

Transpositional Geologies Presencing the Politics of Mineral Specimens

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Abstract: As an introduction to *Transpositional Geologies*, this essay considers what histories and knowledges are explicitly or implicitly ‘presenced’ by mineral specimens encountered in geology museums. It explores how disciplines and disciplinary museum institutions understand specimens differently. The geological museum’s continued presentation of specimens as natural, scientific objects, devoid of politics, is contrasted with the increasing politicisation of cultural objects in the ethnographic museum. The essay argues that both disciplines are implicated in histories of colonial violence and extractivism, and that insights gained within anthropology as it has sought to acknowledge and address its colonial entanglements could be productively applied in geology. Museum objects, whether geological or anthropological, are conceptualised as fragments, which stand as metonyms for absent contexts. The essay discusses how these absences are presenced explicitly through museum interpretation, but also more elliptically through other strategies, including the various ‘transpositional’ interventions documented and enacted in the book.

Keywords: political geology, mineral specimens, epistemic objects, presence, metonymy, material culture, museums, extractivism, Broken Hill/Kabwe, Nature-Culture

The perceived separation between Nature and Culture is one of the constitutive characteristics of modern Western thought. Yet, as Bruno Latour has argued, there is nothing ‘natural’ about such a separation, rather it must be brought into being through what Latour terms ‘the work of purification’ (Latour, 1993, p.30). Through such work, ideas relating to nature and the nonhuman, including the natural sciences, are separated from ideas relating to human culture and society. One consequence of this separation is that the ‘science of things’ may become disentangled from the ‘politics of men’ (Latour, 1993, p.30).¹ No matter how impossible this modernist project of purification, it has been pursued relentlessly, and nowhere more brutally—or so profitably—than in contexts of colonial and neo-colonial extractivism.²

This volume seeks to re-entangle Nature and Culture, nonhuman and human, science and politics, to produce what Latour might have called a ‘quasi-object’ (an object-like thing embodying an impure mix of nature-culture, human-nonhuman). It is a book that acknowledges the inextricability of Nature and Culture, and which recognises that the natural sciences—including geology and mineralogy—are

¹ I consciously retain Latour’s gendering of this politics.

² <https://as.nyu.edu/departments/french/people/Faculty/bruno-latour.html>

necessarily also political sciences. *Transpositional Geologies* is, then, a work of ‘political geology’; a critical engagement, which, in the words of Kathryn Yusoff, ‘undermines the *givenness* of geology as an innocent or natural description of the world’, and considers it instead as ‘a relation of power’ that continues to constitute relations of power through its ‘toxic legacies’ (Yusoff, 2018, p.10).

There are many sites at which one might begin exploring the politics of geology. One might start by tracing the impact of mining operations on communities and environments. One might follow the transformation of rocks into materials and into manufactured consumer products. One might examine how wealth is created through such transformations and consider who benefits—and who, or what, does not. Mining companies and their beneficiaries are all too aware of how politicised these sites of extraction and transformation are, making this a notoriously difficult sector to research critically. It is a sector replete with toxicities, both literal and metaphorical.

The starting point for *Transpositional Geologies* (one of them, at least) is, at first sight, both less obvious and less politicised. It begins with a fragment of greenish rock, a scientific specimen among thousands of similar specimens kept in drawers and display cases in the rarely-visited mineralogical museum at Bonn University. It is a piece of smithsonite, accessioned with the number 50215; sourced, so the museum’s records tell us, in the early twentieth century from a mine in Tsumeb in what was then colonial German South-West Africa, now Namibia.³ While research and teaching methods in what we now call the Earth Sciences have moved away from collecting, assembling and working with such specimens, they were, as Samo Tomšič’s contribution to the volume discusses, once important epistemic and pedagogical objects—‘containers of knowledge’ (Tomšič, this volume, p.59; see also Chalk, 2012). The question that this volume revolves around is, precisely what knowledges do these fragments of rock ‘contain’?

If the answer to this question seemed self-evident to generations of geologists, mineralogists and visitors to natural history museums (the ‘*givenness* of geology’ that Yusoff refers to), Sascha Mikloweit’s magnified ‘Image-Objects’, which punctuate this book, invite us to look again at these seemingly innocuous specimens, and, in so doing, confront our understanding of them. Are they merely samples of different types of rocks and minerals, containers only of geological knowledge? Despite being ‘fragments of nature’, as scientific specimens these epistemic objects are, of course, also culturally-constructed things. They too are quasi-objects: an impure mix of the natural and the cultural. What they are—and what knowledges they contain—is more elusive and shifts according to one’s positionality, one’s perspective and the knowledges that one brings to them. Like all museum objects, they resist the imposed fixity of classificatory schema. Despite their apparent solidity, these rocks are mutable things.⁴

³ This fragment of rock, and the epistemic regimes it was subjected to, were powerfully represented in Tsumeb in Sascha Mikloweit’s ‘transposition 086’ and ‘transposition 995’, documented in this volume, pp.196–201, pp.206–207.

