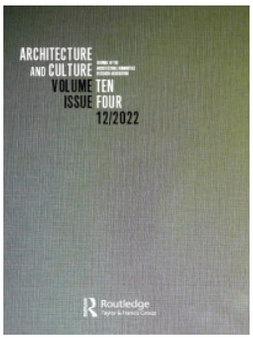

Architecture and Culture

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rfac20

Mythical Past, Infinite Future: A Journey into Britain's Energy Coast

John Scanlan

To cite this article: John Scanlan (21 Mar 2025): Mythical Past, Infinite Future: A Journey into Britain's Energy Coast, Architecture and Culture, DOI: 10.1080/20507828.2025.2463703

To link to this article: https://doi.org/10.1080/20507828.2025.2463703

© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

Published online: 21 Mar 2025.

Submit your article to this journal

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=rfac20

OPEN ACCESS

ARCHITECTURE AND CULTURE

John Scanlan
University of Central Lancashire, Preston, UK
JScanlan1@uclan.ac.uk

Keywords: landscape, time, memory, nuclear power, future

Check for updates

Mythical Past, Infinite Future: A Journey into Britain's Energy Coast

John Scanlan

ABSTRACT This article explores the ways in which time and change have defined West Cumbria, a little known and overlooked region that is characterized by both an attachment to a mythologized past and an openness to a future that, from a human perspective, might as well reach to infinity. This condition has arisen primarily because of West Cumbria's native industries and from the way that its geology and geographical location have shaped it into its present form and allowed it to brand itself as 'Britain's Energy Coast.' The region is further seen as dynamic and fluid when set against the image of place that most people who live outside it would be familiar with, which is associated with the Lake District National Park, a landscape that by contrast to the coastal region of Cumbria may seem to be timeless and unchanging.

pp. 1–24
DOI:10.1080/20507828.2025.2463703

No potential conflict of interest was reported by the authors.

© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (http://creativecommons.org/licenses/by-nc-nd/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

Routledge
Taylor & Francis Group

Introduction

On the western extremes of the Lake District lies the relatively unknown coastal region of Cumbria, which exists between the natural constraints of a roughly 100 mile long coastline and the landscape of the Lake District National Park.[1] In recent decades, the region also became known – or branded itself – as Britain's Energy Coast, a designation that refers to the concentration of industries and

resources that have seen it, in recent decades, portray itself as a place where innovations in "low carbon nuclear and renewable energy provision" aim to not only make the region economically sustainable, but also contribute more widely to the development of environmentally sustainable methods of energy production.[2]

The economic viability of the region, particularly before nuclear industries took root in the mid-20th century, seemed at certain points in its history to have been placed in doubt due to the decline of coal and hematite mining and iron production, whose origins could be traced back to the 18th century growth of the region's main centers. This sometimes precarious past, which brought the region to the verge of nonexistence, also seems to be underlined by its peripherality, which is not merely geographical in nature, but perceptual: it is and has been obscured by the existence of the very idea of Cumbria as "Lakeland", a notion that has long supplied the prevailing image of the broader region in the popular imagination (a more recent arts initiative that goes under the name Deep Time even designates it as the "Lake District Coast").[3] On the other hand, it can be argued that, because of the nature of its relationship to the 'other' Cumbria of the public imagination, the coastal region – of relatively little interest to tourists – was able to define itself as a place that both tried to and could not help but follow a path of ongoing industrial development that continues to the present day (Figure 1).

The Energy Coast comprises not only its most well-known landmark, the site of several former nuclear installations known today as Sellafield – which now absorbs and reprocesses (i.e., extracts energy from) spent nuclear fuel from around the world that is itself the waste product of energy consumption – but also a high-tech research sector focused in part on the development of renewable and low carbon energy.

The region is also bounded by major offshore wind farms (wind being an abundant resource) and other infrastructural elements, including technical educational institutions which help to define the cultural aspects of the region as one that thinks in terms of energy. Yet, with the passing of time the more pressing issue that the region faces is how to deal with the consequences of Sellafield, whose current purpose and future legacy entail dealing with the uncertainties of managing wastes that require to be contained for at least 100,000 years, a timescale far in excess of any conventional understanding of time that is relatable to the human experience of temporal duration.

Pasts

Several miles from the coast, occupying land that reaches toward the edge of the Cumbrian fells, is the town of Cleator Moor. Along with a cluster of smaller neighboring villages – Frizington, Moor Row, Bigrigg amongst them – it rose up in the mid-19th century to accommodate the incomers who were arriving in large numbers to work in the many mines that would eventually spread across this landscape, where the high-grade

Figure 1
A view of the mountainous Lake District in the background from Workington marina on the Cumbria coast. Photograph by John Scanlan (author).

iron ore that had been discovered by local landowners and iron masters was extracted.[4] Through the 20th century these towns and villages, like much of West Cumbria, suffered the effects of decline as mining slowly began to disappear and populations gradually thinned out.

At its peak, the West Cumbria iron industry drew people in from all directions – from places like Cornwall, Scotland, the Isle of Man, other parts of England and especially Ireland – during a population explosion that was so sudden, remarkable and focused upon one goal that it was compared to the California Gold Rush of the mid-19th century. What the people who came to live in these places ended up digging for, though, was not gold but hematite. This was the mineral – as highly sought after and valuable as the Californian gold – that would be used in the iron and steel production that West Cumbria would become famous for in the 20th century. While the smelting of iron in blast furnaces had taken place in several locations around present-day West Cumbria from the early 18th century – in places such as Little Clifton, Maryport, Seaton and, indeed, Frizington – this was before the revolutions of the 19th century had led to technological advances in iron production that to all intents and purposes moved industry in its entirety onto a different plane.[5]

From the 19th century onwards the volume of iron produced during the process of rapid industrialization that spread across the world

was of a different order of magnitude – measured in the hundreds of thousands of tons rather than hundredweights – to what had existed before, and due to the development of new production processes, it would "tip the balance of material civilization" as the human world was refashioned with the help of iron, steel and other metals.[6] What was taking place in West Cumbria, in other words, was part of a development – "the event of events" in modernity's acceleration, in the words of historian Fernand Braudel – that might have spawned entire histories of the role of iron in the evolution of humanity, if historians had not been so preoccupied by the stories of kings and queens.[7] The deposits of hematite in West Cumbria were of the highest grade in the British Isles and fed directly into the processes developed by engineer and inventor Henry Bessemer to produce steel in West Cumbria directly from pig iron using the converter that he developed and which set the standard in steel production until the middle of the 20th century.[8]

