‘A kind of geological novel’: Wales and travel writing, 1783-1819*

Abstract:

This article explores the layered and multivocal nature of Romantic-period travel writing in Wales through the theme of geology. Beginning with an analysis of the spectral sense of place that emerges from William Smith’s 1815 geological map of England and Wales, it considers a range of travel texts, from the stones and fossils of Thomas Pennant’s *A Tour in Wales* (1778-83), to Humphry Davy and Michael Faraday’s early nineteenth-century Welsh travels, to little-known manuscript accounts. Wales is still the least-researched of the home nations in terms of the Enlightenment and the Romantic period, despite recent and ongoing work that has done much to increase its visibility. Travel writing, meanwhile, is a form whose popularity in the period is now little recognised. These points doubly position Welsh travel writing on the fringes of our field, in an outlying location compounded by the genre’s status as a category that defies easy definition.

Keywords:

Wales, travel writing, literature and science, geology, Thomas Pennant, manuscripts

Grevel Lindop’s short poem ‘Suffolk’, first published in 2015, vividly captures not just the scene or landscape summoned by the title but also a series of processes. Framed as an encounter with a specific place, the lines of the poem trace the lines of light and colour that make up the view. The dreamy, enigmatic quality of the piece, however, also declares accurate depiction all but impossible, as one plane or contour – a boundary, the horizon – blurs into another:

> It’s about the horizontal, a landscape
> much like the lines of this poem,
> one stratum above another, ruled
> by sediment, weather, gravity, the plough

and light, which is this moment muddy and wet
so there's no clear boundary, the distance
not horizon but melt into more distance,
more white like an unwritten page, or cold pressed
rag awaiting watercolour. Remember
verse is *versa*, the turning of the plough
at the furrow's end: once Horace's white oxen,
now, in English, a solitary tractor, sugar beet,
and the train drawing another line, green and silver
between mud and ditches, between here and there,
a slow half minute between the black and the white.[1]

Lindop's 'Suffolk' moves between layers and edges: an indeterminate skyline gives way to a string of neatly turned furrows. The poem as a whole is shaped by a geological metaphor, in which lines and breaks reflect the halting, haphazard and accumulative processes of perception and composition, and of translating a time-bound view or landscape into text.

Starting from the sedimentary configuration of 'Suffolk', this article explores the layered and multivocal nature of Romantic-period travel writing through the theme of geology. Building on Tom Furniss's recent work on late eighteenth-century Scottish geological tours and Noah Heringman's work on aesthetic geology, the following discussion draws on Welsh contexts for the development of travel writing in the same period. Beginning with an analysis of the multiple, spectral sense of place that emerges from William Smith's 1815 geological map of England and Wales, it considers a range of travel texts, from the stones and fossils of Thomas Pennant's *A Tour in Wales* (1778-83), to Humphry Davy and Michael Faraday's early nineteenth-century Welsh travels, to little-known manuscript tours. Wales is still the least-researched of the home nations in terms of the Enlightenment and the Romantic period, despite recent and ongoing work that has done much to increase its visibility. Travel writing, meanwhile, is a form whose popularity in the period is now little recognised, but which was probably only surpassed by religious literature and fiction.[2] These points doubly position Welsh travel texts on

the fringes of our field via geography and genre – an outlying location compounded by travel writing's status as a category that defies easy definition.

In Carl Thompson's words, the term travel writing 'encompasses a bewildering diversity of forms, modes and itineraries', in 'a constellation of many different types of writing'.[3] That works of travel are notoriously full of overlaps and intersections as a result, imagining or creating place as much they visit and record it, is widely acknowledged. But while travel's miscellany is central to its appeal, this inbuilt heterogeneity is not always reflected in secondary literature, as Katherine Turner has pointed out.[4] In the following discussion, the question of the travel text's material structure – its capacities for organising and shaping information – takes priority over its contested claims to truth, or to being seen as a genre definitively separate from fiction, correspondence, diary/memoir or local history (among others). For some writers in the period, directly tackling the ways in which travel represents place and organises information offers a point of entry. In his preface to *A Tour Round North Wales* (1800), William Bingley distances his tour from successful contemporary ones by Samuel Jackson Pratt and Richard Warner on the grounds of realism: 'Two late tourists … if they have not introduced the novelist too often in their works, (which, by the way, I shrewdly suspect they have) were infinitely more fortunate in meeting with adventures than I was'.[5] In Bingley's eyes, Thomas Pennant takes information gathering to an extreme in his 'accurate and learned' work, in such a way as to impose a different kind of fictionality on his material. It is impossible, he has realised, to follow Pennant's information-loaded travel writing, gathered over many years and individual journeys, as a real-time itinerary:

> Mr. Pennant has taken no general rout … I by no means mention this circumstance as a derogation from the intrinsic merits of his work, it is only done to shew it's [sic] inconvenience as a guide to the tourist' (Bingley, x-xi).

