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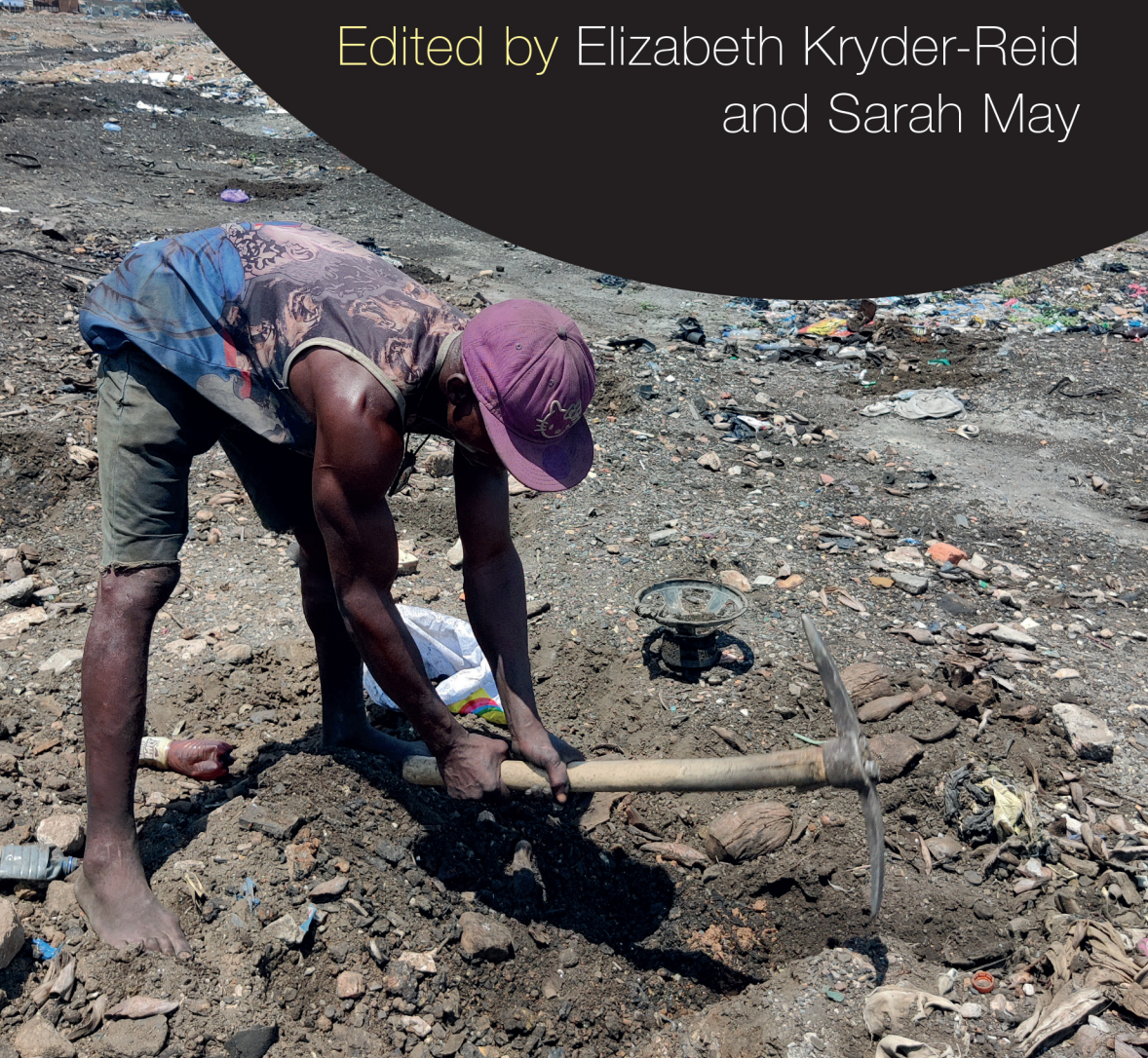
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Toxic Heritage

Legacies, Futures, and
Environmental Injustice

Edited by Elizabeth Kryder-Reid
and Sarah May



Key Issues in Cultural Heritage



TOXIC HERITAGE

Toxic Heritage addresses the heritage value of contamination and toxic sites and provides the first in-depth examination of toxic heritage as a global issue.