Ordnance Survey maps from the turn of the 20th century show West Cumbria as a place pockmarked with mines and linked by a network of railway lines that had been built to move "the vast output of iron ore, coal, limestone, and pig iron" that poured out of its countless mines, quarries, and blast furnaces.[9] In Cleator Moor – the largest town in the iron ore field – it was once said that in every garden there was an iron mine. If that sounds like an exaggeration, it was nonetheless true that buildings and churches were uprooted and relocated to allow mining to continue and that entire streets inhabited by miners and their families were dangerously undermined by the tunneling and digging going on. It was not unusual, indeed, for houses to collapse as miners moved beneath the surface in search of the red stuff.[10]

Cleator Moor, in a nutshell, was "built for iron, on iron, surrounded by iron and, eventually, almost destroyed by iron."[11] As mining historian Dave Kelly has written, "the iron deposit was so near the surface that the people living in the houses above could hear the blasting beneath them and feel the vibrations."[12] Yet daily life, and the work of mining, went on regardless (Figure 2).

Beyond its peak years in the mid-to-late 19th century, hematite mining had shrunk into particular locales and continued on a much smaller scale well into the 20th century. The Cleator Moor-born artist Conrad Atkinson recalled growing up in a place that had been "coloured by the vast hidden body of iron ore under the town," which inevitably made its way above ground and into the air people breathed and, indeed, the cultural atmosphere of the town.[13] There were "paths lined with crystals from the mines, crushed red gravel on the footpaths through the town" and "doorstops of polished hematite beside the reddened doorsteps."[14]

The iron ore field came to be associated with the color red because of the visible evidence of hematite so close to the surface, which today is still in evidence at the site of the former Florence Mine, a few

Figure 2
Detail from an Ordnance Survey map, showing part of Cleator Moor, its mines and railway lines. Reproduced with the permission of the National Library of Scotland under a Creative Commons Attribution (CC-BY) license.

miles west of Cleator Moor, where the ground itself is red and leftover piles of the stuff are now used by the arts center that occupies the site to make its own Egremont Red watercolor pencils (Figure 3). Indeed, long before it had been used in the production of iron, hematite had been mined for its artistic uses for millennia. Traces of hematite are found in the oldest known cave paintings such as those discovered in the 20th century at Lascaux in France, as well as in the canvases of more modern painters. The latter produced red paint by grinding the hematite "with mortar and pestle into a fine reddish powder", which was then "mixed with feldspar, vegetable oils, or animal fats, to give it different shades."[15] Atkinson, the Cleator Moor artist in the making, was struck by the color: he thought of the miners he grew up amongst as "the redmen," who could be seen arriving home from work with their clothes transformed by the fine red dust "into glittering fine silk" as if they were wearing "postmodern haute couture as they walked home with lungs filled with dust through a landscape permeated with red", and sometimes armed with "red offcuts of pit props" to stoke the fire at home.[16]

Industrial West Cumbria left behind not only sites where the land had been mined for iron and coal until it had been exhausted or was no longer economically viable, but also examples of its own architecture in the form of the terraced cottages that are scattered in the many towns and villages that were formerly related to mining, creating a distinctive atmosphere that lingers in many of its streets and districts. These can often strike one as like the remains of some vanished world. During my own research into the character and identity of West Cumbria, I began to

Figure 3
A hematite store at the site of the former Florence Mine, Egremont, where today an arts center occupies an old site building and where this hematite is used in the production of "Egremont Red" watercolor pencils. Photograph by John Scanlan (author).

see how that past had made those streets and houses, and how they, in turn, like other examples of unique places around the world, could be understood to "concentrate and miniaturise" their own universe.[17]

In certain places, these houses, often laid out in long unbroken rows that enclose narrow streets on both sides like some roofless tunnel into centuries past, offer not only the most striking examples of a unique local adaptation of what we think of as the standard 19th century terrace, a structure common across the towns and cities of industrial England, but also, more broadly, of the house as world.[18] The house as the living space in which we grow and age, in other words, becomes a "microcosm" of "settlement and inhabitation."[19] It tells its own story about why people ended up in these places.

These miners' cottages can be seen standing in uniform rows near the places where hematite and other minerals were dug out of the ground. They are often closely grouped together into several streets, and in places they can be found running in single rows – like the last remaining relics of a city that has vanished, leaving only countryside around them – alongside busy roads. The main outward and observable difference between these terraced rows of houses and their counterparts elsewhere in the country is that, to help protect the houses from the

Figure 4
Cleator Moor cottages on Trumpet Terrace. Photograph by John Scanlan (author).

elements, it was local practice to treat outside walls with render and finish off the exterior with certain details (Figure 4).

It is common to see the frames of doors and window presented in muted colors, which often seem to have been chosen to vary the pattern with neighboring houses. In Millom, another iron town further south on the Cumbria coast, which rose from almost nothing at around the same time as Cleator Moor, there is a similar attachment to the use of color highlights on the exteriors of terraced rows, although untreated surfaces are more common there.

In these towns and villages, the sense of encountering what once must have been a world in miniature is not so much the result of the imagination almost imposing spatial constraints - as envisioned by the Millom poet Norman Nicholson - as it is about the objective existence of places as cultural landscapes. While Nicholson saw little to be imagined both “eastward beyond the western fells” that locked Millom in and oppositely in “the oceanic perspective westwards”, the status of these places as cultural landscapes was a consequence of how they came to be “organically related to their environment” in such a way that they could be said to have transformed nature into place.[20]

