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8

‘Just ask the stones’: Eco-Translation, natural history and geomedia

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Novalis’ theory of translation (published in 1798) is brief but expansive. It amounts to a few notes that sketch three kinds of translation: ‘grammatical’, ‘transformative’, ‘mythic.’¹ This is a schema that applies to ‘[n]ot just books, everything can be translated in those three ways’ (*Nicht bloss Bücher, alles kann auf diese drei Arten übersetzt werden*) (1987: 337). The idea that every-thing involves translation might be understood in the context of an arising global modernity around 1800 where translation becomes central to intercultural exchange.² Equally, however, it resonates with the then emerging concept of deep time and in salient respects anticipates Ursula Le Guin’s concept of *geolinguistics* (1974) and Michael Cronin’s *geotranslation* (2022). As a student of mining engineering Friedrich von Hardenberg, alias Novalis, was confronted first-hand with traces of deep time and earth’s ancient history. The means by which the earth recorded that history – which might be called *geomedia*, that is, the rock strata and fossil records of now extinct animals – had provided material evidence that the planet was older than humanity by millions of years, thus putting geological and oryctognostic thinking at odds with the Bible’s Mosaic timeline. In Novalis’ lifetime *geohistory* had ‘burst the limits of time’³ and opened a chasm between an unimaginably long natural history and a relatively short human history, a chasm whose aftershocks echo in an epistemic rift between nature and culture. While Novalis’ contemporary Henrich Steffens addressed this chasm by insisting that ‘history itself had to become nature through and through if it hoped to assert itself as history in the context of nature, that is, in all aspects of its existence’ (1908: 176–7 translation mine), Novalis treats this chasm as a translation issue. As I will show in this chapter, Novalis’ ‘speculative theory’ of translation⁴ seeks to bridge, in highly imaginative ways, the false dichotomy between nature and culture, pointing to a *natureculture* and a *medianature*⁵ continuum that speaks to our present ecological concerns.

8.1. A prehistory of eco-translation

The rift that would see geology and history emerge as different disciplines over the nineteenth century, or, more pointedly put, that would recast planets and persons as located in distinct genres of time, has gained renewed attention in our own time as the



extent of human-induced changes in the physical processes of the earth is becoming increasingly legible. If humans are geological agents responsible for global warming and species extinction, this means, as Dipesh Chakrabarty explains, that the ‘geological now of the Anthropocene has become entangled with the now of human history’, thus collapsing ‘the distinction between human and natural histories’ (2009: 212, 207). Key concerns for those in the environmental humanities have therefore revolved around how human history might be reconnected with earth history and how the ‘convergence between geology, archaeology and history’, as Chakrabarty puts it, might be usefully deployed in this regard and with view to a new historiography (219); or, how incommensurable temporal scales – acceleration and slowness, catastrophic tipping points and gradualism – and what Amitav Gosh (2016) calls their ‘derangement’ might be realigned and made into a global concern.

Novalis’ writing on geology and mining, precisely because it addresses the entanglement between natural and human history, is pertinent to these issues, but so is his thinking on translation. While his ‘mineral’ fictions have made him a key figure of the pre-Anthropocene in literary studies, even a proto-petrocultural thinker (Groves 2020: 17–35), his translation theory has been often been overlooked, including as a potential antecedent of Anthropocene translation studies. ‘The human alone does not speak – the universe *speaks* too – everything speaks – infinite languages’ (*Der Mensch spricht nicht allein – auch das Universum spricht – alles spricht – unendliche Sprachen*), writes Novalis in 1798/9 (2007: 24, translation modified; 1993: §143). Two interrelated points follow from this claim: first, nature itself speaks, a stone speaks, mountains speak, plants speak and animals speak; in short, the inhuman and the non-human speak *too*, even though the human may not understand or even discern all the infinite languages – mineral, vegetable, animal – that the universe speaks.⁶ Second, therefore, *among* the languages that the universe speaks are human languages. A further and interrelated point is articulated in Novalis’ philosophical essay-poem *The Novices of Sais* (written between 1798 and 1799 and set in the ancient Egyptian city of Sais), where nature communicates in a cipher language of strange signs and hieroglyphs that are discernible ‘everywhere’, inviting decipherment. Nature communicates, he writes,