⁴ This mutability is most literally expressed in Sascha Mikloweit’s pulverisation of another Tsumeb mineral specimen from the University of Bonn Mineralogical Museum collection (see this volume pp.228–245), but, of course, it is ubiquitous (though often invisible) in the metal and mineral components of consumer products that surround us (see, for example, Acosta, 2018).

Museums, Collections and Disciplinary Knowledges

As well separating Nature from Culture, the sciences from the arts and humanities, the work of purification has also produced a division of epistemic labour even within the sciences. There has been a proliferation of discrete disciplines and subdisciplines, each determining its own specialist field and professing its distinct theories, schools of thought and institutional structures. While, in theory, we celebrate the possibilities of interdisciplinarity, in practice, entrenched disciplinary conventions, methodologies, prejudices and forms of expertise often make it difficult to speak across the divides that we ourselves have created. It is worth reminding ourselves that things could have been otherwise—perhaps they still can.

Let us reflect briefly on the history of museum collections and their relation to disciplinary knowledge formation. Founded in 1683, the Ashmolean Museum at my own institution, the University of Oxford, is one of the world's oldest surviving public museums. Its original building, which now houses the University's History of Science Museum, once incorporated laboratories and lecture rooms as well as displays of Elias Ashmole's remarkable collections. Under one roof, the Museum exhibited all manner of curiosities, many of which were inherited from the even earlier Museum Tradescantium, embracing both *naturalia* and *artificialia*, Nature and Culture.

Among hundreds of objects, here was to be found: 'two ribs of a whale', 'all kinds of foreign plants', 'a large magnet stone', 'bright colored birds from India', 'some very light wood from Africa', 'the robe of the King of Virginia', 'a toad fish', 'a human bone weighing 42 lbs.', 'the hand of a mummy', and 'a stone found in the West Indies in the water, whereupon are graven Jesus, Mary and Joseph'.⁵ While the work of European colonial extractivism is already in evidence in this pre-modern, early Enlightenment miscellany, the work of disciplinary purification had yet to be effected. This would, however, occur gradually over the following two centuries, and, by the late-nineteenth century, the Ashmolean had narrowed its scope to become a museum dedicated to European art and archaeology, while new, separate museums and departments had been established at Oxford to house and study botanical, zoological, anatomical, geological, anthropological and ethnological collections. This increasing institutional specialisation was typical of museums and universities elsewhere.

Once collections had been separated, it is interesting to reflect on the relations between these disciplinary assemblages. Oxford's new University Museum had been founded in 1860, with distinct sections for human and comparative anatomy, zoology, palaeontology, geology and mineralogy. When a dedicated anthropological museum—the Pitt Rivers Museum—opened 24 years later as an extension to the University Museum, its ethnographical collections were understood and displayed as if they too were natural history specimens. Individual specimens were not valued as unique artworks or artefacts, but as exemplars of particular types of things. Each specimen indexed something beyond itself: a particular category of thing, which itself indexed a particular 'ethnos' or 'people', who, in turn, represented something more than themselves in anthropological theory-making.

⁵ Excerpts from a description of the Tradescant Collection by Georg Christoph Stirn, 1638 (quoted in MacGregor, 1983, p.21).

Under this natural science paradigm, anthropologists assembled vast collections of specimens of ‘primitive technologies’ with which to conduct comparative analysis. Indeed, the mania for collecting extended to include the anatomical remains of human beings themselves, as well as ‘physical type’ photographs which reduced living people into the status of specimens, all to be collated, catalogued, compared and classified. Profoundly influenced by the natural sciences, the ethnographic museum thus became a laboratory for theorising human cultural as well as physical evolution: artefacts and anatomy became indices by which one could measure civilisational progress. However misguided, having the semblance, authority and supposed neutrality of ‘scientific method’, such theorising supported ideas of racialised hierarchies of human development, from the most primitive to the most civilised, which, in turn, justified the European colonisation of large parts of the world as well as the seizure of its extractable resources.