All of which is to say that these places and their communities were inseparably bound together in almost all aspects of life simply

because they sprang into existence together, at the same time. This fact, along with West Cumbria having a sense of "being a world apart" was "much strengthened by its history of endeavour to secure its own industrial future."[21] The relationship between past and future might be understood in terms of Maurice Halbwachs's concept of collective memory, which stresses how a group or community and its sense of place are mutually constitutive. "The succession of our remembrances, of even our most personal ones," Halbwachs wrote, "is always explained by changes occurring in our relationships to various collective milieus – in short, by the transformations these milieus undergo separately and as a whole."[22] Following Emile Durkheim's idea of the *conscience collective*, where such collective representations are deemed to constitute a mythology, Halbwachs insisted that groups or communities carry an image of who they are that is made up of the intersecting relations between people and places over time, preserved and reinforced over time as a mythical self-image. That is to say that memory is not merely a psychological phenomenon, the possession of the individual, but rather something that is sustained in the present by groups of people who occupy certain places and whose experiences intersect or mesh in such a way as to reinforce a self-image that ties groups to their physical environment. There was no deep historical past in the industrial communities of places like Cleator Moor, but only the beginning and foundation that was industry, mining, and the desire to remove the red stuff from the ground. That fact, on the face of it, would seem to distinguish the towns and villages of the West Cumbrian iron ore field, along with the town of Millom, from the traditional patterns of life that the first inhabitants to arrive here – industrial migrants – might have known in their homelands. It made these people, as sociologists of modernity would have it, not just exiles in a strange place, but people who embodied the idea of history as itself one of change and uncertainty.[23] Today, images of that past are found everywhere around West Cumbria in the form of monuments and figures of miners commemorating this shared history, including sculptures by Colin Telfer (commissioned for the Millennium by local councils) that are made from iron ore dust and resin, and Conrad Atkinson's steel Miner's Monument (1988), one piece of which is inscribed with words that link place and memory with the industry that gave form and content to both (Figure 5).

In West Cumbria, the terraces that linked the homes of its miners were slightly different from those found in other parts of England. In fact, in many places they pre-dated terraces elsewhere that were built according to the so-called 1871 Bye-Law Housing Act, which imposed common standards across the country. The West Cumbrian terraced houses not only look different on the exterior because of the addition of color highlights and because they are often built from local stone (as opposed to brick), but they also differ in scale and dimension; as such, they are entirely unique to this place, and possibly even unique in design

Figure 5
One of many figures of mineworkers to be found around West Cumbria, this one stands in Millom town square. Photograph by John Scanlan (author).

and dimension to the mine proprietors who built and owned them in order to house their workers. In other words, there is a sense of such houses existing and reflecting an entire political, social and economic lifeworld unique to its place. Of course, the same might be said of many (or most) industrial communities – from 18th-century mills to 19th- and 20th-century industrial towns and cities – that gradually become complete worlds in themselves whose center was the house; a house whose architectural form was directly related to "its economy, society and politics."[24]

The miners' cottages that can be seen around the places of West Cumbria today were located in close proximity to the land where the area's riches were dug from the ground. In fact, you can almost guarantee that where you see a row of these houses, perhaps incongruously standing by a road that runs through the middle of open land, there was once a mine there, within walking distance of the workers' homes.

Present

From the 18th century onwards, and largely thanks to the influence of Romantic figures of the period such as William Wordsworth (born in Cockermouth, a town situated between the Lake District and present day West Cumbria), the Lake District became known as one of the great locations to experience the 'agreeable horror' of nature, something we now describe as an aspect of sublime experience. The idea of the sublime as it was understood by Enlightenment thinkers such as Edmund Burke and Immanuel Kant revealed a new dimension of human finitude that could be encountered at the limit between the human and natural worlds; here spiritual enrichment might be fed by feelings of fear and awe that were experienced in the encounter between the individual and the non-human dimensions of a terrifying natural world.[25]

This was an age during which an apparent existential flip-flop from light into darkness, reason into fear, transformed the perception of places like the Alps from a spectacle of 'holy terror' in the 17th century to a tourist destination where one might experience rather different and extreme sensations – soon culturally established as a new kind of pleasure – a century later. What this meant was that natural landscapes that corresponded to ideas of the life-threatening remote wilderness became, for the first time – thanks to the influence of Romanticism – objects of aesthetic contemplation.[26] In other words, there was beauty in vast, untamed, terrifying nature, and the landscapes of places like the Lake District would become a destination that could compete with the Alps.

If this reveals anything more generally about how perceptions change places, it is that esthetic pleasure is to be found in places or in experiences that might at first seem unlikely. As times have changed and people have sought out esthetic experience through countless means, the value attached to a now traditional object of esthetic contemplation, such as landscape, can be made more complex or ambiguous. In fact, almost

any encounter that can reveal the darkness or obscurity, or the depthlessness and immeasurability of the world around us, could be said to be partaking in one or other of several definitions of the sublime. But even for those who preferred something more relaxed than climbing great heights in contemplation of the terrifying beauty of nature, it offered an escape from the noise, dirt, and stress of the everyday world.

The landscapes of West Cumbria, by contrast, presented something else entirely. Rather than the open space, clean air and elevated viewpoints afforded by the Lake District, West Cumbria was a place darkened by smoke, soot, grime, and pollution. While much smaller in scale than the industrial regions of England's North East and Midlands, it contained countless mines, probably numbering in the hundreds, ensuring that here, as elsewhere in industrialized parts of the country, a whole underground world was opened to people whose occupations took them into darkened and enclosed spaces.

Traveling now between east and west Cumbria, the contrast between the two parts suggested the opposite ends of a temporal spectrum that was quite uncertain in its extent, whether one looked at what seemed to be the apparently unchanging landscapes (the Lake District) or the always changing parts and the future-orientated sites of energy technology and innovation (West Cumbria) (Figure 6).

It was a journey that felt like a movement from the eternal and immutable to a place that seemed to have been in continual flux for its entire existence; a place that exhibited much more of the fabric and messiness of a human history that churned through time and plundered the very land it settled itself on without much concern for how it might preserve its own past. West Cumbria, it seems, had always been a dynamic, expanding place, a human shaped world that, by contrast with the other Cumbria, pointed toward the future. Through time and change, and as economic currents ebbed and flowed since the 16th century, it had become more temporally layered, as it tried to shape itself to fit an uncertain future, often balanced precariously between existence and nonexistence.

What lies within the bounds of the Lake District, of course, is no less a landscape shaped through all kinds of human use and intervention. It too has its own history of smaller-scale manufactures that pre-dated modern industry, but it is nonetheless preserved to reflect an image of a particular kind of place: an image that dates from the 18th century and from the Romantic discovery of wild, sublime, spiritual nature. By the very nature of its topography and landscape, and of course because it has remained sparsely populated, it appears at first sight to be one of those unchanging places, akin to the imagined landscapes of a lost paradise that was for long a feature of romantic painting.