in wings, eggshells, clouds and snow, in crystals and in stone formations, on ice-covered waters, on the inside and outside of mountains, of plants, beasts and men, in the lights of heaven, on scored disks of pitch or glass or in iron filings round a magnet, and in strange conjunctures of chance [...]. In them we suspect a key to magic writing, even a grammar [...].

(auf Flügeln, Eierschalen, in Wolken, im Schnee, in Kristallen und in Steinbildungen, auf gefrierenden Wassern, im Innern und Äußern der Gebirge, der Pflanzen, der Tiere, der Menschen, in den Lichtern des Himmels, auf berührten und gestrichenen Scheiben von Pech und Glas, in den Feilspänen um den Magnet her, und sonderbaren Konjunkturen des Zufalls [...]. In ihnen ahnet man den Schlüssel dieser Wunderschrift, die Sprachlehre derselben [...]).

(2005: 3; 1987: 95)⁷

In other words, translation is everywhere. Hence Novalis’ is not just a thinking of translation but a translatory thinking,⁸ revealing the translations among which thought



itself figures: it expands translation into the realm of the mythic, the inorganic, the non-human, into deep time and, as we shall see, into the medial, and thus re-envelops thought within the world from which it emerges. Accordingly, Novalis’ arch-romanticist claim prefigures solutions for which our contemporaries still plead.

If forms of communication are not limited to human language as Novalis suggests at the cusp of the nineteenth century and as new (eco)materialists emphasize in our own age, a reorientation of our thought-world is prerequisite and an expanded notion of translation⁹ is called for, and with it a greater emphasis on the materialities of translation (Littau 2016). What is translated is not necessarily a natural language or text, and not necessarily spoken by *Anthropos*, written by human hand or intended for and thus accessible by *Homo sapiens*. Here, the candidates for translation or, for that matter, for history need not be the products of the invention of writing,¹⁰ or stem from the medium of the book or its predecessor book forms, but might well be objects, or marks and traces on earth’s surfaces. If so, we need to ask a new set of questions about translation and its material substrates, and focus neither primarily on verbal translation¹¹ nor on so-called ‘artificial’ or human-made media technologies as I have done elsewhere (Littau 2011), but also on elemental media, including geomedia, as I intend to do here.¹²

To this end, the aim in this chapter is to travel part of the way in company with Michael Cronin’s ground-breaking work on eco-translation and historicize what he calls geo- and terra-centric translation narratives (2017; 2022) by going back to Novalis and the Jena romantics. Whereas Cronin develops an ethics of eco-translation, which applies anthropocenic and ecocritical concerns to translation studies, my aim is to develop a natural history of translation from which an eco-politics of translation may justly be derived. In other words, this chapter excavates an evolutionary history of translation, whereby translation developed out of earth’s history. Here, eco-translational theory is not applied to the earth; translation itself emerges from the earth. As is demonstrable in nature-philosophical writings around 1800, culture is not at odds with nature but issues from and in it, which confronts us with a hierarchy which may well turn out to be non-reversible: ‘without nature to produce human animals there can be neither culture nor politics, whereas without culture and politics there still can be nature’ (Littau 2006: 12; see also 2017: 99). Given the copious writings by the Jena circle on nature, nature’s language and translation, I will confine my present attention to Novalis’ novel *Heinrich von Ofterdingen* (1802; 1987), translated as *Henry von Ofterdingen* (1992), with the occasional detour to his friend Ludwig Tieck’s story *Der Runenberg* (1804; 1985), published in English as *The Rune Mountain* (2012) – two works which, set in mountains, caverns and mines, tell stone stories/histories (*Gestein-geschichten*) and give the lithic a voice. Through these works can be unearthed not only a prehistory of eco-translation but also an eco-translation prior to history.