The long historical and antiquarian passages that characterise Pennant's writing make his Welsh tour something to be read at home rather than used as a guidebook on the road: 'though well calculated both to instruct and amuse in the closet … [it is] too long and uninteresting for the generality of persons when upon their journey' (Bingley, xi).

The gap between his text and Pennant's, or Pratt's and Warner's, is one that Bingley envisages his own in turn successful published tour bridging. Carefully pitching and positioning a text within an existing literary landscape in this way is not, however, something that will be as readily seen in manuscript tours, a form that accounts for the majority of surviving travel texts from the period. Unpublished tours sometimes imitate print conventions, with title pages or paratexts, but more often than not, they make no attempt to present themselves to a reading public primed to receive works of travel, instead launching immediately into the journey. Manuscript texts are widely scattered across record offices and research libraries and have received little attention from researchers but collectively they represent a deep archive of little-known material. They currently sit on the margins of the field for reasons of accessibility, though a wider consideration of manuscripts (particularly by women writers, who published proportionally far fewer travel texts than men in the period) may yet reshape that field. Since travels in Wales form the subject of hundreds of eighteenth- and nineteenth-century tours, the question of recovery highlights place as well as gender. The following discussion brings together several themes, from mapping to geology, science and aesthetics, in order to locate Wales more clearly within Romantic travel.

Romantic-period tours were made and written up for a variety of reasons. Some describe Wales as a destination in itself, others as a through route to Ireland. Some tours run along the lines of picturesque tourism, others are business or research trips, or sketching expeditions. But if the archive is, as Thompson suggests, hugely diverse, it is also full of connections. In its hard-to-define miscellaneity, as the meeting point of different (but often repeated) motivations, 'forms, modes and itineraries', the tour becomes border territory in conceptual terms. Christopher Meredith's 2013 poem 'Borderland', set in the Black Mountains in south-east Wales, traces the logic of this process, playing on the way that the Welsh word for border – 'ffin' – hovers inside the word 'diffiniad' (definition) in order to suggest that edges are the spaces 'where meanings happen':

> You'll find a *ffin* inside each definition.
> We see what is when we see what it's not:
> edges are where meanings happen.[6]

Meredith's poem goes on to describe a landscape: the earth's surface curving away at the horizon, skylarks, and rocks – in their natural state and as construction material. He finds another border zone in stones transformed to buildings, 'where the lithic turns into the human':

> Here's where things fall together, not apart
> at edges that let meanings happen.

The tangled relationships between the lithic, human and imagined or conjectured is central to this article, which considers travel writing as stratified: an amalgam of antiquarianism, history, scientific and social observation, aesthetics, and everyday occurrences on the road, all of which piles up and settles down in the written account.

As Thompson and others have warned, there is little point in trying to police the boundaries of travel writing too closely in a period in which modern disciplinary divisons did not exist. Approaching travel writing as both a kind of borderland and a distinctive creative space also reflects late eighteenth- and early nineteenth-century uses of the form, in which there needed to be no barrier between the scientist and imaginative forms of representation, as will be seen in Michael Faraday's tour (discussed below). Elsewhere, the productive interface between scientific writing and narrative structures borrowed from fiction, coming into focus through travel, can be glimpsed in the work of Charles Darwin. Starting out from his Shropshire base, Darwin did much of his early thinking about geology in or in relation to north Wales, making at least 13 significant trips over the border by 1831.[7] By the 1840s, he had published work on glaciation in Caernarfonshire, and was privately describing north Wales as 'a kind of geological novel' to his cousin, William Darwin Fox.[8] He would comment further on this particular landscape in his autobiography: 'these phenomena are so conspicuous that … a house burnt down by fire did not tell its story more plainly than did this valley'.[9] But the rock record would, he warned Fox in September 1843, take time to become legible: 'your friend must have patience, for he will not get a good *glacial* eye for a few days.'[10]

One of the ways in which Darwin and his contemporaries would have encountered the rock record was via William Smith's pioneering geological map of England, Wales and the southern part of Scotland, first published in 1815 [fig. 1]. The real-life map is an imposing piece, around 9 feet by 6 feet, made up of 15 separate sections. Each map was individually coloured, the colours representing different rock formations below the surface of the earth, identified and classified according to the fossils they contained. As Simon Winchester has noted, Smith's map was 'as scientifically epochal as it was physically majestic' – the first large-scale national geological map of anywhere in the world.[11] The map represents a 'spatial geometry' of what lies beneath the surface, an x-ray vision that begins to reveal earth history (Winchester, 93). It also contains a remarkable human story, hidden between the coloured lines of the final object. Born in Oxfordshire in 1769, William Smith was a surveyor from a labouring-class background as the son of a blacksmith. The 1815 map took over twenty years to make, and it became, in time, a much-celebrated scientific achievement, not least for the fact that Smith produced the map by surveying the terrain it covers virtually singlehandedly.