As elsewhere in the Western world, the gradual eclipse of heavy industry and an economy centered on coal and steel production left behind scattered relics where mineworks once existed, now in many

Figure 6
An information board that forms part of a route around Westlakes Science and Technology Park – one of the many research and education sites in West Cumbria concerned with energy – that illustrate the various forms of energy that power our lives. Photograph by John Scanlan (author).

cases icons of a new landscape of heritage and avatars of cultural memory. In West Cumbria, the economic shock of this change was eased by the development of the nuclear industry and by regeneration policies that were implemented far and wide as the country moved into the uncertain 1970s and '80s. The nuclear industries that were developed here and elsewhere in the world during the 20th century to produce electricity and atomic weapons were significantly less visible in terms of their operations and effects, and not typically located adjacent to urban settlements. Instead, what people saw and heard were images and ideas about the shape of a coming "Atom Age" of human civilization. This was the time when the first waves of what newspapers referred to as the "Atom Men" moved into West Cumbria. These were "quiet men with craggy brows and thoughtful eyes, with portfolios full of notes and heads full of world-shattering ideas" who had unveiled the future to come, said *Illustrated* magazine in 1955.[27]

Here, in the place that was built over and had excavated the energy source of the first industrial revolution – coal – the new future

would be established on the promise of cheap and abundant atomic energy. Its uses were seen in product advertisements of the time, featuring smiling housewives preparing meals on the electric hobs that would now be found in the sparkling kitchens of tomorrow. The future that was projected in such visions was not the long-distant, incomprehensible and far-off future, but rather a tomorrow that was just around the corner.

In economic terms, the region's principal nuclear industries, associated with Sellafield on the Cumbria coast, have largely replaced the older industries that grew up here specifically because of its location, and also found their place here because of the peripheral location and its proximity to the sea and other "large sources of cooling water."[28] Facing the Irish Sea to the west, it benefited also from the damming of Ennerdale Water in the 1940s, a scheme that was designed to supply drinking water to the expanded population of West Cumbria, but also made water available to the nuclear operations on the coast. This was just one of many contested technological incursions into the Lake District that were intended to improve life and work of the population of the coastal areas.[29] Indeed, from the erection of power lines and the creation of a new water supply to the roads that cut across the landscape, it is remarkable to consider how far the industrial west coast extended itself into the managed landscapes of the Lake District National Park.

Today, the UK government website for Sellafield refers to the plant both as a place where the reprocessing of spent nuclear fuel takes place and as a "town" with 10,000 inhabitants, its own emergency services and police force, who occupy the site every day of the year around the clock.[30] Indeed, had Sellafield been a 19th-century industrial plant responsible for the same number of livelihoods (directly and indirectly) as it is today, it would have been surrounded by a small city: one that would be large enough to accommodate not only its workers – who would have lived without the kind of geographical mobility we enjoy today – but also their families, dependent industries, ancillary services, outlets for leisure and entertainment and everything else that urban life typically offers.

Sellafield's dominance over the economy of this region is made manifest in some peculiarities, particularly in relation to its rental housing market. It is not unusual to see references to villages near Sellafield as "bedroom communities" or "dormitory towns/villages" for nuclear industry employees. The term "bedroom community" as used in this local context seems to mean quite the opposite of what it meant in its original American context, where it refers to commuter towns that have no major center of employment and are satellites of nearby cities.[31] That is to say, in its conventional usage, the "bedroom community" describes a place where people live with their families; the place that they call home and from which they travel to their place of work, located a train or car ride away.

"Bedroom community" has almost the opposite meaning in West Cumbria. Here it is not unusual to find "bring your toothbrush only" homes (as one letting agent described them to me), outfitted essentially like holiday homes, complete with bedding, furniture, kitchenware, giant TV screens and entertainment systems. In other words, there exists a market in *homes from home* that have everything you might need to ensure you can exist and work in the region without uprooting yourself and settling here, an arrangement that caters to the many temporary contract workers pulled here from other places, who are in some bizarre sense counterparts to the visitors of the Lake District – they are here for a while, then leave.

West Cumbria constitutes a kind of dispersed and micro urban region made up of several towns, which exist together yet at the same time hold on to their own distinctive character and identity. The West Cumbria that extends beyond Sellafield and the site of Drigg, a few miles south – "graveyards" for nuclear waste – today seems to wind back the clock.[32] The traveler passing through these places might feel as if they are going backwards in time into a place that looks and feels much like the towns and villages found in the Lake District national park. But there on the coast at Sellafield, somewhere within buildings that have risen around activities that remain mysterious from the outside, the work will proceed silently and out of sight for another century or so until the site is finally decommissioned. The only visible and tangible evidence of it as a place is its presence as you pass through on the coastal train or as you drive close by (Figure 7).

If you are lucky to be traveling south at the right time of day in the autumn or winter months before dusk becomes night, you'd be surprised by the remarkable sight of endless streaming traffic pouring out of tree-lined farmland in an unbroken single line when the Sellafield shifts change over. The procession of paired headlights can be seen snaking slowly in the darkness all the way from the plant to Whitehaven and then beyond, until they have dispersed, and the drivers return to their distant and unseen homes around West Cumbria and beyond.

What is also there is another more permanent sight, on the edge of the green fields where the land meets coast and sky: it doesn't simply occupy the skyline but takes on strange forms depending on the viewing angle or the time of day: a "Martian castle", as Paul Theroux wrote,[33] or, as darkness falls, a glowing presence that – in the words of local poet John Gibbens – takes on the appearance of "a city-sized battleship" moored at the edge of the land.[34]

Future

As the historian George Kubler wrote, where artifacts can be seen to have endured longer than "every living creature on earth" they take on an aspect of the infinite.[35] Such, we can surmise, will be the fate of some of the products of the human occupation of this region, whose future will

Figure 7
A view of Sellafield from the early 2000s, before many of the structures shown here were dismantled. The 'golf ball', more properly known as the Advanced Gas-cooler Reactor (AGR), was closed in 1981 and is still undergoing the process of dismantling that was estimated to last for 50 years. Photograph © Steve Allen, Dreamstime.com.

extend far beyond the existence of the built environment discussed above, and perhaps also the communities that occupy the place. West Cumbria might be described as a strange place, a place that does not reveal itself so easily, but it is perhaps unique in being at once ancient, medieval, modern and futuristic. In some places you will see evidence of prehistoric settlements: by the River Ehen at Beckermet, a hamlet close to Sellafield on the Cumbria coast, evidence indicates that around 4000 BC primitive humans had already begun to change the environment, burning areas of forest around their camps.[36] This trend toward modifying the human landscape is carried on in various ways throughout human history. Grey Croft Stone Circle, an arrangement of Bronze Age standing stones, sits in a field opposite the site of Sellafield, symbols of a time before history facing the modern in a location that was also close to a proposed nuclear power station planned by NuGen (also known as NuGeneration). Although available to view for several years as a simulated vision of one possible future, this 'Moorside' plan has now been

abandoned, ostensibly due to rising financial costs (Figure 8). Given the current climate of energy insecurity it would be wrong to assume that such plans – or alternatives proposing the building of mini-nuclear reactors – could not be revived, given the orientation of the region toward various forms of energy production as a future plank of its own economic sustainability.