8.2. Translating animal, vegetable and mineral languages

Novalis’ untimely death at the age of twenty-eight meant that *Heinrich von Ofterdingen* (written 1799–1800) was never finished. It was posthumously published under the editorship of Friedrich Schlegel and Ludwig Tieck; and notes by both Tieck and Novalis exist that indicate how its second part might have been completed. It is a



Bildungsroman that mixes medieval road novel, fairy story and epic poetry, comprising several tales, each of which contributes to Heinrich becoming a poet. The novel is populated, as is Tieck's *The Rune Mountain*, by strangers (*Fremde*) who travel from one region or country to another, or from cultivated landscapes to deep forests and rugged mountain terrains and visit caverns/mines. Set in the Middle Ages, it recounts young Heinrich leaving his father's hometown of Eisenach in the north-east of modern-day Germany to travel south with his mother to her parental city of Augsburg. On his journey, which he undertakes in the company of merchants, he encounters war-drunk crusaders, the displaced and captive Saracen Zulima who speaks in broken German, a peripatetic and wise old miner, a learned hermit in a cave and the accomplished poet Klingsohr – each encounter occasioning a tale that he is told of other lands, some near, others far or foreign, or imagined.

Attention is drawn not only to his human companions' different languages and dialects but also to the languages of 'creatures' (*Kreaturen*), each of which 'clearly expressed its inner nature [...] in its own peculiar vernacular' (*ihre innere Natur [...] in einer eigentümlichen Mundart vernehmlich aussprach*) (1992: 77; 1987: 191). Such passages not only highlight the correlation between the language of nature and natural language but also make it clear that there is not one language of nature but many, just as there are diverse natural languages. As Kate Rigby puts it, '[t]he idea that language extends beyond the human plays an important role in German romantic thought and literature in the guise of the topos of "natural language" or the "language of nature" (*Natursprache*)' – an idea, she says, that makes *Natursprache* a precursor of biosemiotic theories of communication (2015: 33). That nature speaks to humans is not the preserve of fiction, or the stuff of fairy tales, or an anthropomorphic gesture. For instance, in a lecture from 1793 by the natural historian Karl Friedrich Kiemeyer, who Georges Cuvier famously sought out to be his teacher, 'I [NATURE]' gives a monologue that addresses humankind directly about their 'path of development' as a living species:

the history of your race [*Geschlechts*] has permitted you to see only a small element of this path [...] Whether one day I will let your species too (like individuals) be replaced by another newer species [*Gattung*] – you need no information on that matter for now.

(2021: 4–67)

I Nature can see more than we can and knows more about our species' history than we do. Novalis, who was familiar with Kiemeyer's ideas, similarly opens up a space for nature's auto-presentation in his writing.

Right at the beginning of *Heinrich von Ofterdingen* we are introduced to the languages of nature when Heinrich muses: 'Once I heard tell of the days of old, how animals and trees and cliffs talked with people then' (*Ich hörte einst von alten Zeiten reden; wie da die Tiere und Bäume und Felsen mit den Menschen gesprochen hätten*) (1992: 15; 1987: 130–1). This erstwhile communion with nature appears now lost. Alex Goodbody reads this passage as Heinrich's memory of a common *Ursprache* no longer shared (1984: 97); conversely, it might be read as a utopian panlingualism reminiscent of a golden age,¹³ which Heinrich senses might be about to resume: 'I