Figure 1. William Smith, 'A Delineation of the Strata of England and Wales, with Part of Scotland' (1815). By permission of the Oxford University Museum of Natural History.

Travel writing is perhaps the most kinetic of writerly forms, always on the move or contemplating movement. Journeys are central to Romantic geology too, as scientists increasingly tried to unravel the earth histories buried within the landscape via fieldwork. Smith's map is a travel text in this sense, as a record of over decades of surveying much of Britain. It is also a creative tour de force:

in hand-tinted frills of colour inching across the paper that depict what lies beneath the earth's surface, the map makes it difficult to see where science ends and art begins. And Smith's map brims with narrative beyond the history of its composition, in its paratexts, in supplementary writings published separately, and in later iterations of the 1815 map and other diagrams.

Sheet number six of the map contains a small inset image [fig. 2] adrift in the North Sea, here labelled the 'German Ocean'. This image, titled 'Sketch of the Succession of STRATA and their relative Altitudes', offers a geological cross-section left to right, west to east, from the slate and granite mountains of Snowdonia, through the coal tracts and chalk hills, ending at the plains of the Thames. Cross-section and panorama in one it narrates a journey in two dimensions, via a strangely flattened version of a landscape that looks (at its western end at least) vertiginous and colossal.

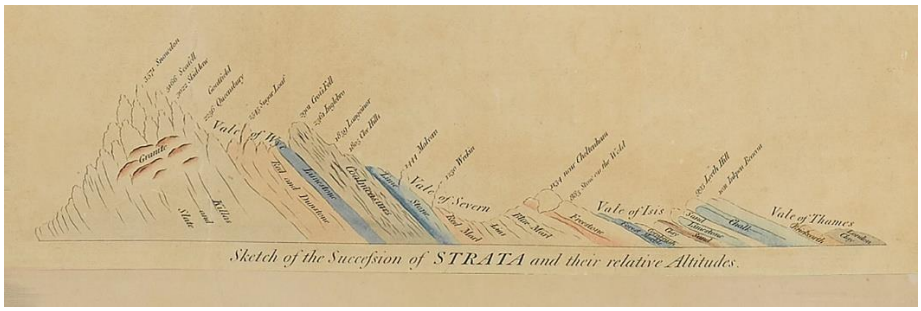

Figure 2. William Smith, 'A Delineation of the Strata of England and Wales, with Part of Scotland' (1815), detail ('Sketch of the Succession of STRATA and their relative Altitudes'). By permission of the Yorkshire Museum.

Another version of the same cross-section, dating from 1817, labels the western end 'London' [fig. 3]; this later version suggests a different account and perspective, not least in its title – 'Geological Section from London to Snowdon'. Contrasts in geological composition and in elevation across the lower half of the British mainland are visible in both of these slices through it. The title of the 1817 diagram invites the viewer to look from London to Snowdon; from the city to the mountain. And yet it also illustrates the asymmetry involved in this perspective, visual energy gathering to the left of the image and heading towards London's plains: from Snowdon to London, in spite of the title. As a result, the flattened imperial centre – 'the vale of Thames' – does not look particularly central in this image.

Instead, the height differences charted within the diagram (which are highlighted perhaps by the Western practice of reading left to right) dramatizes the remote but always potentially resistant energy of the geographical fringes.

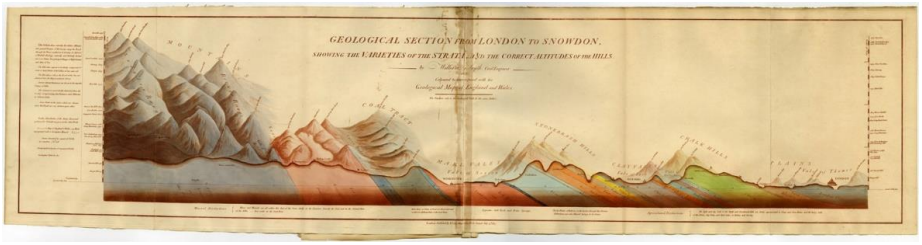

Figure 3. William Smith, 'Geological Section from London to Snowdon, Showing the Varieties of the Strata, and the Correct Altitudes of the Hills' (1817). By permission of the Oxford University Museum of Natural History.