One might also point to the planned resumption of mining (for coking coal, which is used in the production of steel) off the coast near the town of Whitehaven as another aspect of how visions of the future take shape, are presented or simulated, and then often seem to vanish; or, where they have been shelved, are revived at some later point in time. In the case of the Whitehaven mine, plans were first presented to the public at an open day in December 2017 where the town's mining past – otherwise commemorated in various monuments around Whitehaven – was forgotten, and replaced by depictions of "hi-tech remote operations that looked very different from the grimy photographs of coal mining and its disasters in the old days."[37] Any decisions made with respect to such mineworks could end up being as provisional as the plans for the Moorside nuclear plant and may depend on the government of the day, given the negative public perception of the enterprise outside of West Cumbria. The apparent support for the plans amongst some within West Cumbria can partly be explained by the economic benefits trumpeted by local politicians, but also by shared memories of "the coal-mining jobs that once infused family incomes, supporting local businesses", which of course forms an important part of the cultural memory and the history of communities that came into existence as predominantly mining communities.[38]

It is impossible to make sense of a place without realizing how it has been shaped by its history – but what of a place that seems to point to an open-ended future? It is common to take for "historical" that which is merely old or has its origin in some past that we have now become distanced from. Indeed, it is claimed that an esthetics of aging has been cultivated in more contemporary culture, particularly in architecture, to enjoin "reflection on the passage of time and the transience of life."[39] It is equally common to see the same idea of history in the things around us that have clung on to their place in the world – ruins, long-standing built structures, settlements, landscapes – as time continues to move forward. But history, of course, also refers to a process of change that is forward-directed and consciously pressed into the service of human needs and their various schemes and desires, where the sites of collective memory may exist side by side with the phenomenon of contemporary heritage and its commercial and spectacular dimensions.[40] The experience of "history" exists, in other words, alongside other temporalities as found or embodied in places or ways of life that don't change or that seem to have existed since time immemorial. Such places may seem old – the landscapes like the Lake District, for example – but they might not be

Figure 8
A point-in-time design simulation for the administrative building at the proposed Moorside Power Station. Now abandoned, this simulation was released in 2016 as part of NuGen's public consultation and illustrates one vision of the future for West Cumbria at that particular time. Illustration used with permission of NuGeneration Ltd.

truly historical in the sense of holding a position in the present that is open to a drastically different future.

It is the experience of change that alters our perspective on the world around us, and our relationship with the past today, in the here and now, which is – of course – also always slipping into the future. Time is a very complex phenomenon that we make sense of by aligning ourselves with certain rhythms or cycles, much like people did long before they had clocks and calendars and utopian dreams of some better future. Places and people exist in time and carry time forward, making human landscapes into what might also be called timescapes, a notion developed by Barbara Adam to identify "the complex temporalities of contextual being, becoming and dwelling."[41] To make better sense of what the future holds it is useful to consider more closely the nature of the kind of temporality it opens up. The human scale of time, which provides the context of our day-to-day experience (even when it touches upon our futures), is relatively modest in scope and is often marked by the repetition of "seasonal" events – birthdays, anniversaries, school terms, sporting seasons, political cycles – that give the years ahead "a rhythm" that directs our sense of what lies in front of us[42] and frame future predictability within the human scale. Governments, for instance, come and go in a handful of years, and economists and other forecasters unerringly fail to predict what will happen with any certainty as little as a decade ahead in time. Within that kind of context of our experience of the future, the nuclear future, has to exist and to move on a different and entirely separate temporal track.[43] It is worth remembering that the written traces of human civilizations – which encompass our understanding of human history – only go back a few thousand years. But here, the issues being faced will have implications for this place and beyond for a period that extends a lot further in the opposite direction.

In the site of Sellafield the idea of the future takes on another dimension. Since the end of the Second World War, leftovers from plutonium and nuclear energy production now accumulated at the site thrusts this region into a non-human kind of temporality, one more akin to the geological scale. In popular discourse, the term 'deep time', which was introduced by the writer John McPhee in a 1982 book titled *Basin and Range,* has been taken to refer to the distinction between how geologists think of time and how human beings and their societies mark time.[44] Geologists typically think of time in terms of millions of years, but the relevance of a notion such as 'deep time' to the future of West Cumbria rests in the fact that the region is a potential – arguably the most likely – resting place for the disposal of the most hazardous waste materials within what is known as a Geological Disposal Facility (GDF). In the words of Nuclear Waste Services, the organization that has established "Community Partnerships" in two Cumbria locations on behalf of the Nuclear Decommissioning Authority (NDA), such a facility "would contribute to a situation where radionuclides and other non-radioactive

materials are suitably contained for hundreds of thousands of years."[45] It is not quite the millions of years of geological deep time (and in more recent reports of Nuclear Waste Services, the language of *hundreds of thousands of years* has been replaced by the less alarming term, *many thousands of years*), but what we are dealing with here, as Peter van Wyck suggests, is nonetheless a kind of temporality "that approximates pure future, too distant to seem connected to a present."[46] If humanity, as philosophers have suggested, is defined by its finitude, nuclear waste – symbolic of the infinite – is thus the humanly-created *inhuman* that will stand against us in perpetuity. In Cumbria, and around the UK, there has been a long and so far inconclusive search for safe and permanent sites where nuclear waste might be buried, including explorations of the ground below Sellafield itself and at other sites in the region.[47]