feel just as though they [animals and trees and cliffs] might start any moment now and I could tell by their looks what they wanted to say to me’ (*Mir ist gerade so, als wollten sie allaugenblicklich anfangen, und als könnte ich es ihnen ansehen, was sie mir sagen wollten*) (1992: 15; 1987: 131). Although his sense perception is finely attuned to visual signs and body language, understanding verbal language is not without obstacles given limited linguistic abilities, as Heinrich acknowledges in the next sentence: ‘There must be many words I do not know; if I knew more, I could grasp everything much better’ (*Es muß noch viel Worte geben, die ich nicht weiß: wußte ich mehr, so könnte ich viel besser alles begreifen*) (1992: 15; 1987: 131). Novalis’ thinking entails the acquisition of language skills which, as Reinhard Babel has pointed out, are requisite for any translator (Babel 2015: 76). Core therefore to communication with nature (animal, plant or stone) is the necessity of translation, if existence is to be meaningful in the cosmos. The implied ecocritical relevance is made explicit by Alice Kunziar when she writes that what ‘we find in Novalis [is] an intense desire to comprehend the diverse languages of nature combined with a keen consciousness of the inaccessibility of these languages if man does not try to escape the confines of his familiar, anthropocentric worldview’ (2003: 435).

Indeed, we would be mistaken were we to assume that nature only talks to humans and that humankind is always the addressee or at the centre of nature’s communications; rather, plants and animals also speak among themselves. According to Novalis’ notes, he planned for the second part of the novel to have ‘flowers and animals talk about humankind, religion, nature and sciences’ (*Gespräche der Blumen und Tiere über Menschen, Religion, Natur und Wissenschaften*) (1987: 285).¹⁴ This in effect not only creates a human-free communicative space but also decentres human forms of communication. Novalis gives all material forms (organic and otherwise) a voice so that they may interact, even ‘intra-act’.¹⁵ If anything, a more pronounced speaking platform is given to plants and stones than to animals, thus evading at least in part what Manuel De Landa so presciently called ‘organic chauvinism’ in the mid-1990s.¹⁶ ‘Just ask the stones, you’ll be astonished when you hear them talk’ (*Frage nur die Steine, du wirst erstaunen, wenn du sie reden hörst*) (2012: 70, translation modified; 1985: 203), says Christian in *The Rune Mountain* to his father, who prefers to speak with plants and deeply distrusts mountains and his son’s lithic obsession, be this with sparkling gemstones or humble pebbles. For Christian, however, the ‘once magnificent worlds of rocks’ (*vormaliger herrlicher Steinwelten*), because of their primordality, can tell us a great deal about earth’s historicity and its geotrauma of being shaped and reshaped by long processes of upheaval, erosion, accretion and sedimentation, of which short-lived plants have no knowledge, or of which latecomers such as humans have little understanding. ‘Whether anyone has ever understood the stones,’ Novalis writes in *The Novices of Sais*, ‘I do not know [...] so rare [is] an understanding of the stone world’ (2005: 91).

Neither Tieck nor Novalis privilege entities that are animate, living and lively over those that are inanimate, non-living, and inert – a binary bias towards the biological (humans, animals, plants) over and above the geological (rocks, stones, mountains). Rather, if the earth itself, as Dennis Mahoney suggests, is ‘a living creature’¹⁷ that communicates, or more pointedly still, if the earth – this mighty rock – is an animate



thing that speaks in the ur-language of things, then, to borrow Jeffrey Cohen's words, 'lithic existence' is not 'a blank materiality, a thing unthought so that thoughtful things may flourish in their self-awareness' (2015: 50). Rocks and stones do not depend on 'thoughtful things' like humans but have multiple existences and historicities that precede humans and their history. Moreover earth is an animate, living creature, not because it is an organic entity, a Gaia figure,¹⁸ but because it is creative, creating itself by turning heat into stone, and transforming rocks into sediments, etc. with little prospect of a beginning or end.¹⁹ Put differently, if rocks and stones speak and inscribe their histories in geomedia, they are endowed with what Jane Bennett calls 'the vitality of matter'²⁰ that gives them and, by extension, all of nature agency and a function that is never just background or man's workshop.²¹