At the same time, the status of anthropology *as a science* remained contested. In words attributed to the American cultural anthropologist, Alfred Kroeber: anthropology was regarded as ‘both the most humanistic of the sciences and the most scientific of the humanities’. (A quasi-science.) By the 1960s, few anthropologists were comfortable with the idea that people or their arts and artefacts could be studied as if they were natural history specimens; cultural evolutionist theories were long-since discredited; and the historical entanglement of anthropology and colonialism elicited increasing self-critique within the discipline. Influenced by postcolonial critique, the 1980s saw a period of sustained critical reflexivity within anthropology, with anthropologists taking it upon themselves to interrogate the mechanisms through which they constructed their object of study (the primitive ‘Other’ to Euro-America’s supposedly civilised self) and how the authority of anthropological knowledge claims were established, mainly through literary devices used in ‘writing culture’, but also in ethnographic filmmaking and in museum display (see, for example, Fabian, 1983; Clifford and Marcus, 1986; Karp and Lavine, 1991; Loizos, 1993).

By the 1980s, the majority of academic anthropologists had long-since distanced themselves from the ethnographic museum, and many ethnographic displays were dismantled, packed away and consigned to a dubious disciplinary history that many would sooner forget. With the revival of interest in anthropological material culture studies in the 1990s, however, and alongside the emergence of critical museology, the ethnographic museum became a new, politically-charged space for thinking about the legacies of colonialism and its forms of knowledge production. Questions were posed concerning the future of such museums and the rubrics under which they might be redeemed (e.g. Harris and O’Hanlon, 2013). Thus ethnographic museums were rebranded and euphemised as museums of ‘world cultures’ or ‘world art’, while other critics heralded the ‘post-ethnographic’ museum as a laboratory for addressing the epistemic violences of the colonial past, particularly through collaboration with contemporary artists from previously colonised regions (Deliss, 2020). More recently still, even curators within the field have asserted that there is no future for such ‘warehouses of disaster capitalism’ other than to repurpose them as ‘sites of remembrance and conscience for the human lives, environments and cultures destroyed by European colonialism’ (Hicks, 2020, pp.15, 228).

Given that these fraught, but productive, debates have been taking place for decades now in the ethnographic museum, it is surprising how little of this has spilled over into other disciplinary museum spaces (particularly botanical gardens, natural history and geology museums), as if these museums, too, were not part of the same capitalist-colonial knowledge complex. Indeed, while there has been a powerful drive to recognise and reject extractivist modes of knowledge production within anthropology, it could be argued that the most shockingly literal and overt traces of colonial resource extraction in the museum sector are not to be found in the ethnographic museum, but in the geological museum. Colonialism, after all, was not motivated by the desire to classify indigenous peoples and their material culture, but by the prospect of seizing and exploiting the resources, and especially the mineral wealth, that could be extracted from the lands of others. While ethnographic and history museums have been mined metaphorically for lessons in social justice and postcolonial ethical practice (Corrin, 1993), those museums most directly implicated in colonial mining enterprises have remained strangely neutral, apolitical spaces. In the geological museum, the ‘science of things’ has yet to be re-entangled with the ‘politics of men’.

Mineral Specimens as Material Culture

Given the transformation of the ethnographic museum from a supposedly neutral, scientific institution, in which a ‘natural history’ of humankind was prosecuted, into a highly contested space, which has, in many cases, acknowledged the politics of its colonial entanglement, what lessons might this provide for the geological museum? What if, for example, we approached geological collections not as specimens of natural materials but as material culture?

In a well-known essay, ‘Objects of Ethnography’, the anthropologist and museologist Barbara Kirschenblatt-Gimblett asks what makes an object ‘ethnographic’? Kirschenblatt-Gimblett contends that there is nothing intrinsically ethnographic about a given artefact; rather ‘objects become ethnographic by virtue of being defined, segmented, detached, and carried away by ethnographers’ (1991, p.387). ‘Disciplines make their objects’, Kirschenblatt-Gimblett argues, ‘and in the process make themselves’ (ibid.). The same is, of course, also true of the making of geological specimens. And since there is nothing intrinsically ethnographical or geological about these things, we might subject a geological specimen to anthropological scrutiny and in so doing ‘remake’ it as an ethnographic object.

Actually, the ‘material turn’ of the 1990s, though led by anthropologists and archaeologists, was self-consciously ‘undisciplined’ in character, drawing on a wide range of theoretical and empirical influences. Central to material culture studies, however, is the relationship between people and things: understanding things, that is, in their differing social, cultural, economic and political, as well as spatial and temporal contexts, and considering how things materialise, mediate and move between these different contexts (Miller and Tilley, 1996, p.5; Basu, 2017).