The impetus behind Smith's map was largely economic and commercial as it was intended as a finding aid for coal and other minerals at the centre of industrialisation. But it was also a product of industry, since Smith acquired much of his knowledge of the emerging science of stratigraphy (which he did much to advance through his discovery of 'the importance of "guide" fossils for correlating rock strata') through his work as a surveyor for the Somerset Coal Canal Company in the 1790s.[12] Noah Heringman has shown, however, that Smith's contribution towards geology and knowledge production was not just economic, because his map and writings together 'give voice to a fundamental shift in the cultural status of rocks' (Heringman, 169). The aesthetic and commercial become inseparable in Smith's work partly through contemporary notions of sensibility and improvement set in mutually reinforcing configurations: 'Economic and cultural factors combine to permit the discovery of new fossil characters … These discoveries in turn appear to increase the stock of amalgamated wealth – economic, scientific, aesthetic, and moral – secreted in the rocks' (Heringman, 149). The far-reaching cultural work of Smith's map was also accompanied by more specific formal shifts. In his writings, if not explicitly in his map, Smith engineered a narrative turn for geology, representing rock strata 'as a text on which biological order inscribes itself' (Heringman, 169). For Smith, fossils are 'characters' in

a narrative stretching back through time and visible in rock strata; the landscape, or underscape, becomes both an economic resource and an imaginative one.

This sense of things falling together – rocks and invention, strata, archive and narrative – has been a central theme in studies of literature and science. Ralph O'Connor's influential account in *The Earth on Show* (2007) maintains it is 'not that science and literature enjoyed a fruitful relationship, but that scientific writing *was* literature'[13] This general starting point has opened up provocative specific arguments, such as Tom Furniss's recent reading of Romantic poetry in the context of eighteenth-century earth science. Discussing the Scottish geologist James Hutton in relation to Wordsworth and Coleridge's contemporary development of a theory of nature, Furniss argues that '[w]hat we are beginning to call "Romantic science" can no longer be seen merely as the backdrop or foil to Romantic poetry but as part of a much more extensive Romantic cultural formation that has more continuities with the Enlightenment project than is usually recognised.'[14] Noah Heringman similarly sees no meaningful separation between literature and the material world in a comparison of William Smith and Shelley in works such as *Prometheus Unbound* – a pairing that illustrates that how, 'as a scientific paradigm, the rock record achieved its currency through a geological mastery of literary technique' (Heringman, 189-90).

There is, however, a further step in the connections between strata, narrative and text in travel writing, in which the text-like rock record is channelled into actual textual form. Travel writing has been historically much more authoritative than it is today, not least on matters of science or ethnography, as Carl Thompson has pointed out (Thompson, *Travel Writing*, 32). But manuscript works present some different perspectives, and challenges. The intractable question of definition arises at a practical level in the case of geological accounts that exist only at the level of field notes, as in Darwin's compressed and sketchy description of his 1831 tour of North Wales with Adam Sedgwick, Cambridge Professor of Geology, shortly before he joined the *Beagle* as naturalist and geologist. Darwin had previously travelled through north Wales on numerous occasions, and acted as something of a guide to Sedgwick, who was not familiar with Wales.[15] Shropshire and Wales played crucial roles in Darwin's early scientific education – these landscapes formed, for example, the subject of his first attempts at geological mapping.[16]

Darwin's 1831 tour is a 'descriptive … deductive and speculative' account of the landscape, determining places by means of their physical, geological characteristics: 'Abergele. Very cold and excellent springs break out about the town; this I should think was owing to the strata being broken, as might be expected from this great dip; & the water coming down from the mountains between the strata would be forced upwards.'[17] Yet this account contains significant gaps, in addition to its fragmentary scientific style, and at times Darwin's itinerary has to be reconstructed (even conjectured) from incidental and/or internal detail.[18] This pattern of earth science, travel and fieldwork as a school for the naturalist is a familiar one in the period. Like Darwin, Thomas Pennant's earliest experiences of natural history came in the fields of mineralogy and geology, though his first scientific expeditions took place not in Wales but in Cornwall, where he met and was much inspired by the antiquarian and naturalist William Borlase, and then Ireland, where he made a 15-week tour in the summer of 1754.[19] The text of the still-unpublished Irish tour comprises 'a practical working document which concentrated upon geological interests such as visits to mines and quarries and the provenance of particular specimens', in an account that gives geology a rightly formative role in Pennant's later career as a natural historian (Evans, 17).

By the time he began touring Scotland in the late 1760s, Pennant's style was one of careful scientific appraisal, wary of seeming to claim too much even though, as Tom Furniss has shown, he made some significant if under-recognised discoveries. The general neglect of Pennant in Scotland's geological story may, however, be linked to his characteristic style when describing the landscape, which tends towards suggestion rather than outright claim: 'Pennant does not go beyond … implied suggestion', in a 'cautious empiricism [that] mostly confines him to the precise description of present appearances'.[20] Scientific neutrality guards against unjustified speculation, and against the geological sublime – for the most part. It is in the Highlands, however, that he comes closest to owning the volcanic conjectures that Furniss sees as his pioneering contribution: 'I never saw a country that seemed to have been so torn and so convulsed: the shock, whenever it happened, shook off all that vegetates' (Furniss, 'As If Created', 177, 167). In this context, Pennant's observations on Glyder Fach in Snowdonia – which despite the publication dates of the Scottish and Welsh tours do not necessarily post-date his Scottish travels, as William Bingley might have guessed – both encapsulate a longer trajectory of

geological thought and knowledge, and represent an unusual moment in which the intensity of the scene being communicated ruptures the dispassionate, scientific narrative voice:

> Many of the stones had, bedded in them, shells; and in their neighbourhood I found several pieces of lava. I would therefore consider this mountain to have been a sort of wreck of nature, formed and flung up by some mighty internal convulsion, which has given these vast groupes [sic] of stones fortuitously such a strange disposition; for had they been the settled strata, bared of the earth by a long series of rains, they would have retained the regular appearance, as we observe in all other beds of similar matter.[21]

The neighbouring peak of Glyder Fawr continues this episode of stony sublime, in the layered and oblique manner than Furniss identifies in the Scottish tour. Without explicitly naming it, Pennant invokes the idea of geological deep time that was emerging in the second half of the eighteenth century, balancing perceptions of rocks as commercial objects (heavy metal ores, coal, slate) against the role of geology in revealing the history of the earth:

> The plain which forms the top is strangely covered with loose stones like the beach of the sea … Numbers of groupes [sic] of stones are placed almost erect, sharp pointed, and in sheafs: all are weather-beaten, time-eaten, and honey-combed, and of a venerable grey color. The elements seemed to have warred against this mountain: rains have washed, lightnings torn, the very earth deserted it, and the winds made it the constant object of their fury (Pennant, 155-6).

Moments such as these illustrate the narrative resources of the geographical fringes, hinted at in the composition of William Smith's maps and cross-sections. Pennant's vivid depiction of the Glyders places the rocks in a dynamic portrait of a specific location, and in a mysterious 'time-eaten' sequence of events. In Noah Heringman's important account, outlined above, Smith's map of the strata read like a portrait of a nation mainly because of its economic applications: his 1815 *Memoir* 'sets out to demonstrate that such a map is an object of "national concern"', the 1815 cross-section 'indicates the

national scale of Smith's project' (Heringman, 173). And yet the map also emphasises divisons of place. For Adelene Buckland, Smith's strata begin to define regionality for the nineteenth century, a process in which he was also involved via his geological county maps of Yorkshire.[22]

Smith himself was a marginal figure, never fully respected or accepted by the members of the Geological Society of London, though they did it seems plagiarise his work. In *Rocks of Nation: The Imagination of Celtic Cornwall*, Shelley Trower has recently explored the process by which the geological distinctions between places (granite, coal, chalk) make it possible to claim national and regional distinctiveness: rocks 'ground ideas of … difference', serving as spaces on which to build or project ideas of difference.[23] Imagined identification with rocks, and through them specific places, is possible, Trower explains, because rocks seem to exist outside or beyond time; as on the summit of Glyder Fawr chronological time slips away, leaving 'no vestige of a beginning, – no prospect of an end', as James Hutton famously pronounced in his *Theory of the Earth* (1795).[24] And the places in which observations are made cannot be discounted. In the early nineteenth century, identifying with regional rocks became the basis for a long-running dispute between Cornwall and London over who was best-placed to determine the geology of the far south west: provincial amateurs with detailed local knowledge or metropolitan professionals with an expert overview. Though he largely bridged the gap between centre and periphery through a succession of roles in London, the Penzance-born Humphry Davy seems to have sympathised with local particularity in his poetry and scientific writing in ways that 'contributed to claims of local distinctiveness and expertise, which developed in opposition to a growing professionalism centred in London' (Trower, 27).

Davy made a tour of north and mid Wales in 1802, in the company of his friend Samuel Purkis. What survives of their trip is not the technical note-taking of Darwin's visit with Sedgwick some thirty years later but an almost effortlessly (not to say relentlessly) sociable form of geological travel:

> Every mountain we beheld, and every river we crossed, afforded a fruitful theme for [Davy's] scientific remarks. The form and position of the mountain, with the several *strata* of which it was composed, always procured for me information as to its character and classification; and

> every bridge we crossed invariably occasioned a temporary halt, with some appropriate observations on the productions of the river, and on the diversion of angling.[25]

In Purkis's account, Davy embodies the inseparability of Romantic science and poetry, spontaneously breaking out into 'a beautiful impassioned apostrophe on the striking scene we had so recently witnessed … a kind of blank verse, highly animated and descriptive, at once poetical and philosophical' (Paris, 103), on their return to their Bala lodgings. This version of events comes thirty or so years after the fact, but Purkis's memory of climbing Aran Benllyn – 'We seemed to feel ourselves like beings of a higher order in a celestial region' (Paris, 102) – reflects Davy's enthusiasm in letters from Wales written at the time:

> North Wales has given me conceptions that I never had before of the great & sublime in Nature. A mountainous country is a fairy land in which new beauties rise with every change of scene; & in which the fancy is never satisfied.[26]