While it is the case that Novalis' speaking animals, plants and rocks appear at once arcane and queer, his romanticism is pertinent to ecocriticism, because it imagines an 'entangledness' (*Verbundenseyn*) (Novalis 2003: §48, my translation) of humans-and-nature. And, although Novalis did not articulate his notion of mythic translation with reference to translating animal, vegetable and mineral languages, it lends itself to such a reading, not least because mythic translation embraces an 'ideal' that may not exist in reality or, as he says, for which 'there exists still no complete pattern.'²² Closer to our own moment in history and in a similar vein, Ursula Le Guin's speculative fiction imagines communicative possibilities with nature that too involve translation.²³ In her 1974 short story 'The Author of the Acacia Seeds and Other Extracts from the Journal of Therolinguistics', Le Guin addresses 'the difficulty of translation' of non-human languages (1974: 217), such as Ant, Penguin or Dolphin, which might involve translating 'script written almost entirely in wings, neck, and air' (217) or 'kinetic' text forms (218). As one of the story's characters, the President of the Learned Society, complains: while much had been done in the field of therolinguistics, by contrast, phytolinguistics and geolinguistics were under-researched. Although mid-twentieth-century scientists and artists, the President continues, had once mocked the idea that 'Dolphin would ever be comprehensible' (222), the phytolinguists of the future will find it just as ludicrous that there was ever a time when we 'couldn't even read Eggplant' (222). Moreover, the 'first geolinguist' after them will 'smile at our ignorance' when digging beneath the 'newly deciphered lyrics of the lichen on the north face of Pike's Peak', because what the geolinguist will discover there is 'the still less communicative, still more passive, wholly atemporal, cold, volcanic poetry of the rocks: each one a word spoken, how long ago, by the earth itself, in the immense solitude, the immenser community, of space' (222). Her science fiction story thus picks up on the biocentric bias that still persists into the future. While Le Guin's story makes translation – and literary translation especially – an important aspect of the *arts of living on this planet*,²⁴ it is her emphasis on geolinguistics that interests me, precisely because stone is primal matter – the ground, so to speak as we shall see, in which translation first emerges.

Le Guin's and Novalis' approaches to translation also resonate with those in contemporary translation studies that have sought to expand translation into the new and innovative realms of the post-human and/or non-lingual. When Cronin advances the notion of 'terratranslation' that would extend to 'multiversal translation between species' (2022: 11) and the notion of 'geotranslation' that would seek 'to interpret



non-written material remains from the past that extend indefinitely beyond recorded human history' (7), he does so for pressing ethical reasons.

The biosphere can typically be threatened by climate change, exponential human population growth, biotic impoverishment, reduction of biodiversity or renewable resource depletion, to name but a few factors. In the case of the tradosphere, the principal danger comes from the collapse of translation systems that allow humans to interact in a viable and sustainable way with other sentient and non-sentient beings on the planet.

(Cronin 2017: 71)

With the concept of the 'tradosphere' as 'the sum of all translation systems on the planet', Cronin seeks to draw our attention to the interconnectedness between humans and non-humans, which has now become so out of kilter, and the need therefore for 'a viable theory of translation for the coming times' (2017: 72). Similarly, Hedwig Fraunhofer's proposal for including 'plant translation' in translation studies to foster 'communication with the natural world' is motivated by a sense that 'the Anthropocene [is] the result of mistranslation' (2022: 49), in effect, a 'translation failure that is now threatening an entire planet' (42). Both Cronin and Fraunhofer are thus concerned with the role that translation and/or translation studies might play at this moment in earth's evolutionary history, namely the Anthropocene. Relatedly, Kobus Marais' theory of 'biosemiotic translation' (2019: 54) lends itself to ecocritical concerns as Cronin has shown (2022: 4). Additionally, by adopting a Peircean model, Marais widens the scope of translation by including sign-based communication, such as non-verbal communication between human and non-human animals, and chemical communication between Acacia trees (2019: 50). When he argues, drawing on Peirce, that '[t]he chemist who analyses the stone and the paleontologist who studies the fossil of the fish are both fulfilling a translation function, creating an interpretant from a material representamen' (111), it is clear that translation exceeds and unsettles its traditional remit of interlingual translation as 'translation proper' in Roman Jakobson's sense (1966: 233). This translation function, however, could not be fulfilled were it not for the material base of the stone on which the code is inscribed. As the medialogist Régis Debray once said, 'the code is thus not everything' because it depends on and is inseparable from its 'material embodiment' (1996: 74). Where, that is, there is embodiment occurs, something *is* embodied that had not been, or: matter becomes medium.