Bringing together case studies, visual essays, and substantive chapters written by leading scholars from around the world, the volume provides a critical framing of the globally expanding field of toxic heritage. Authors from a variety of disciplinary perspectives and methodologies examine toxic heritage as both a material phenomenon and a concept. Organized into five thematic sections, the book explores the meaning and significance of toxic heritage, politics, narratives, affected communities, and activist approaches and interventions. It identifies critical issues and highlights areas of emerging research on the intersections of environmental harm with formal and informal memory practices, while also highlighting the resilience, advocacy, and creativity of communities, scholars, and heritage professionals in responding to the current environmental crises.

Toxic Heritage is useful and relevant to scholars and students working across a range of disciplines, including heritage studies, environmental science, archaeology, anthropology, and geography.

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TOXIC HERITAGE

Legacies, Futures, and
Environmental Injustice

*Edited by Elizabeth Kryder-Reid and
Sarah May*

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2

OF BLAES AND BINGS: THE (NON)TOXIC HERITAGE OF THE WEST LOTHIAN OIL SHALE INDUSTRY

Jonathan Gardner

In this chapter, I discuss how an industrially produced material – oil shale waste (blaes) – has shifted over time from being understood as a valued raw material, a useless by-product and, latterly, a contested form of natural and cultural heritage. Today, 150 million cubic metres of blaes remain in enormous heaps (bings) near to Edinburgh (Scotland) in the district of West Lothian.¹ These are the most obvious remnant of the shale oil industry that operated here from 1851 until 1962. While the blaes ultimately derive from the area’s Carboniferous strata (ca. 355–295 mya), they are also a by-product of Scotland’s industrial past. Though the blaes are not chemically toxic (Figure 2.1) – as in poisonous to life – they are nonetheless evidence of past toxic human behaviour, not least of all the mining, processing, and consumption of hydrocarbons. Though less exuberantly burnt than coal, conventional oil or natural gas, shale oil nonetheless played an instrumental role in developing the petrochemical foundations of contemporary society. Its technologies, extraction, and usage thus also remain part of the ‘Victorian problem’ (Morgan 2016, 610) of the climate crisis we now face. Tracing the ‘itineraries’ of blaes (c.f. Joyce and Gillespie 2015), I explore how valuations of this industrial material can radically shift between notions of value and waste, and toxic and non-toxic.

Toxic language

Like the concept of ‘negative’ or ‘dark’ heritage (e.g. Meskell 2002, Rico 2016), calling something ‘toxic heritage’ involves a value judgement. While this is not to deny the literal toxicity of materials or sites in a biological sense, as with heritage more broadly, determining definitively what is or is not toxic heritage is not always straightforward.

The word toxic has its roots in the Ancient Greek *toxikon* and, though originally related to archery, it was later associated with *pharmakon*, a word that can mean both



FIGURE 2.1 Oil shale blaes that make up the southern slopes of Greendykes Bing. The different colours of the blaes relate to their mineralogical makeup, the degree of heating during the retorting process, and the extent of weathering the rock has undergone. Photograph by Jonathan Gardner, CC BY-NC 4.0.

‘drug’ and ‘poison’. This connection is significant in light of (Beverley Butler’s argument that heritage itself can be understood as a *pharmakon* 2011); something that remains in a state of uncertainty between being ‘poison’ or ‘cure’, blessing or curse. In other words, we must recognise that relationships and responses to the past can be both positive and negative depending on one’s perspective. Waste materials are also increasingly recognised as being of heritage value (e.g. Harrison 2021), and, in discard studies, similar arguments assert the *relative* valuation of waste, rather than assuming a fixity of ideas of what is ‘wasted’ definitively, and recognising that the concept is almost infinitely malleable (Reno 2018, 3, Moore 2012) and temporally contingent (Viney 2015).