Heading next to the celebrated picturesque of the Hafod estate near Devil's Bridge, Davy portrays Wales as animated by history ('the country of the ancient Britons') as well as topography and science. But his ability to read the landscape in tandem with a sense of Welsh particularity reflects more general perceptions in the period in which Wales was both securely part of a united Britain and distinct from it – both more foreign and more familiar than Ireland or Scotland, as Mary-Ann Constantine has shown.[27]

Something similar might be said of William Smith's cross-sections, which depict the geographical fringes as physically earthed into the British nation and as somewhere over there; out there. The spectral stories of the strata map, and of Enlightenment and Romantic travel writing generally promise to be field-shaping in national literary contexts especially. It is clear that Pennant's tours are composite texts in several senses: layered up from multiple journeys across time, and from other voices via information exchanged with a diverse, European-wide set of correspondents. Knowledge work in this period was collaborative process, characterised by Linda Andersson Burnett as an 'ecology' with different 'strata', entered by participants at various levels according to their experiences and

specialities.[28] Burnett acknowledges that this is a model in which power is unevenly distributed, swayed by individuals' access to patronage or to print; but the advantages of understanding Pennant's interdisciplinarity and diversity are considerable. As Alex Deans and Nigel Leask have recently argued, 'reasserting the significance of Pennant's Welsh and Scottish tours … will address a much wider and richer field than might have been offered by a writer of more selective or conventionally literary propensities':

> This heterogeneity may have served to fragment, rather than concentrate Pennant's reputation in the post-Romantic history of travel literature. Yet at the current juncture, one might point out how this quality of Pennant's writing, by reflecting a broader ferment of different ways of thinking about places and their human and natural histories, chimes with contemporary efforts to emancipate political and economic discourse from the certainties of post-enlightenment anthropocentrism.[29]

Comparatively few visitors to Wales left accounts that cover the whole of the country: trips to either the north or south, or along the Wye Valley are more common. Although Davy's sometime student and assistant Michael Faraday made at least three visits to Wales (in 1819, 1822 and 1848), his 1819 tour stands out as a narrative that moves from the south coast to Anglesey, in a compelling scientific and social journey undertaken partly on foot. It is also characteristic of much travel writing from the period in its range, in a way that illustrates Deans's and Leask's comments on moving away from 'post-enlightenment anthropocentrism'. Faraday's tour was a fact-finding mission, intended to gather information on contemporary industrial practices in Wales, and he focuses on subjects such as rock strata, mining, and the copper industry. But his tour is also a kind of geological novel in a formal sense, with a first-person narrative (probably addressed to his sister), carefully paced and structured, balancing encounters and conversations against minutely-observed technical detail.

Faraday's tour runs westwards from London to Bristol and then south Wales. He picks out rocks and strata, as in this description of Monmouthshire: 'the sandstone strata are very beautiful. I rambled on the beach whilst the folks dined, not feeling inclined myself to do so, and found the rock to

be principally red and brown sandstone, intermingled in thin and thick strata'.[30] He notes kilns and rocks, varieties and layers of stone as he travels – limestone, haematite, gypsum – in vividly depicted industrial landscapes. So vivid and detailed are some of these descriptions that readers may feel Faraday is writing at the limits of his ability to represent what he sees. He encounters the industrial rather than geological sublime at Dowlais ironworks in Merthyr Tydfil, turning to a descriptive mode with a long literary tradition:

> men black as gnomes … flame upon flame … scorch[es] the air … the heat, the vibration, the hum of men, the hiss of engines, the clatter of shears, the fall of masses, I was so puzzled, I could not comprehend them except very imperfectly (Faraday, 24).[31]

As this passage suggests, there is sometimes very little narrative space between technical description and gothic horror; but as the son of a blacksmith (like William Smith before him), Faraday writes with a great deal of sympathy for labouring people throughout his tour.

There is no sign that he intended this work for publication, which remained unpublished until 1972. And yet Faraday is clearly aware of the pressures of narrative, and the need to organise and shape his writing, directly addressing them within the text. 'A journal always contains something monotonous', he reflects, almost exactly half-way through the text, going on to describe travel writing as a kind of inadequacy or ennui of form:

> I suspect that that which strikes me as monotony is a constant succession of day to day each division appearing to resemble the other in its former character though it differs from it in the incidents it contains … I shall be glad for my own sake to obviate it in some degree in this Journal of mine for on reading over a few pages of it just now I was mightily alarmed by its see-saw manner and turn-ti ti-turn progress. Now in the way of experiment I think a good mode of diversifying it will be to imagine myself writing to someone for there is scarcely a chance of the style remaining the same though it may remain bad and so now My Dear Margaret I will suppose myself scribbling to you (Faraday, 58).

