric scenario:

Or was the Earth, as now, th’ abode  
Of Beings doom’d like me to err,  
Whose path-way to the throne of God,  
Led through the gloomy sepulchre?

Unable to sustain his vision of a race of immaterial and immortal earth-dwellers, Mantell speculates whether both errancy and death could have existed in prelapsarian earth. It is a thought that contradicts the notion of a perfect, sinless creation, and thus diverges significantly from a central tenet of conventional Christian belief which explains the necessity of Christ’s assumption of human form and his descent to earth, death, and resurrection. It appears to be a speculation too far for Mantell, who quickly

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<sup>34</sup> Quoted in Livingstone, p. 90.

disciplines his imagination and brings his flight of fancy to a sudden halt as his poem makes an anti-metaphysical turn:

We seek in vain from ye to know,  
 Relics of Ages long gone by!  
 Enough! Whate'er man's fate below  
 He'll live in bliss beyond the sky!

Yes! Man, the erring child of Heav'n,  
 Tho' toss'd on this life's troubled sea,  
 His failings, and his sins forgiv'n,  
 Shall rise in Immortality!

Marianne Sommer notes that light or occasional poetry offered a venue in which geologists could introduce unorthodox or speculative ideas while maintaining plausible deniability, and allowing themselves the opportunity of retraction.<sup>35</sup> This imagines that such a retraction might happen after publication or circulation of the poem, but here we see Mantell write his retraction into the body of the poem itself, explicitly bringing a halt to his more irreligious speculations and reasserting his faith, despite the questions raised by the fossils that prompted the poem. His insistence that it is 'vain' to seek answers from the fossil record re-establishes a distance between the domains of science and religion that had previously been collapsed in his verse. 'On a Group of Organic Remains' is thus a poem that initially seems determined to confront the tensions that geology revealed in the Mosaic creation story, but which ultimately resolves them by denying the utility of intellectual speculation and falling back upon a conventional recitation of religious doctrine. In these verses Mantell simultaneously poeticizes his geological research and asserts that both poetry and science should ultimately submit to the greater authority of scripture.

By the time Mantell published his second geological book in 1827, he had loosened his restriction on speculation and had begun actively to engage his readers' imaginations. 'Imagine an animal of the lizard tribe', he instructs them at one point, 'three or four times as large as the largest crocodile; having jaws, with teeth equal in size to the incisors of the rhinoceros; and crested with horns; such a creature must have been the *Iguanodon!*'.<sup>36</sup> Mantell makes clear his own sense of wonder at his fossils

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<sup>35</sup> Marianne Sommer, "An amusing account of a cave in Wales": William Buckland (1784–1856) and the Red Lady of Paviland', *British Journal for the History of Science*, 37.1 (2004), pp. 53–74 (p. 60), doi:[10.1017/S0007087403005326](https://doi.org/10.1017/S0007087403005326).

<sup>36</sup> *Illustrations of the Geology of Sussex*, p. 83.



when he lists his discoveries in his home county: ‘The bones of enormous saurians; of turtles, fishes, and birds; remains of large arborescent ferns’ (pp. 39–40); ‘Remains of fishes [...] Turtles — Three kinds [...] *Iguanadon* [...] *Megalosaurus* [...] *Crocodile* [...] *Plesiosaurus*’ (pp. 43–44). His piling up of strange examples of vanished creatures threatens to overwhelm the reader, generating a prehistoric sublime. Eventually, Mantell would develop a prose style that strove more explicitly for sublime effects, as in this description of Matlock Dale from *The Medals of Creation*:

Every one possessed of taste and feeling who gazes upon this glorious landscape will partake, in a greater or lesser degree, of the emotions thus finely expressed by the ardent lover of the sublime and beautiful in nature; but to the natural philosopher the physical characters of this enchanting region are fraught with a deeper interest, and present subjects for the most profound contemplation. To him the rocks and the mountains are the grand monuments of nature, on which are inscribed the history of the physical revolutions of the globe which took place in periods incalculably remote and long antecedent to the creation of the human race. *They present to his mind a succession of events, each so vast as to be beyond his finite comprehension; ages of tranquillity, with lands and seas teeming with life and happiness, succeeded by periods in which the earthquake and the volcano spread universal ruin and destruction.*<sup>37</sup>

Although he continued to publish poetry in the *Sussex Advertiser* for a few more years, it became more sporadic as he began to achieve greater success as a popularizer of geology.

Mantell was offered the opportunity to write a poem in Anna Birkbeck’s album at a cultural moment in which, as Tim Fulford notes, ‘science and literature were neither entirely separate from nor hostile to each other’ but were coming to model a generative intermingling through which imaginative writers found new subjects and images in the fossil record, and scientists borrowed literary techniques to facilitate the transmission of their research.<sup>38</sup> Here and elsewhere geological speculation was imbricating with Romantic poetry, while the poetic enthusiasm of scientists such as Mantell helped generate what Judith Pascoe has called ‘the insistent literariness that permeated natural history writing’.<sup>39</sup> O’Connor suggests that poetry is perhaps the most ‘fugitive’ form through which literature enabled geology’s ‘rise to authority’ because so many poems

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<sup>37</sup> Gideon Algernon Mantell, *The Medals of Creation; or, First Lessons in Geology, and the Study of Organic Remains*, 2 vols (Bohn, 1844), II, p. 897, emphasis added.

<sup>38</sup> Tim Fulford, ‘General Introduction’, in *Romanticism and Science 1773–1833*, 5 vols (Routledge, 2002), I, pp. 1–49 (p. 25).

<sup>39</sup> Judith Pascoe, *The Hummingbird Cabinet: A Rare and Curious History of Romantic Collectors* (Cornell University Press, 2006), p. 152.

circulated in private rather than public forms, sometimes privately printed but often existing only in albums or commonplace books.<sup>40</sup> Here we find one such fugitive verse and discover that it anticipates, in miniature, the trajectory of Tennyson's *In Memoriam A. H. H.* (1851), which of course contains the nineteenth century's most significant and sustained disquisition on the theological implications of geological discoveries, and which similarly resolves itself in an expression of faith based not on the intellect but on emotion and sensation. Tennyson's extended elegy is more explicit and self-conscious about poetry's role as an apt venue for the consideration of how emerging scientific paradigms were suddenly reshaping other nineteenth-century domains, but its clarity had been enabled earlier in the century by other poets, such as Mantell, who recognized both that these humanistic speculations were a necessary corollary of scientific research, and that literary culture was therefore intrinsic to our capacity, as a species, to recognize and reckon with our own place in the past, present, and future. 'On a Group of Organic Remains' contributes to this recognition through its interrogation of the limits of scientific knowledge, and of the capacity of literary form to consider questions that mix science and faith. It is characteristic of both a particular moment in Romantic literary and scientific culture and of the generative intermingling of arts and sciences in the social circle of the Birkbecks around the time of the London Mechanics' Institution's establishment.

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<sup>40</sup> *The Earth on Show*, p. 1.