Geosocialities

Relating to such shifting valuations is the useful concept of the *geosocial* – how ‘geological strata might be seen to condition and enable specific social formations’ (Clark and Yusoff 2017, 6). For example, understandings of Scotland’s hydrocarbon deposits of peat, coal, oil shale, gas and North Sea oil are situated in a particular discourse where the Earth is passively there for the taking, a ‘storehouse’ for an extractivist existence. The raw material removed in this extraction is both product and producer of social and material effects (i.e. producing ‘geopower’ in Elizabeth

Grosz' terms: 2011): mining villages, refineries, networks of petro-capital, and patronage. This is not to assert a 'geological determinism' where our actions are shaped only by our environment. Rather, the opposite: recognition of such a new 'geopolitics' enables us to envisage opportunities outside of established biopolitical formations that have been dominated by ordering principles grounded purely in terms of human agency and dominance (Yusoff 2020). Hence, I seek to explore the blaes as a geosocial actant, something not merely reflective of our human desires and values – whether 'raw material' or 'waste' – but which, in our relations with it, continues to co-produce the worlds we inhabit.

Blaes and bings

Nine kilometres west of Edinburgh is a cluster of four of unexpectedly steep hills (Figure 2.2). Up to 95 metres high and punctuating the otherwise gently rolling West Lothian agricultural landscape, they loom over former mining villages and commuter towns. From some angles, these rust-tinged mounds resemble Near Eastern Tells,



FIGURE 2.2 The four oil shale bings in West Lothian that are discussed in this chapter. From top left, clockwise: Niddy (under extraction for blaes as aggregate); Faucheldean (now a wooded nature reserve, with the Forth Bridges in the distance); Albyn (with Edinburgh's Arthur's Seat at extreme left in the background); Greendykes (the largest of the four bings and, along with Faucheldean, a Scheduled Monument). Photographs by Jonathan Gardner, CC BY-NC 4.0.

while from others they take on the mysterious character of Neolithic monuments like Silbury Hill. Like these predecessors, the bings are a work of human artifice, though of entirely ‘unconscious design’ (Richardson 2012), the product of tip-lines that disposed of spent shale. This waste – blaes – comprises billions of laminated, flaking fragments that vary in colour from a dusky blue to a pale gold (Figure 2.1). Each is a by-product of the shale oil industry that flourished in West Lothian between 1851 and 1962, an endeavour that has been called the world’s first commercially successful oil industry.

The bings I discuss here, Albyn, Faucheldean, Greendykes and Niddry, are amongst the largest out of a total of nineteen remaining in West Lothian (Harvie 2005, 14). In some cases, these are now recognised as heritage sites but this status remains tenuous. To understand why this is the case, we must begin with the origins of the material itself.

Emergence

The oil shale has its origins in Lake Cadell, a shallow body of water that existed in the Carboniferous around 340 million years ago. At this time, the area of the crust that now forms Scotland lay at the equator and was home to a rich variety of plants, proto-reptiles, amphibians, insects, fish and microorganisms. It was the mass deaths of such organisms and the agglomeration of their remains in strata over a kilometre thick that produced the West Lothian Oil Shale Formation. These compressed organisms – mainly algae and some land plants – formed a hydrocarbon-rich kerogen within a matrix of shale, ‘a fine-grained indurated clay rock ... free from grit’ (Knox 2013, 18).

Even here, hundreds of millions of years ago, humans have extended their presence. The Lake is named after H. M. Cadell, a man whose extensive research into the West Lothian oil shale helped to kick-start the industry (Cadell 1894). Cadell was a geological surveyor and aristocratic owner of numerous coal mines, iron works and part of a long line of Cadells who had profited from central Scotland’s rich hydrocarbon and iron resources (Mendum 2010). Here, not for the first time, the science of geology, ancient life forms and industrial and social capital are inextricably mixed (see also Brown et al. 2021, Yusoff 2015).

Transformation

The transmutation of kerogen-containing shale to oil, paraffin and other ‘products’, including the spent blaes – a movement from the mineralogical, to geological to commodity – is attributed to James Young, who had successfully distilled paraffin from heating (retorting) cannel coal (a type of coal-like shale) in the 1840s. Having taken out a patent in 1851, he then established an oil works at a cannel coal seam near Bathgate in West Lothian (Meighan 2012, 165–6). This plant was exceptionally successful and is said to have produced around 25% of London’s lamp oil in the early 1860s (Harvie 2005, 3).