Faraday's tour is a good example of how travel writing can unexpectedly oscillate between styles: from detached, neutral observation intended to relay information to more individualized, emotional, local or inward perspectives. His pages-long description of copper mining and processing on Anglesey, in which he and his companion Edward Magrath put on miners' clothes and travel several hundred feet underground, culminates in a psychodrama in miniature back on the surface. Remerging from the mine, Faraday describes the water being used in the extraction process:

> When the water first runs from the tank it is of a fine red colour from the per-sulphate of iron it contains. The pools which receive it and the rivers it forms in passing to the harbour, look as if filled with blood. In the harbour it soon becomes diluted by the sea but the rocks to a great distance are stained by it (Faraday, 88-9).

This moment is not just a chemical spectacle, or even an environmental disaster – Parys Mountain remains a wasteland poisoned by copper, the river, Afon Goch, still red two hundred years later – but also a distillation of the human cost of the mines.[32]

In a later period of rising Welsh national consciousness, R. S. Thomas would substitute blood for English Romantic tourist watercolours in 'Welsh Landscape' (published in 1952), as M. Wynn Thomas has pointed out:

> To live in Wales is to be conscious
> At dusk of the spilled blood
> That went to the making of the wild sky,
> Dyeing the immaculate rivers
> In all their courses.[33]

The only other mention of blood in Faraday's text is a glancing reference just outside Machynlleth in mid Wales, where he is having considerable difficulty following a guide who speaks very little English:

> He led us directly North up and down, up and down the whole way, the hot burning sun striking upon our heads and not a breath of wind to refresh us.
>
> The water that ran down the hills too was peaty and the long stinging flies of the country tormented us frequently, drawing blood (Faraday, 60).

This passage comes from an uncomfortable section of the tour in which Faraday travels an almost exclusively Welsh-speaking region, finding himself in an Alice in Wonderland-like scenario in which the answer to all questions is 'yes'.[34] In this wider context, his sudden vision of blood on Anglesey some pages later reads as a moment of uncontainable textual pressure, in which his attempt to ventriloquise the experiences of the miners fractures the technical, scientific character of the narrative.

There is perhaps a class dimension at work here as well as a national one. In Thomas Pennant's tours of Scotland and Wales, the sublime of ageless rocks breaks through his 'sparse', occasionally 'research-heavy' style (Deans and Leask, 167), while the textual disturbances in the labouring-class Faraday's (admittedly freer and more novelistic) tour are social as well as scientific. But as Deans and Leask have shown, Pennant brings all regions and themes into his representation of Scotland, crossing borders of language and culture through a combination of travel and correspondence. Beyond the individual tour, an enlarged and still-expanding archive of Romantic travel can begin to be interpreted collectively as a composite of places, people, technologies of travel, environment, sublime or picturesque aesthetic theories, encompassing all aspects of material, creative, intellectual and commercial culture. Layers of everyday repetition generally characterise that archive, but so do exceptional moments of things 'fall[ing] together' within or between individual texts.

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[1] Grevel Lindop, 'Suffolk', *Luna Park* (Manchester, 2015), 18.