Yet the idea of the West Cumbria coast as a likely location seems to be in the air. At the time of writing there is, indeed, a program of arts commissions funded in part by Sellafield Ltd, which goes under the title of 'Deep Time' and is making the news with its high-profile commissioning activities. It was recently announced that internationally renowned Icelandic artist Olafur Eliasson will make a major public work of art on the coast at Silecroft, close to Millom, about twenty miles south of Sellafield, a process that has been taking place at the same time as public consultations over the potential sites for the GDF in West Cumbria are underway.[48] Nuclear waste – unlike any other kind of waste – is unique in that it "resists its own containment" and, as such, presents peculiar challenges to those who are tasked with looking after it.[49] In the words of one anthropologist who has been studying operations at the Sellafield site in recent years, the work of containment is a constant labor that requires the endless "packaging and repackaging" of contaminated materials to make them ready for disposal at a GDF site that does not at this point exist.[50] In the meantime, high-level waste undergoes vitrification, and low-level waste is encapsulated in concrete and then "secured in boxes, drums, containers, flasks" to offer greater protection, thus creating new "wasteforms" that still need to be disposed of.[51]

If the situation on the Sellafield site is by its very nature defined by the uncertainties surrounding its work, it projects that region as a whole – which will likely inherit its legacy – into a temporality that far exceeds recorded human history. Yet, in the words of the experts, "it is essential that a GDF remains safe both during the period in which it is constructed and operated and for hundreds of thousands of years after it has been closed and sealed."[52] This, in other words, is a place whose future will extend far beyond the (relatively speaking) brief interludes that mark our own time on this planet, never mind the usually shorter periods of time during which we may find ourselves attached to one specific place or another, as those emigrating to West Cumbria to work in mining and iron production did. Indeed, if we think in terms of our own lives, it can be hard to grasp the idea of a future beyond that of our children or

grandchildren. The notion of something existing for a "long time" seems to be constrained not only by our own limited knowledge and experience, but probably also by an awareness of how much has changed in the world around us in our own lifetimes. The 20th century, the century when nuclear industries were developed, was a period marked by remorseless change, an unpredictable time when what happened at various junctures – the arrivals of supersonic jets, space travel and artificial intelligence, and the computer revolution in everyday life, amongst other developments – could probably not have been predicted half a century before.

Conclusion

To move through the landscape, towns, and other places of Cumbria is to be confronted with a place of varied and contrasting temporal cultures. In some places signs of change are very clear to see and, in terms of built structures or industry, often point toward the future; in other places, such as the significantly preserved 18th century core of Whitehaven, there seems to have been an absence of significant observable change, and it is there that one sees a visual remnant of the past. West Cumbria offers unique and distinctive examples of how time and history shape a place and leave their stamp on it, whether we regard our idea of place in cultural, economic or environmental terms. Yet, where a sense of temporal or historical "layering" is present, it does not, for the most part, seem forced or manufactured (unlike some places where a contemporary heritage consciousness seems more prevalent).

The pattern of habitation on the low-lying rural parts of the county to the west, for example – including the settlements that grew from hamlets and villages into larger towns on the coast – was established around a thousand years ago, after the Norman occupation. The Cumbrian landscape that is known by everyone as being characterized by lakes and mountains exists, in one sense, as place that existed before its modern discovery. In terms of its broad features and topography, it predates human settlement patterns and subsequent changes to the land that have resulted from the spread and growth of human populations. But the Lake District of romantic imagination, born of the 18th century, does not represent a static world; it is a managed world and one that has been shaped by how people have adapted to and made use of the land over several thousands of years. The evidence of temporal scale, from prehistoric to futuristic, is not unique to this region, and in fact almost any place on closer examination soon betrays its many historical depth and layers. Yet such layers are perhaps a more distinctive feature of West Cumbria because of the extremes of the specific temporal-historical scale that are found here. From a landscape where one might encounter something that is greater than human – something spiritual or sublime, which exists as a kind of shock absorber for the modern urban dweller on retreat – the journey through Cumbria leads

ineluctably toward a place more obviously imbued with human history. This is a place where the ghosts and echoes of 19th and 20th century industries find a home on ground that is for the most part flat, a landscape whose existence had so long depended on its proximity to the sea. This is a land that, throughout its history, has been Viking, Roman and fought over by Scotland before it was finally English; it is a place that was Cumberland before it was Cumbria and more recently became a destination for generations of modern industrial migrants, and a place that today imagines itself under other designations – the Energy Coast, the Lake District Coast – that seek to identify new futures.

John Scanlan is an academic working in cultural history and visual culture.

ORCID

John Scanlan http://orcid.org/0000-0003-2951-7823

Notes

1. In 1974, Cumberland, Westmorland and parts of Lancashire and Yorkshire were brought together as the new county of Cumbria, part of a wider UK regional re-organisation that attempted – whatever its other practical objectives – to reconfigure the mental image of places.
2. Cumbria County Council, *Cumbria Landscape Character Guidance and Toolkit. Part One: Landscape Character Guidance* (Carlisle, UK: Cumbria County Council, 2011).
3. Deep Time UK, "Commissions for the Lake District Coast." See: https://deeptime.uk/(accessed 29 August 2023). This refers to an arts initiative.
4. See Dave Kelly, *The Red Hills: Iron Mines of West Cumberland* (Ulverston, UK: Red Earth Publications, 1994): 16.
5. H. A. Fletcher, "The Archaeology of the West Cumberland Iron Trade." In *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*, vol. 1, no. 5 (1881): 5.
6. Fernand Braudel, *The Structures of Everyday Life (Civilization and Capitalism, 15th–18th Century, Vol. 1)*, trans. Siân Reynolds (London: Collins/The Fontana Press, 1981): 374.
7. Ibid., 373.
8. Robert William Rennison, *Civil Engineering Heritage: Northern England* (London: Thomas Telford, 1996): 115.
9. William McGowan Gradon, *The Track of the Ironmasters: A History of the Cleator and Workington Junction Railway* (Grange-over-Sands, UK: Detzer Press, 2004): 7.
10. See "Mining under Cleator Moor." In *Manchester Guardian*, 30 July (1913): 10.
11. Kelly, *The Red Hills*, 21.
12. Ibid., 21.
13. Conrad Atkinson, *Landescapes* (Claverack, NY: John Isaacs, 2006): 22.
14. Ibid., 22.
15. Michel Pastoreau, *Red: The History of a Colour* (Princeton, NJ: Princeton University Press, 2017): 18.
16. Atkinson, *Landescapes,* 22.
17. Quote from Peter J. Wilson, *The Domestication of the Human Species* (New Haven, CT: Yale University Press, 1991): 68.
18. Martin J. Daunton, *Housing the Workers, 1850–1914: A Comparative Perspective* (London and New York: Bloomsbury, 2015): 7. Here Daunton explores the terrace as the predominant form of working-class housing in England.
19. Joseph A. Amato, *Surfaces: A History* (Berkeley, CA: University of California Press, 2013): 68.