After his patent expired in 1864, Young (by now nicknamed ‘Paraffin Young’) formed his own company and bought up mining rights in a large area of West Lothian to produce paraffin from the (more plentiful) oil shale seams. By the late 1860s, the industry took off, with a multitude of new companies employing up to 40,000 workers, with a maximum production of 27.5 million barrels of oil in 1913 (Harvie 2005, 4).

To obtain the shale, mines were dug up to 450 metres beneath West Lothian, with the minerals extracted by hand and brought to the surface in hutches (mine carts). The raw shale was crushed and heated to above 500 degrees Celsius in large vessels called retorts. This freed the hydrocarbon vapour to be collected and condensed for refining, with the ‘spent’ blaes collected from an opening beneath. The refining of the crude oil took place in stills where it was split into paraffin and other valuable fractions, including heavy fuel oils, lubricating oils, sulphuric acid and, later, motor spirit (petrol/gasoline) and detergents.

An especially significant by-product was ammonium sulphate, which, having initially been disposed of as waste in the early years of the industry, was extensively reclaimed to produce fertiliser. This was used in agricultural production across the British Empire, until outcompeted by Chilean nitrate-based fertilisers (Knox 2013, 40). The reuse of such waste material meant that the industry was far more competitive than it would have been if it had only focussed on paraffin production alone – another example of how notions of value and waste can shift rapidly. This waste was not the only link to British imperialism. James Young spent some of his vast profits bankrolling his friend and former classmate David Livingstone’s journeys into Eastern Africa.

The exploitation of cheaper free-flowing oil in the USA and Middle East from the 1860s meant the days of the industry were always numbered, given shale oil’s more labour-intensive and costly processes. Nonetheless, the West Lothian industry persisted (with government subsidy) until 1962 when the last works were closed (Knox 2013, 41). This simplified summary can, to some extent, be seen as its conventional heritage narrative: a Victorian innovation, capitalistic accumulation, and raw material combined to create a pioneering industry. This is recognised in the Museum of the Scottish Shale Oil Industry (<https://www.scottishshale.co.uk/>) and publications that celebrate the ‘world’s first’ oil industry (e.g. Kerr 1994, McKay 2012, Knox 2013). This is not to be disrespectful of these important efforts, but rather to suggest that this is only a partial perspective. As artist Kim Wilson puts it, the blaes and bings somehow remain ‘untimely’; both representative of the industrial past but yet seeming to offer something more for the present and future (2018, 176–7).

Monumentality

Almost all the products of the shale oil industry exhibit chemically toxic properties that are harmful to life. While the spent blaes themselves contain few remaining

hydrocarbons and are valuable habitats (below), the products derived from them in the past are likely to still contaminate nearby areas. Though no data is available on the former oil shale works in the vicinity of the bings discussed here, the redevelopment of similar works at Pumpherston four kilometres southwest, revealed high concentrations of carcinogenic by-products that required substantial remediation (Couper 1995). It, therefore, seems likely that similarly toxic substances remain adjacent to Greendykes and the other bings (see West Lothian Council 2020). Though no recent shale industry-related epidemiological data are available on human communities in West Lothian, a previous study suggested excess mortality and an increased risk of certain types of cancer in former shale workers (Randall et al. 1990, 38–9). While toxic risks to both human and non-human life are of continued concern, a far more obvious reminder of the industry are the millions of cubic metres of the blaes itself. While such bings have sometimes been seen as eyesores, or ‘unattractive’ features in the landscape (e.g. West Lothian Council 2015), like other post-industrial sites, their lingering monumentality is not easily reducible to a negative or positive categorisation. Instead, they provide a broad range of uses and valuations as habitat, heritage and waste (see also Storm 2014, 6).

The monumentality of the bings is ultimately an accident of waste deposition. They emerged gradually, one hutch at a time, the spent shale still steaming from the retorts, pulled on steep tramways up ever-growing slopes. The steel and wooden structures of some of these tramways can still be found, while the routes they created continue to act as trails for dirt bikers, walkers, and animals (Figure 2.3). Climbing such a bing today requires a surprising level of exertion, with the blaes slipping treacherously beneath you as you ascend. For every 10 barrels of crude oil retorted from the shale, almost seven tonnes of blaes were produced (Harvie and Hobbs 2013). It is nonetheless sometimes hard to imagine that every fragment of blaes you encounter was removed from deep below the surface by someone. Other than the bikers, few people seem to visit these sites. This may be partly due to their perceived isolation and a belief that they are unsafe. While Wilson argues that these monuments can sometimes seem uncanny, for her, as a local, ‘these shaley gatherings [nonetheless] signal home’ (2018, 177). An appreciation is also shown in guides devoted to ‘bing bagging’ – summiting the ‘peaks’ across the district to explore ‘terrain that is truly out of this world’ (Carron 2020, 5).