[2] Carl Thompson, 'Journeys to Authority: Reassessing Women's Early Travel Writing, 1763–1862', *Women's Writing*, 24.2 (2017), 131-15.
[3] Carl Thompson, *Travel Writing* (London, 2011), 1-2, 26.
[4] Katherine Turner, 'Women's Travel Writing, 1750-1830', in Jacqueline Labbe (ed.), *The History of British Women's Writing, 1750-1830. Volume Five* (Basingstoke, 2010), 47-62.
[5] William Bingley, *A Tour Round North Wales, Performed During the Summer of 1798* (London, 1800), viii.
[6] Christopher Meredith, 'Borderland', *Air Histories* (Bridgend, 2013), 8 (original emphasis).
[7] See Peter Lucas, '"A most glorious country": Charles Darwin and North Wales, especially his 1831 geological tour', *Archives of Natural History*, 29.1 (2002), 1-26, 20 ['Appendix'] for a list of Darwin's visits to Wales, 1813-1869.
[8] Charles Darwin to William Darwin Fox, 4 September 1843, Frederick Burkhardt and Sydney Smith (eds), *The Correspondence of Charles Darwin: Volume 2, 1737-43* (Cambridge, 1986), 387.
[9] Quoted in Lucas, 'A most glorious country', 20.
[10] For an account of the development of the term 'rock record', see Noah Heringman, *Romantic Rocks, Aesthetic Geology:* (Ithaca and London, 2004), 161-90.
[11] Simon Winchester, *The Map that Changed the World: A Tale of Rocks, Ruin and Redemption* (London, 2002), 13.
[12] Heringman, 163. Smith also worked as a mine surveyor, quarry manager and drainage engineer at various points in his work preparing the map – see Winchester.
[13] Ralph O'Connor, *The Earth on Show: Fossils and the Poetics of Popular Science, 1802-1856* (Chicago, 2007), 13 (original emphasis).
[14] Tom Furniss, 'A Romantic Geology: James Hutton's 1788 "Theory of the Earth"', *Romanticism*, 16.3 (2010), 305-321, 307. See also Tom Furniss, 'James Hutton's Geological Tours of Scotland: Romanticism, Literary Strategies, and the Scientific Quest', *Science and Education*, 23 (2014), 565-88.
[15] On Darwin's 1826 and 1827 visits to Wales, which included climbing Snowdon, see Peter Lucas, 'Jigsaw with pieces missing: Charles Darwin with John Price at Bodnant, the walking tour of 1826 and the expeditions of 1827', *Archives of Natural History*, 29.3 (2002), 359-70.
[16] Michael B. Roberts, 'I coloured a map: Darwin's attempts at geological mapping in 1831', *Archives of Natural History*, 27.1 (2000), 69-79.
[17] Paul H. Barrett, 'The Sedgwick-Darwin Geologic Tour of North Wales', *Proceedings of the American Philosophical Society*, 118.2 (1974), 146-64, 149. See 155-64 for a transcription of Darwin's 1831 tour, and two of Sedgwick's letters to Darwin written in the course of their trip, part of which they spent apart.
[18] The itinerary of the tour is meticulously considered by Peter Lucas in 'A most glorious country'.
[19] R. Paul Evans, '"A Round Jump for Ornithology to Antiquity": The Development of Thomas Pennant's *Tours*', in Mary-Ann Constantine and Nigel Leask (eds), *Enlightenment Travel and British Identities: Thomas Pennant's Tours in Scotland and Wales* (London, 2017), 15-40, 16. The edited text of Pennant's unpublished Irish tour will appear in due course on the 'Curious Travellers' project website: see www.curioustravellers.ac.uk
[20] Tom Furniss, '"As If Created by Fusion of Matter after Some Intense Heat": Pioneering Geological Observations in Thomas Pennant's *Tours* of Scotland', *Enlightenment Travel and British Identities*, 163-181, 167, 169.
[21] Thomas Pennant, *A Tour in Wales* (1784, 2 vols; Wrexham, 1991), ii. 152.
[22] Adelene Buckland, *Novel Science: Fiction and the Invention of Nineteenth-Century Geology* (Chicago, 2013), 132-4.
[23] Shelley Trower, *Rocks of Nation: The Imagination of Celtic Cornwall* (Manchester, 2015), 8.
[24] Quoted in Tim Fulford, 'Romancing the Stone: Coleridge and Geology', *The Coleridge Bulletin*, 37 (2011), 36-47, 44.
[25] John Ayrton Paris, *The Life of Sir Humphry Davy* (London, 1831), 102. Original emphasis. I am grateful to Tim Fulford for this reference.
[26] Humphry Davy to John King, [?Bala], 1 September 1802, in John Davy (ed.), *Fragmentary Remains, Literary and Scientific, of Sir Humphry Davy* (London, 1858), 67.
[27] Mary-Ann Constantine, 'Beauty Spot, Blind Spot: Romantic Wales', *Literature Compass* 5.3 (2008), 557-90.
[28] Linda Andersson Burnett, 'An Eighteenth-Century Ecology of Knowledge', *Culture Unbound*, 6 (2014), 1275-97, 1294.
[29] Alex Deans and Nigel Leask, 'Curious Travellers: Thomas Pennant and the Welsh and Scottish Tour (1760-1820)', *Studies in Scottish Literature*, 42.2 (2016), 164-172, 171.
[30] Michael Faraday, in Dafydd Tomos (ed.). *Michael Faraday in Wales, including Faraday's Journal of his Tour through Wales in 1819* (?Denbigh, 1972), 22.
[31] Adelene Buckland addresses uses of the gnome figure in underground settings from Pope to Charles Lyell in 'Geology', in John Holmes and Sharon Ruston (eds), *The Routledge Research Companion to Nineteenth-Century British Literature* (Abingdon, 2017), 257-70.

[32] Fears over the impact of pollution via Afon Goch (literally 'red river') remain current – see http://news.bbc.co.uk/1/hi/wales/north_west/3734326.stm <accessed 30 June 2017>

[33] R. S. Thomas, 'Welsh Landscape', *Collected Poems 1945-1990* (London, 1993), 37. M. Wynn Thomas, 'The Ley of the Land: R. S. Thomas's Places', *Wales Arts Review* (2014) http://www.walesartsreview.org/the-gregynog-papers-9-the-ley-of-the-land-r-s-thomass-places/ <accessed 4 July 2017>

[34] 'They knew no English but "yes" and as our question were for simplicity put thus "right for Machyleth [Machynlleth]?" pointing at the same time along the road we fancied right we generally got the above word as our answer right or wrong. If we repeated the question pointing another way it was still *yes* and on our still hesitating and wishing to have some other proof they spoke with understanding it was either "Yes inteet" or "Dim Sasnach" [no English].' Faraday, 59 (original emphasis).