20. Andrew Gibson, "'At the Dying Atlantic's Edge': Norman Nicholson and the Cumbrian Coast" in *Coastal Works: Cultures of the Atlantic Edge*, edited by Nicholas Allen, Nick Groom and Jos Smith (eds) (Oxford: Oxford University Press, 2017): 84; Christian Norburg-Schulz, *Genius-Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli, 1980): 10.
21. J. D. Marshall and John K. Walton, *The Lake Counties from 1830 to the mid-Twentieth Century* (Manchester: Manchester University Press, 1981): 238.
22. Maurice Halbwachs, *The Collective Memory*, trans. Francis J. Ditter Jr. and Vida Yazdi Ditter (New York: Harper and Row, 1980): 80.
23. Peter Wagner, *Theorizing Modernity: Inescapability and Attainability in Social Theory* (London: Sage, 2001): 103-106.
24. Daunton, *Housing the Workers*, 14.
25. Simon Schama, *Landscape and Memory* (London: Vintage, 1995): 450.
26. Robert Macfarlane, *Mountains of the Mind: A History of Fascination* (London: Granta, 2003): 18.
27. "This is the Atom Age" *Illustrated*, September 10 (1955): 11.
28. Sefryn Penrose, *Images of Change: An Archaeology of England's Contemporary Landscape* (Swindon, UK: English Heritage, 2007): 125.
29. "Whitehaven's Case for the Ennerdale Scheme," *Manchester Guardian*, 2 October (1946): 3.
30. UK Government, "What is Sellafield?", https://nda.blog.gov.uk/2018/09/07/what-is-sellafield/(accessed 25 April 2022).
31. D. Levinson and K. Christensen, *Encyclopedia of Community: From the Village to the Virtual World, Vol. 1* (London: Sage, 2003): 86-88.
32. Penrose, *Images of Change*, 125.
33. Paul Theroux, *The Kingdom by the Sea: A Journey Around the Coast of Great Britain* (London: Penguin, 1983): 217.
34. John Gibbens, *Collected Poems* (London: Touched Press, 2000): 24.
35. George Kubler, *The Shape of Time: Remarks on the History of Things* (New Haven, CT: Yale University Press, 1962).
36. William Rollinson, *A History of Cumberland and Westmorland* (London: Phillmore, 1978): 12.
37. Petra Tjitske Kalshoven, "For a Familiar Future: 'Jobs' and 'Net Zero' as Performative Markers of Worldviews in England's Nuclear Heartland", *Futures*, vol. 144 (2022): 5.
38. Stanley Reed, "A New Coal Mine for England Is Stirring Hopes and Fears", *New York Times*, 26 August (2021). At: https://www.nytimes.com/2021/08/26/business/coal-mine-england-uk.html (accessed 29 August 2023).
39. Joel Robinson, *Life in Ruins*: *Architectural Culture and the Question of Death in the Twentieth Century* (Saarbrücken: VDM Verlag Dr Müller, 2008): 141.
40. M. Christine Boyer, 'Collective Memory Under Siege: The Case of "Heritage Terrorism", in *The Sage Handbook of Architectural Theory*, eds. C. Greig Crysler, Hilde Heynen, Stephen Cairns (London: Sage, 2012): 325-339.
41. Barbara Adam, *Timescapes of Modernity* (London: Routledge, 1988): 10.
42. Marc Augé, *The Future* (London: Verso, 2014): 9.
43. Adam, *Timescapes of Modernity*, 8-10.
44. John McPhee, *Basin and Range* (New York: Farrar, Straus and Giroux, 1981).
45. Radioactive Waste Management Ltd, *Search Area Evaluation Report: Mid Copeland Search Area and the Adjacent Inshore Area.* (Moor Row, UK: Nuclear Decommissioning Authority, 2021): 11. Available at: https://midcopeland.workinginpartnership.org.uk (accessed 29 August 2023). Note that Radioactive Waste Management has now been renamed Nuclear Waste Services.
46. Peter van Wyck, *Signs of Danger: Waste, Trauma and Nuclear Threat* (Minneapolis, MN: University of Minnesota Press, 2005): 5-6; Nuclear Waste Services, *GDF Report 2023: Delivering a Solution for the Most Radioactive Waste* (Calderbridge, UK: Nuclear Waste Services, 2023): 3-4. The latter, the most recent report, illustrates the change in language. Available at: https://www.gov.uk/government/publications/nuclear-waste-services-gdf-report-2023 (accessed 29 August 2023).
47. David Oldroyd, *Earth, Water, Ice and Fire: Two Hundred Years of Geological Research in the English Lake District* (London: The Geological Society, 2002): 271-287. Oldroyd

provides a history of earlier attempts to identify suitable sites.

48. Mark Brown, "'Message to the not yet': Olafur Eliasson plans sky mirror for Cumbria Coast", *The Guardian*, 25 February (2023). https://www.theguardian.com/artanddesign/2023/feb/25/artist-olafur-eliasson-plans-sky-mirror-for-cumbria-coast (accessed 27 Feb 2023).
49. van Wyck, *Signs of Danger,* 5.
50. Petra Tjitske Kalshoven, "Surface-making in Nuclear Decommissioning: A Narrative of Sludge, Plutonium and Their Whereabouts." In *Surface and Apparition: The Immateriality of Modern Surface*, edited by Yeseung Lee (London: Bloomsbury Visual Arts, 2020): 39.
51. Ibid., 39.
52. Radioactive Waste Management Ltd, *Search Area Evaluation Report*, 11. Available at: https://midcopeland.workinginpartnership.org.uk (accessed 29 August 2023). Note that Radioactive Waste Management has now been renamed Nuclear Waste Services.