The blaes themselves are surprisingly non-toxic; unlike coal tips, they are free from heavy metals and other contaminants and their slightly alkaline ph. make them attractive to a range of species. Harvie’s surveys of eight bings revealed 357 plant varieties, including 32 that were rare or threatened. The bings also provide a rich habitat for mammals (including badgers, hares and foxes) and many species of insects and birds (Harvie 2005). Two of the bings in the district are protected primarily for their natural heritage rather than their industrial and cultural associations, while all the bings are recognised as key contributors to West Lothian’s biodiversity by the local authority (Harvie 2005).

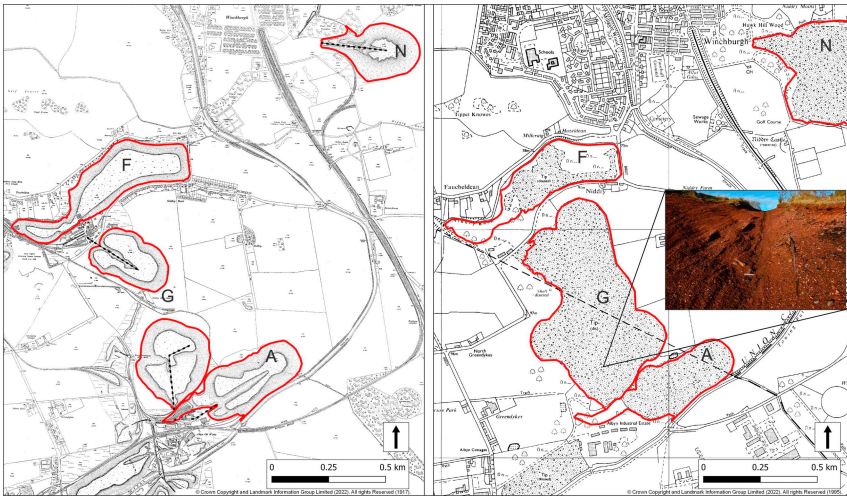


FIGURE 2.3 The four shale bings discussed outlined and labelled by letter on Ordnance Survey maps of 1917 (left) under formation at the peak of the industry, and of 1995 (right), 30 years after their closure and at full extent: Albyn, Greendykes, Faucheldean and Niddry. On the 1917 map, blaes tipping tramways are marked with a thick black dotted line. The inset photograph shows the remnants of such a tramway in-situ on Greendykes in December 2021 (20 cm scale). Note: the maps are reproduced here at the same display scale (1:16454) but were originally created at 1:2500 and 1:10,000 respectively; hence the latter contains less detail. Maps: Crown Copyright and Landmark Information group (2022). All rights reserved (1917, 1995). Photograph by Jonathan Gardner, CC BY-NC 4.0.

The colonisation of bings by this non-human life has made many of them surprisingly green and resemblant of natural hills (e.g. Faucheldean, Figure 2.1). While this habitat is rightly celebrated, Harvie argues that their ‘historical importance’, ‘is in danger of being forgotten’ (2005, 21). While Greendykes and Faucheldean are protected from development as Scheduled Ancient Monuments (along with the ‘Five Sisters’ bing further west), Albyn, Niddry and the others are left unprotected. I shall return to the implications of such protection for toxic heritage later, but though there is the museum and comprehensive (online) ‘Shale trail’, none of the bings have any on-site interpretation and most remain difficult to access safely.

Revaluation

Both before and after the decline of the shale oil industry, the bings were called ‘unsightly’ (e.g. Dundee Courier 1938), ‘blots on the landscape’ (Harvie and Hobbs 2013), associated with social deprivation, and even a source of ‘shame’.²

The long-standing perception that these heaps exhibit an aesthetic and social toxicity, if not a chemical one, has led to attempts to remove them entirely, with around half of the bings removed or radically altered since 1962.