Here, I am particularly interested in how material things may be said to contain, presence or narrate particular contexts. This is, of course, essential to the way in which museums communicate knowledge through collections. Thus, Neil MacGregor, then director of the British Museum, opens his book *A History of the World in 100 Objects* with the seemingly straight-forward statement: ‘Telling history through things is what museums are for’ (MacGregor, 2010, p.xiii). In museums, some histories (or other narratives or forms of knowledge) are made explicit through object labels, contextualising images, catalogue entries or, as in the case of *A History of the World in 100 Objects*, even radio broadcasts. And here the curatorial power to narrate, to shape and control the knowledge communicated, becomes all important. Whose history is told? From what perspective? Whose voices are present? Whose are silenced? (Trouillot, 1995). The history of the world told in MacGregor’s book and radio series was criticised, unsurprisingly, because it represented the authoritative voice of the British Museum, narrating objects that had been appropriated, sometimes in contexts of violence, from throughout the world in the age of empire.

One decolonial riposte was a project which sought to pluralise not only the histories that objects can tell, including ‘formerly subaltern stories’ that museums have often ignored, but also the ‘worlds’—the ontological contexts—in which those histories emerge and make sense. In an introductory statement on the project website, *100 Histories of 100 Worlds in 1 Object*, the project team note how the British Museum radio series and book ‘reinstate the idea of the museum as a “view from nowhere” and everywhere at the same time. It was presented as a place to see the world; yet without reflection on how the institution itself obtained and reframed the objects in order to create its own seemingly universal narrative’. As well as empowering ‘previously excluded voices’ to tell their own histories about museum objects taken from their ancestors, the project seeks to ‘show that one museum object can have 100 histories and exist in 100 worlds’.⁶ It is clear that the fragment of smithsonite accessioned under number 50215 at Bonn University’s Mineralogical Museum would not only have *meant* something different, but was, indeed, something *essentially* different, to the German industrial chemist, Carl Duisberg, who initially acquired it for his collection, and the unknown African mineworker who pick-axed it from an ore seam for the Otavi Mining and Railway Company in an era of colonial violence, which culminated in the Herero and Nama genocide.

Aside from a museum’s explicit narrations, whether articulated by powerful institutions or marginalised community members, the majority of the histories or other forms of knowledge that an object might speak to remain implicit or latent. MacGregor’s *History of the World* begins with a fragment of rock not so dissimilar to the specimen from Tsumeb. This object, accessioned at the British Museum under number 1934,1214.1, is a basalt pebble found by the paleoanthropologist and archaeologist Louis Leakey in 1931 in the Olduvai Gorge in what was then colonial Tanganyika, now Tanzania. What places this stone in the collection of the Prehistory Department of the British Museum, rather than the Earth Sciences Department of the Natural History Museum—why it is constituted as an archaeological object and not a geological object—is evidence of it being intentionally chipped to form a cutting edge, and, crucially, its excavation by Leakey from what he

⁶ <https://100histories100worlds.org/>

interpreted as an archaeological, rather than geological, context, next to fossilised butchered animal bones, that could be dated to between 1.8 and 2 million years ago. Were it not for this contextual knowledge, which cannot be discerned from the object itself, rather than being one of the oldest known humanly-made things in the world (MacGregor, 2010), it is doubtful that this otherwise unremarkable lump of basalt would arouse the interest of any museum. But what other histories, knowledges or worlds might this chipped stone invoke?

Material Culture, Metonymy and Presencing Absences

Rather than ethnographic (or archaeological, geological, etc.) *objects*, Kirschenblatt-Gimblett proposes that we consider these things as *fragments*. Her rationale is that they are made through excision or detachment from a whole. Detachment refers partly to ‘the physical act of producing fragments’ (and we might reflect on how different disciplines *extract* their specimens from their contexts), but also to what Kirschenblatt-Gimblett describes as ‘the detached attitude that makes that fragmentation and its appreciation possible’ (1991, p.388). She writes of a ‘poetics’ of the fragment. This is primarily about the perceived relationship between the detached fragment, perhaps accessioned into a museum collection, and the ‘absent whole’ that it remains part of. This is a metonymic relationship, a relationship of parts and the absent wholes that they in some way stand for. The historian Eelco Runia describes metonymy as ‘the trope [...] of “presence in absence”’ (2006, p.6). Kirschenblatt-Gimblett’s essay is mainly concerned with examining the implications of different strategies that museums adopt in ‘exhibiting the fragment’ and thereby explicitly presencing particular absences. She contrasts approaches that place the object ‘in-situ’, mimetically evoking the whole that was ‘left behind’, with those that set an object ‘in context’. Regarding the latter, Kirschenblatt-Gimblett acknowledges that ‘there are as many contexts for an object as there are interpretative strategies’ (1991, p.390), and this is dependent on the argument being made, or the histories, knowledges or questions being explored.