References

- Adam, Barbara, 1988. *Timescapes of Modernity*. London: Routledge.
- Amato, Joseph A., 2013. *Surfaces: A History*. Berkeley, CA: University of California Press.
- Atkinson, Conrad, 2006. *Landescapes*. Claverack, NY: John Isaacs.
- Augé, Marc, 2014. *The Future*. London: Verso.
- Braudel, Fernand, 1981. *The Structures of Everyday Life (Civilization and Capitalism, 15th–18th Century, Vol. 1)*, trans. Siân Reynolds. London: Collins/The Fontana Press.
- Boyer, M. Christine, 2012. "Collective Memory Under Siege: The Case of 'Heritage Terrorism'". In *The Sage Handbook of Architectural Theory*, edited by C. Greig Crysler, Hilde Heynen, Stephen Cairns, 325–339. London: Sage.
- Brown, Mark. "'Message to the not yet': Olafur Eliasson plans sky mirror for Cumbria Coast." In *The Guardian*, 25 February (2023). https://www.theguardian.com/artanddesign/2023/feb/25/artist-olafur-eliasson-plans-sky-mirror-for-cumbria-coast.
- Cumbria County Council, 2011. *Cumbria Landscape Character Guidance and Toolkit. Part One: Landscape Character Guidance*. Carlisle, UK: Cumbria County Council.
- Daunton, Martin J., 2015. *Housing the Workers, 1850–1914: A Comparative Perspective*. London: Bloomsbury.
- Deep Time UK, "Commissions for the Lake District Coast." https://deeptime.uk/
- Fletcher, H. A., 1881. "The Archaeology of the West Cumberland Iron Trade." In *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*, vol. 1, no. 5: 5–21.
- Gibbens, John, 2000. *Collected Poems*. London: Touched Press.
- Gibson, Andrew, 2017. "'At the Dying Atlantic's Edge': Norman Nicholson and the Cumbrian Coast." In *Coastal Works: Cultures of the Atlantic Edge*, edited by Nicholas Allen, Nick Groom and Jos Smith, 77–92. Oxford: Oxford University Press.
- Gradon, William McGowan, 2004. *The Track of the Ironmasters: A History of the Cleator and Workington Junction Railway*. Grange-over-Sands, UK: Detzer Press.
- Halbwachs, Maurice, 1980. *The Collective Memory*, translated by Francis J. Ditter Jr. and Vida Yazdi Ditter. New York: Harper and Row.
- Kalshoven, Petra Tjitske, 2020. "Surface-making in Nuclear Decommissioning: A Narrative of Sludge, Plutonium and Their Whereabouts." In *Surface and Apparition: The Immateriality of Modern Surface*, edited by Yeseung Lee, 37–50. London: Bloomsbury Visual Arts.
- Kalshoven, Petra Tjitske, 2022. "For a Familiar Future: 'Jobs' and 'Net Zero' as Performative Markers of Worldviews in England's Nuclear Heartland", *Futures*, 144: 1–15. 10.1016/j.futures.2022.103039
- Kelly, Dave, 1994. *The Red Hills: Iron Mines of West Cumberland*. Ulverston, UK: Red Earth Publications.

- Kubler, George, 1962. *The Shape of Time: Remarks on the History of Things*. New Haven, CT: Yale University Press.
- Levinson, D. and Christensen, K., 2003. *Encyclopedia of Community: From the Village to the Virtual World*, Vol. *1*. London: Sage.
- Macfarlane, Robert, 2003. *Mountains of the Mind: A History of Fascination*. London: Granta.
- McPhee, John, 1981. *Basin and Range*. New York: Farrar, Straus and Giroux.
- Marshall, J. D. and Walton, John K., 1981. *The Lake Counties from 1830 to the mid-Twentieth Century*. Manchester: Manchester University Press.
- "Mining under Cleator Moor", 1913. *Manchester Guardian*, 30 July: 10.
- Norburg-Schulz, Christian, 1980. *Genius-Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli.
- Nuclear Waste Services, 2023. *GDF Report 2023: Delivering a Solution for the Most Radioactive Waste*. Calderbridge, UK: Nuclear Waste Services. https://www.gov.uk/government/publications/nuclear-waste-services-gdf-report-2023.
- Oldroyd, David, 2002. *Earth, Water, Ice and Fire: Two Hundred Years of Geological Research in the English Lake District*. London: The Geological Society.
- Pastoreau, Michel, 2017. *Red: The History of a Colour*. Princeton, NJ: Princeton University Press.
- Penrose, Sefryn, 2007. *Images of Change: An Archaeology of England's Contemporary Landscape*. Swindon, UK: English Heritage.
- Radioactive Waste Management Ltd, 2021. *Search Area Evaluation Report: Mid Copeland Search Area and the Adjacent Inshore Area*. Moor Row, UK: Nuclear Decommissioning Authority. https://midcopeland.workinginpartnership.org.uk.
- Reed, Stanley, 2021. "A New Coal Mine for England Is Stirring Hopes and Fears", *New York Times*, 26 August. https://www.nytimes.com/2021/08/26/business/coal-mine-england-uk.html.
- Rennison, Robert William, 1996. *Civil Engineering Heritage: Northern England*. London: Thomas Telford.
- Robinson, Joel, 2008. *Life in Ruins*: *Architectural Culture and the Question of Death in the Twentieth Century*. Saarbrücken: VDM Verlag Dr Müller.
- Rollinson, William, 1978. *A History of Cumberland and Westmorland*. London: Phillmore.
- Schama, Simon, 1995. *Landscape and Memory*. London: Vintage.
- Theroux, Paul, 1983. *The Kingdom by the Sea: A Journey Around the Coast of Great Britain*. London: Penguin.
- "This is the Atom Age," 1955. *Illustrated*, 10 September: 11.
- UK Government, "What is Sellafield?", https://nda.blog.gov.uk/2018/09/07/what-is-sellafield/.
- Van Wyck, Peter, 2005. *Signs of Danger: Waste, Trauma and Nuclear Threat*. Minneapolis, MN: University of Minnesota Press.
- Wagner, Peter, 2001. *Theorizing Modernity: Inescapability and Attainability in Social Theory*. London: Sage.
- "Whitehaven's Case for the Ennerdale Scheme," 1946. *Manchester Guardian*, 02 October.
- Wilson, Peter J., 1991. *The Domestication of the Human Species*. New Haven, CT: Yale University Press.