In the 1950s and 1960s, investors bought up many of the bings for bargain prices to mine their blaes as aggregate. One contractor – William Griffith – was so successful in this business that he became known as the ‘King of the Bings’. In a remarkable advert in the *West Lothian Courier* from 1967, entitled ‘WE Pave The Way ...’, Griffith proudly relates how the company supplied 1.5 million tons (tonnes) to build the M8 motorway and that: ‘Shale blaes is the most adaptable, most plentiful and cheapest infilling and bottoming material in Britain’ (Figure 2.4). He continues: ‘It is a romantic story. The new Scottish Industrial Revolution speeds along on the refuse of the old, on blaes supplied by GRIFFITH. We move mountains!’ (William Griffith Ltd 1967). This insatiable demand for material also saw blaes used in the building of the first Forth Road Bridge, the M9 motorway and the Edinburgh City Bypass.

By the advent of the new (North Sea) oil boom of the late 1970s and 1980s, blaes was also to prove ‘foundational’ to the new industry, forming the base of a major



FIGURE 2.4 The M8 motorway, looking down the eastbound carriageway near junction 3a, back towards the outskirts of Livingston. Both the motorway and the town were built on thousands of tons of shale blaes extracted from nearby bings. Photograph by Jonathan Gardner, CC BY-NC 4.0.

new oil terminal at Grangemouth (WLC 1967) – with the shale oil industry recognised at the time as, ‘the embryo from which the world-wide oil industry sprung’ (WLC 1970). At the same time, large programs of ‘slum’ clearance and redevelopment saw several New Towns built, including Glenrothes in Fife and Livingston in West Lothian itself, and using blaes as a foundation material (Figure 2.4). Mining of blaes continues today at Niddry Bing and it has recently been used in the approach roads for the new Queensferry Crossing over the River Forth (see the background, Figure 2.1, top right).

Reimagination

While the use of the blaes to rebuild central Scotland was a striking turnaround in fortunes for what was once unwanted waste, this was not its only reimaging. In 1972, as part of plans to deal with the ‘problem’ of the bings, the Scottish Development Agency (SDA; part of the UK government’s Scottish Office) engaged an organisation called the Artist Placement Group (APG) and the artist John Latham.

APG’s placements were not artists’ residencies in a traditional sense, but, instead, followed a model intended to mix ‘business, science, and civil service practices with socially engaged art’, predicated on the idea that artists had something to offer outside of art galleries (Richardson 2019, 92). Latham’s 1975–6 placement with the SDA looked at numerous issues facing a rapidly deindustrialising Scotland but it was the bings that attracted him most strongly. After six months of research, he produced a ‘Feasibility Study’,³ of which Niddry, Faucheldean, Greendykes and Albyn bings formed a major part.

Rather than recommending their removal, Latham proclaimed the four bings as an artwork. Using aerial imagery, he viewed the bings from above as a passenger flying into nearby Edinburgh Airport might, and conceptualised them as a gigantic goddess-like figure that he called the *Niddrie Woman*.⁴ Each bing was seen as a body part of this woman: Albyn as head, Greendykes as torso, Faucheldean as limb, with Niddry forming a dismembered heart at some distance from the rest. Latham argued that this *Niddrie Woman* was a form of Duchampian ‘ready-made’ and that the bings had immense value as ‘monuments to the period we live in’, as ‘process sculptures’ outside of traditional (textual or verbal) representations of history and economic understandings of value.⁵ Latham felt that the ‘unconscious’ creation of this landform was unprecedented and, thus, ‘presentable as at least the equal of any of the great monuments of history’.⁶

That said, Latham was not above seeing the bings as more conventional monuments to the oil industry itself. In a letter pleading with the aristocratic owner of Niddry bing to save it from mining, Latham noted that the APG had ‘prepared an appeal to worldwide oil interests’ and that, ‘[t]he objective will be to establish the *Niddrie Woman* as the Oil Industry’s natural contribution to the cause of unity and continuity in the human story’.⁷ Thus, he seemed to suggest the bings were both heritage *and* art, and invoked a pragmatic heritage preservation argument alongside

his more cosmological theorisations to advocate for their protection. As well as suggesting the erection of a gigantic book-like sculpture of his own on Niddry Bing (entitled, *The Handbook of Reason*), he also proposed improved access, heritage trails and plaques. In spite of Latham's representations, Niddry bing was not saved and has been substantially reduced in size by mining that is set to continue to the 2050s. Upon Latham's death in 2006, his ashes were scattered on the bing so it is possible (and perhaps appropriate) that some of them ended up in yet another monumental motorway or building project.