Outside the explicit contextualisations of museum display, however, what an object/fragment might presence or stand for beyond itself often remains latent: something present but not necessarily visible. Perhaps the most important contexts that give meaning and significance to an object remain unarticulated in these explicit narrations. Indeed, this is an important insight from anthropological material culture studies: that material things have a language of their own. They are expressive, but in tacit, non-linguistic ways. As Christopher Tilley notes, ‘through its silent “speech” and “written” presence’, an artefact ‘speaks what cannot be spoken, writes what cannot be written, and articulates that which remains conceptually separated in social practice’ (1999, p.103). In this way, museum objects such as the fragments of rock from Tsumeb and Olduvai Gorge presence other histories and other knowledges without explicitly narrating them; indeed, their materiality may resist or contradict the dominant narrations imposed upon them. With their ‘silent speech’, these fragments express their own counter-narratives. Here, perhaps, we find consonance with Édouard Glissant’s declaration, I build my language out of rocks, which inspired the title of Sascha Mikloweit’s exhibition in Bonn (this volume, pp.48–57) and draws attention to the representational limitations of language in the face

of ‘the world’s proliferating opacity’ (Dash, 2017, p.357). Things—fragments of rock included—speak for themselves, even if they do so opaquely.

As part of the work of purification, science has been granted a monopoly on the production of knowledge. Yet, in other cultural contexts (and Latour would argue in our own too), knowledge and wisdom is found in what science has dismissed as irrational. Anthropology has been one of the few disciplines that has insisted on the rationality of other ways of knowing and being in the world, and one motivation for the collection of ethnographic objects has been precisely to illustrate the logic of what Claude Lévi-Strauss famously termed ‘the science of the concrete’—the rendering of ‘the sensible world in sensible terms’, rather than through abstract language and concepts (1966, p.16). Such ways of understanding the world, which Lévi-Strauss argued were no less ‘scientific’ than understandings derived through the natural sciences (ibid.), share much with how knowledge and affect are produced in art. This again challenges the privilege given to spoken or written language, and embraces the possibilities of non-linguistic forms of communication via objects, images, sound and performance. As evidenced in the various transpositional interventions documented in this book, such approaches posit alternative—often indeterminate—knowledges (making present, while not making explicit, absent histories), while destabilising what we think we know (Schwab, 2023).

Presencing Broken Hill

While *Transpositional Geologies* is focused on histories and legacies of German colonial extractivism in Namibia, including its material traces in the mineralogical collections of the University of Bonn and Technical University Berlin, I should like to reflect on a context which is ‘adjacent’ both in terms of European colonial power and colonised African territory. Walking between the rows of antique vitrines in the Mineral Gallery of London’s Natural History Museum, one encounters thousands of systematically-ordered mineral specimens. As with the majority of such displays, written on a small label beside each specimen is a brief description of the specimen itself and the location from which it was sourced. Though by no means the original, hand-written labels, many of the locations on the labels in the Gallery still refer to colonial territories and use colonial-era place names. In one case, for example, is a cluster of specimens from ‘Tsumeb, South West Africa’. ‘South West Africa’ was the name given to Namibia after the First World War, when it became a mandate territory of South Africa, until its independence in 1990. In another case, an impressive specimen is labelled ‘green prisms on limonite, Broken Hill, Northern Rhodesia’. ‘Northern Rhodesia’ was, of course, named after the imperialist Cecil Rhodes, whose British South Africa Company had been granted mineral rights over vast territories in Southern Africa, as well as the means to administer the territories for its own profit. Declared a British protectorate in 1924, it became Zambia on its independence from Britain in 1964, while Broken Hill reverted to its Bemba toponym, Kabwe, soon after.



Figure 1. Presencing the coloniality of mining in the Mineral Gallery of the Natural History Museum, London. Specimens from ‘Broken Hill, Northern Rhodesia’ and ‘Broken Hill, New South Wales’ juxtaposed. Photo: Paul Basu.