Alternatively, a few atoms may have made it into the works of Kim Wilson – one of several artists I recently interviewed to understand how the bings continue to be reimagined. Wilson's work diverges sharply from Latham's possessive approach to the bings.⁸ She describes herself straightforwardly as someone with an 'interest in materials' and a sculptor whose first degree was in archaeology (Interview: Kim Wilson). Her practice takes the form of transient experimentations with substances including wool grease, animal glue, bone ash, sulphur, and, crucially, various hues of oil shale blaes. In hand-mining the blaes from the slopes of Niddry Bing (using her former archaeological trowel), Wilson describes the sometimes treacherous experience as a key part of the work in its connections to stories of its original mining, its geological variability, and her own connections to the landscape as a local.

In her mixing of these materials, Wilson makes bioplastics and moulds them into plaques, cylinders, and foams that are further assembled into installations (Figure 2.5; see also <https://www.kimwwilson.com/>). Her work's efforts to understand the chemical properties of the blaes (each colour varying subtly in its material affordance) recall the inventiveness of the shale oil industry itself. The transitory nature of these ancient and not-so-ancient materials, mineral and animal, is at the core of her work, reflecting her argument that the blaes are 'untimely', as a 'storied matter' that continues to change in value, to be used and reused, made and remade (Wilson 2018, 179; Interview). In this, her work is more obviously bound up with the complex geosocial itineraries of the blaes than Latham's. She rejects a relationship to such materials where 'everything is subject to us' (Interview); instead, she sees the blaes as generative, laden with possibilities derived from the stories of their human and non-human engagements throughout time, rather than as a stand-in or representative, whether for an ancient or mythological monumentality, or simplified heritage narrative. This approach hints at a means of going beyond simply 'toxic' or 'non-toxic' or 'wasted' and 'valued' binaries in connection to the bings.

Discussion

The bings and their blaes have been subject to continual processes of re-valuation over their 160-odd years on the surface of West Lothian (to say nothing of the shale's ca. 300 million years of existence). This began with their nineteenth-century categorisation and identification as valued raw material and source of profit by Cadell, Young and others, and as contributors to the industrial and agricultural



FIGURE 2.5 Experimental forms created by the artist Kim Wilson from red oil shale blaes and animal glue. The other artworks in the image are made from a combination of different coloured blaes, glue, wool grease and other substances. Artwork by Kim Wilson. Photographed with permission by Jonathan Gardner. © Kim Wilson. All rights reserved.

development of the UK and the British Empire. It is this contribution and the stories of those who developed the industry that are celebrated in the museum, the aforementioned books, and the listing of (some of) the bings as, ‘the foundation of some of the earliest petro-chemical industries’ in the world (Historic Environment Scotland 2022). Though originally seen only as an extraneous by-product, the blaes of these four bings, along with the Five Sisters (the other protected bing), are no longer primarily seen as waste, but as natural and cultural heritage. It has been relatively easy to transform some of this inert waste into heritage icons – literally, in the case of West Lothian Council’s logo, which features the Five Sisters.⁹ The situation may have been different if, like coal tips, the material was poisonous or at risk of collapse (e.g. Fairclough 2021).

Though obvious, it is worth restating that the blaes and their bings are also not simply representations of something else; they have provided a (literal) material platform for human and non-human life. For example, the bings freely offer sites of leisure: each weekend dozens of dirt bikers descend upon the slopes of Greendykes and Albyn. Though contested, their actions in churning up the terrain are said to actually enhance the growing environment for plants. These species are themselves an emergent property of the waste of human industry that benefits from our input but nonetheless escape our control and representations.