The ongoing coloniality of museum labelling, including the use of now offensive terms and colonial-era placenames, has been the subject of considerable debate and a number of projects within ethnographic museums.⁷ In the Natural History Museum’s Mineral Gallery, the anachronistic dissonance of the labels at least presences a brutal colonial context that is otherwise absent. Indeed, as with the museums in Bonn and Berlin, into the few, pared words of these labels are elided histories of colonial conquest, extraction and exploitation that have global reach. The placename ‘Broken Hill’ itself evokes a landscape mutilated through the violence of mining and ‘over-writes’ indigenous place-knowledge with Eurocentric sensibilities. It was Thomas Davey, an Australian mining engineer working for the Rhodesia Copper Company, who ‘discovered’ a rich outcrop of lead and zinc at a place called Kabwe-ka Mukuba in 1902 and who renamed it Broken Hill after the mining town of the same name in New South Wales. Kabwe-ka Mukuba is a Bemba toponym, meaning ‘place of ore smelting’, alluding to the long precolonial history of (small-scale and sustainable) mining and metal production in the area (Musambachime, 2016).

We might note that both the outcrop after which the Australian Broken Hill was named in 1844, and its Zambian namesake, have long-since been mined away (as, indeed, has the ‘Green Hill’ after which Tsumeb is named). Fragments of both Broken Hills are juxtaposed, though without comment, in the same Natural History Museum display case (Figure 1). They presense the empire-wide reach of colonial resource extraction, but, perhaps even more poignantly, they presense absent places in the

⁷ See, for example, the ‘Labelling Matters’ project at the Pitt Rivers Museum (<https://www.prm.ox.ac.uk/labelling-matters>) and the ‘Words Matter’ project at the National Museum of World Cultures, Leiden (<https://www.materialculture.nl/en/publications/words-matter>).

landscape: places that have literally been scoured from the face of the Earth and can never be recovered.

It is quite remarkable that as recently as 2019 a scholarly article could be published on the ‘Minerals of Kabwe Mine’, describing how the Broken Hill/Kabwe lead-zinc deposit ‘was fortuitously discovered’ by Davey, how its naming was ‘an optimistic invitation of comparison with the extraordinarily rich mineral discovery’ previously made in Australia, and that Davey and his assistant ‘pegged claims on six *kopjes* (hills)’, all without reference to the exploitative colonial contexts (in both Zambia and Australia) in which this took place (Southwood, Cairncross and Rumsey, 2019, p.115). As the authors of the article, who include the principal curator responsible for mineral collections at the Natural History Museum, note, full-scale mining operations commenced at Broken Hill/Kabwe in 1904, and in the following eighty years, more than 1.8 million tons of zinc; 0.8 million tons of lead; 7,816 tonnes of vanadium oxide; 80,000 kilograms of silver; and 235,000 kilograms of cadmium were extracted from the mine (ibid.). The authors do acknowledge, in passing, that ‘a century of mining and metallurgical treatment [at Broken Hill/Kabwe] has left a legacy of severe pollution’, and, ‘in 2013, Kabwe was listed as the sixth most toxic site in the world’ (ibid., p.116).

With the commencement of industrial scale mining, the British South Africa Company extended its railway from Bulawayo to Broken Hill/Kabwe, enabling the region’s mineral wealth to be extracted, initially, via the port of Beira on the coast of Mozambique. Broken Hill fast developed as a major urban and administrative centre, and also the base for the further exploration of minerals and metal ore deposits in what became known as the Copperbelt. As Fergus Macpherson writes in *Anatomy of a Conquest: British Occupation of Zambia*, with the expansion of mining interests in the area, the British South Africa Company put into operation a land policy it had developed over the preceding years, ‘which involved the claim to mineral rights wherever minerals were found; the ignoring and indeed annulling of the land ownership of the local rulers and communities; and the extensive eviction of villages in the vicinity of the mining operations and European townships which developed in such areas’ (1981, p.222). Furthermore, mining companies were also able to extract native labour at ‘phenomenally low cost’ from subjugated populations through a process of ‘semi-conscription’, which was deemed necessary because mining work was so unpopular due to its dangerous nature and the harsh treatment of workers at the hands of European managers (ibid.).

To return to the work of purification: If the European colonial annexation of African territories, the dispossession and exploitation of its people, and the extraction of its wealth seems to us very much about the ‘politics of men’, the case of Zambia, like that of Namibia, reminds us that this was achieved through the separation of this politics from the ‘science of things’. In an article examining the relationship between science and the extension of colonial power in the Zambian Copperbelt in the 1920s and 30s, Tomas Frederiksen argues that, through the use of new ‘scientific’ prospecting techniques, geologists were able to ‘see’ the Northern Rhodesian landscape—and, more particularly, what lay *under* the Northern Rhodesian landscape, in new ways (Frederiksen, 2013).

Crucially, it was through the production of such scientific knowledge, which was consumed in distant financial centres through the abstract representations of charts, diagrams, maps, tables, statistics, and through the circulation of specimens, that enabled ‘elements of nature’ to be disembedded from their social and cultural, as well as physical, contexts, and moved ‘into the logics of capital as commodities which could be priced and exchanged on global markets’ (Frederiksen, 2013, p.272). Frederiksen characterises this as a process of ‘geologising the Copperbelt’. Emptied of people and of culture, the Northern Rhodesian ‘subsurface’ was thereby ‘produced as a “resource” and made amenable to specific forms of analysis and understanding’ (ibid.). In the case of Northern Rhodesia, then, Frederiksen concludes that ‘scientific endeavour fundamentally changed socio-natural relationships’, and ‘the extension of colonial presence and power rested on the activities of commercially-funded scientists’, who ‘perhaps unwittingly [also] became the architects of African dispossession’ (ibid., p.280).

There are other histories—and histories of science—presenced by the Broken Hill specimen in London. During open-cast mining operations at Kabwe in 1921, for example, mineworkers uncovered the near-complete fossilised skull of an ancient human, which, when it came to the attention of palaeontologists, was initially identified as a new species of human ancestor and named *Homo rhodesiensis*, or ‘Rhodesian Man’.⁸ This fragment of an ancient human-turned-stone was also transformed into a specimen—indeed, a ‘type specimen’—and deposited at the Natural History Museum in London, where it was described at the time as constituting ‘one of the scientific treasures of that Institution’ (Hrdlička, 1926, p.173). The discovery was sufficiently sensational to warrant an eight-page feature in the *Illustrated London News*. This included detailed drawings and photographs of the disfigured hill (*kopje*) and mine workings where it was found; photographs of the skull arranged alongside other primate and human skulls for comparison; and a sketch imaginatively reconstructing ‘Broken Hill Man as he lived in South Africa’. Today, the find spot, the so-called ‘Bone Cave’, would be inscribed on the UNESCO World Heritage List—if it existed. Within months of the discovery, however, the *Illustrated London News* article makes clear the shocking scale of the erasure of a whole landscape resulting from the continuing mining operations:

Before mining operations commenced, there stood at this spot a kopje, or hill, 50 to 60 feet high, with a slight depression in the centre. Mining operations have demolished the hill, and have excavated to the depth of over 90 feet below ground level where the hill stood, and it was at this depth that the skull was discovered. The entrance to the ‘Bone Cave’ was at ground level (Harris, 1921, p.680).

Given the huge wealth that has been created outside Zambia through the extraction and exploitation of its ‘natural’ resources, there is an irony in the fact that it is the petrified skull of Rhodesian Man—understood as a ‘cultural’ resource—that is at the centre of contemporary Zambian restitution debates. Arguing for the return of the skull, the Zambian archaeologist Francis Musonda points to the colonial context in which it was discovered, the illegality that surrounded its removal to Britain (contravening

⁸ The skull has subsequently been classified as one of the best preserved fossils of another extinct human species called *Homo heidelbergensis*, thought to have first appeared approximately 600,000 years ago.

the colonial government's own legislation), and the consequences of this 'cultural loss' to the people of Zambia. Musonda argues that, since the history of the skull is 'enmeshed in colonial domination', the Natural History Museum 'should endeavour to correct the historical injustice and disengage itself from the colonial legacy' by returning the skull to Zambia (2013, pp.206, 217). Welcome though the return of the 'Broken Hill skull' would be, no act of restitution can, of course, repair the devastated landscape left in the wake of the colonial mining operations, or compensate generations of Kabwe's citizens for the chronic health problems caused by its toxic waste.

If the palaeontological remains of *Homo rhodesiensis* were of primary interest to *physical* anthropologists concerned with the science of human evolution, the history of British *social* anthropology is also entangled in the story of colonial Broken Hill and the wider Northern Rhodesian Copperbelt. By the 1930s, a new generation of sociologically-minded anthropologists had gathered around Bronislaw Malinowski at the London School of Economics. They were adamant in their rejection of the older ethnological tradition with its evolutionary assumptions and diffusionist theories 'born of the dust and welter' of the ethnographic museum (Basu, 2013).