The bings also offer a second, more conceptual, terrain where ideas and representations are constructed. Latham's *Niddrie Woman*, as a radical reimagining of what had been seen as 'derelict land' is the most dramatic example, but it is clear the conceptual flexibility of the blaes also reshaped the post-industrial Scottish landscape. This is most clearly seen with its use in building central Scotland's New Towns, motorways and oil refineries, with the simultaneous (pharmakonic) perception of blaes as both worthless waste *and* valuable raw material (e.g. WLC 1964). While these varied material and conceptual opportunities were, in most cases, 'non-toxic', I want to suggest that a third valuation is also possible, one that re-recognises the blaes and bings as toxic (though not necessarily negative) representatives of the contemporary world and its uncertain future.

It is not without significance that James Young kick-started the oil shale industry in 1851, a year often associated with the supposed apogee of the Victorian age in the form of the Great Exhibition (Gardner 2022). Indeed, the Exhibition hosted many displays of hydrocarbons in both raw and processed form (including 'bituminous [oil] shale': Great Exhibition 1851, 141). Coal in particular was heralded as the material that not only made the event itself possible, but also the technological industrial civilisation that it showcased (Gardner 2022, 80–3). While coal (and shale oil) was lauded as a wonder stuff in the nineteenth century, this valorisation was greatly exceeded by reactions to the exploitation of free-flowing oil by the mid-twentieth century. By the 1970s, the massive deposits of the North Sea basin were heralded as a means of transforming the British economy and a means of enriching the quality of life of its population. Crucially, the process started by Young not only kick-started the first large-scale oil industry but also provided the technologies that continue to underpin contemporary oil extraction and processing: the hydrocarbon cracking process patented in 1865 by Young's son (James Young Junior) remains the basis for producing the enormous range of petroleum-based products we use every day (Knox 2013, 88). Thus to some extent, the pioneering narrative of the shale oil industry can now also be connected to a 'heritage' of global heating.

New research is increasingly drawing attention to examples of this heritage in the era of massive climate change (Byrne 2018, Lafrenz Samuels 2016). Morel and Oud Ammerveld identify climate change itself as 'our heritage'. Though acknowledging its potentially 'dark' and apocalyptic nature, bearing in mind debates around the often over-simplified concept of 'negative heritage', they argue that this heritage acts to contextualise and mobilise movements to mitigate the worst effects of industrial societies polluting actions, past and present (Morel and Oud Ammerveld 2021, 274). What role then might the blaes and bings play in such a mobilisation?

Despite their bulky presence outside of Edinburgh alongside major transport infrastructure (the M8 and M9 motorways, the Glasgow-Edinburgh railway, the airport), the bings nonetheless remain oddly invisible. However, I want to suggest that we might subvert Latham's idea of seeing them 'as monuments to the period we live in' and act to re-materialise them through further interpretation, education and engagement as a toxic heritage site. Following Kim Wilson, the blaes and bings

could be reimagined as a form of ‘untimely’ geosocial heritage of our ongoing hydrocarbon addiction, a pharmakonic manifestation of both the benefits we have derived from oil and the devastating consequences it has left behind; vast monuments to extractivism that act as visually and materially unavoidable reminders of what is at stake for our future.

Notes

- 1 Blaes is both singular and plural. *Blae* is simply the Scots word for dark blue, originally from the Old Norse *blár*. Bing comes from a Norse word for heap.
- 2 Tate Gallery Archive (TGA) 20042/9/2/10 Feasibility study folder. Part 2, 1.
- 3 TGA 20042/9/2/10 Feasibility study folder.
- 4 Latham used both ‘Niddrie’ and ‘Niddry’, though the latter is customary.
- 5 TGA 20042/2/2/13/7 Statement by John Latham, undated, entitled, ‘BIRTH OF THE OIL INDUSTRY, IN SCOTLAND [...]’.
- 6 TGA 20042/2/2/13/6 Statement by John Latham, undated, entitled ‘Process Sculptures’.
- 7 TGA 20042/2/2/13/9 Letter from John Latham to Lord Linlithgow, (September/October?) 1980, entitled, ‘Your Niddry Bing’.
- 8 Interviews were approved by the Edinburgh College of Art Ethics Committee (22/6/2021). The artist consented to being identified in research outputs and to the reproduction of images of her studio works.
- 9 See <https://www.westlothian.gov.uk/>.

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