A new 'problem-oriented' anthropology emerged in Northern Rhodesia, pioneered by anthropologists such as Audrey Richards, Godfrey Wilson and Monica Hunter, and pursued by others into the 1960s at the Rhodes-Livingstone Institute, the first social science research institute to be established in Africa (Schumaker, 2001). The focus of their work was specifically to investigate the impact of colonial development on local populations, including researching 'cultural contact', 'detribalisation', 'urbanisation', and new social dynamics as local people migrated to work in the mines or in other colonial infrastructure projects, such as the railways or road building. Wilson, who was appointed as the first director of the Rhodes-Livingstone Institute in 1938, initially planned to conduct research among African mineworkers in the Copperbelt. Here, however, he met with resistance from mining companies and colonial administrators, who, in the aftermath of violent strikes in 1935, were concerned that his inquiries would 'stir up discontent' in the labour force (Brown, 1975, p.190). Consequently, Wilson shifted the location of his study of migrant labour and urbanisation to the mining town of Broken Hill, where he conducted research in 1939 and 1940 (Hansen, 2015; Wilson, 1941, 1942). (The Copperbelt became the primary focus of the Rhodes-Livingstone Institute's research over the following 20 years.)

The Rhodes-Livingstone Institute was funded through the Colonial Development and Welfare Fund. Thus, even though their position was more critical, social scientists such as Wilson were also part of the colonial infrastructure, and their work reflects 'the fundamental ambiguity which lay at the heart of the relationship between anthropology and colonial rule' (Brown, 1973, p.174). At the same time, by focusing on the social and cultural implications of colonial resource extraction, they re-humanised the geologised Copperbelt. Reintroducing the 'politics of men' into the 'science of things' that facilitated the commoditisation of a Continent's natural (and human) resources, their policy-focused work also provides a bridge to the present and the future, reminding us that the specimens in the mineralogical museum not only presence pasts, but also presence the ongoing struggles that people must contend with to overcome the most literally toxic of colonial legacies. This includes the struggle

of campaign groups, such as Children of Kabwe, to hold to account the global mining companies that benefitted from extracting Kabwe's mineral resources for the consequent contamination of the local environment and associated health implications caused.⁹

Microliths as Monuments?

In this introductory essay to *Transpositional Geologies*, I have sought to explore how absent histories, knowledges and worlds are presented, both explicitly and implicitly, by mineralogical specimens in geological museum collections. Even though mineralogical museums typically perpetuate an ideological separation between Nature and Culture in their explicit presentation and narration of what are constructed as 'scientific specimens' void of politics, their discursive control of these epistemic objects may be resisted—or, one might say, 'refused'—by these fragmentary things themselves. Thinking through some of the transpositional interventions in this book relating to the specimens from Tsumeb, and through the adjacent context of Kabwe, it is clear that these fragments contain within them the potential to presence histories and knowledges that are suppressed, even denied, in dominant geological narrations. *Transpositional Geologies* documents and enacts various approaches to making these absent narratives present: through scholarly essays, but also through photography, poetry, exhibition, film, (post-)conceptual art, and other unashamedly 'unscientific' ways of knowing and telling. There will, however, always be an excess of meanings 'contained' in these fragments; meanings as yet unrepresented and perhaps unrepresentable.

In his historiographical discussion of the concept of 'presence', defined as 'the unrepresented way in which the past is present in the present', Eelco Runia (2006) contrasts the operation of metaphor and metonymy in relation to monuments. He describes 'metaphorical monuments', which are typically more representational in form, as 'primarily engaged in a transfer of meaning'. 'Metonymic monuments', on the other hand—and he uses Eisenman's Memorial to the Murdered Jews of Europe in Berlin as an example—'concentrate on a transfer of presence'. Such monuments, he argues, entail, firstly, 'a metonymical transposition of "substance" [...] from one place to another', and, secondly, 'in an act of artistic transubstantiation, this metonymical *Fremdkörper* [a 'foreign body' or thing that is out of place] is metaphorically associated with what is to be commemorated' (ibid., p.17). 'Whereas metaphor "gives" meaning', Runia writes, 'metonymy insinuates that there is an urgent *need* for meaning' (ibid., p.19).

Runia's reflections on metonymy, monuments and meaning are lenses through which we might look upon the geological specimens in the mineralogical museum. Like their megalithic counterparts, might these fragments of rock, these microliths, not also be regarded as monuments? Despite the museum's insistent claims on them, they are without doubt matter out of place. And, as with the statues of imperialists that have seemingly stood inert and ignored for decades, has the time not come to question the 'geological givenness' of these specimens and recognise the other knowledges that

⁹ <https://www.childrenofkabwe.com/>

they presence? Knowledges of injustices that are no longer—indeed, never have been—tolerable. And just as the campaigners demand that the statues of Rhodes must fall, so might we discern a kind of ‘fallism’ in Mikloweit’s pulverisation of the Tsumeb specimen in Bonn, its return as dust to the crater in Namibia where a mountain once stood?

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