8.3. Translating the hieroglyphs of nature

The geologists who examined stone and the palaeontologists who examined fossils around 1800 too were translators, and overtly so, since they cast themselves in the role of would-be Champollions of nature's hieroglyphic and/or runic inscriptions. The romantic fascination with hieroglyphs cannot be underestimated especially in the period between the Rosetta Stone's discovery in 1799, its colonial transplantation



from Egypt to the British Museum (which itself is a form of translation) and its decipherment by Jean-François Champollion in 1822. Champollion worked from an inked lithographic copy that had been taken of the carved inscriptions – a printing process which allowed the message on the stone to be circulated among scholars (Allan 2016: 46–7). I mention this lithographic method because it goes to the heart of the argument of this section of the chapter, namely that earth's materials become the media for writing and for translation.

Before the Rosetta Stone was moved to its place of exhibition, the floor of the museum had to be strengthened given its sheer weight. Since then, the stele with its chiselled hieroglyphic markings – standing for puzzle, a lost language (even a lost *Ursprache*) and the possibilities of translation across place and time – has been a magnet of fascination. Even after Champollion's translation, the hieroglyphic imagination continued to cast hieroglyphics as a *Wunderschrift* (wonder script) and a *Rätselschrift* (enigma script) that would, once unlocked, 'yield undreamed-of information' of lost pasts or buried memories, as Freud famously put it in 1896 when he compared the work of the psychoanalyst to the archaeologist (1953–74: 192). As I am writing this, the British Museum has just opened a major exhibition, entitled *Hieroglyphs. Unlocking Ancient Egypt* (13 October 2022–19 February 2023) to commemorate the 200-year anniversary of the hieroglyphs' decipherment by Champollion.

Not quite script and not quite image, but an intermedial mesh of both, hieroglyphs came to represent, as the Egyptologist Jan Assmann and his wife, the media historian Aleida Assmann, have pointed out, a *Dingschrift* (thing-script) (J. and A. Assmann 2003: 20) – 'an alphabet of things, and not of words', as Sir Thomas Browne had remarked in the seventeenth century (qtd. J. and A. Assmann 2003: 22). Supposedly, their markings stood in a direct relation to the world of things, referring neither to concepts nor to sounds – an assumption that Champollion proved wrong. Even before the Romantics, hieroglyphs came to be regarded as a writing system that did not just transcribe a particular language, but 'nature itself' (Assmann 2003: 272). It was precisely this association with *Naturschrift* (script of nature) that made hieroglyphs into the prototype of the romantic artwork per se (Assmann 2003: 274). For, the opportunity to decipher and grasp their meaning would be 'nothing less than an attempt to regain a true relationship with nature' (Schaber 1973: 38) – hence, Novalis' allusion in *Novices of Sais* to hieroglyphs as a *Chifferschrift* (a cipher script) of nature's strange signs. What *Chifferschrift* as *Naturschrift* opens up is the possibility of nature's auto-presentation, or what Antje Pfannkuchen so aptly has referred to as the 'self-writing of nature' (2015: 140).

Nature here is not just conjured up by the artist's imagination; nature is the artist, whose foreign signs the human artist transcribes and translates. As the nature philosopher Friedrich Wilhelm Joseph von Schelling put it succinctly in 1803:

Nature for us is an ancient author, who wrote in hieroglyphs, and whose leaves are colossal, as the Artist says in Goethe. Even those who want to investigate nature only empirically need to know nature's *language* so that utterances now extinct may become intelligible. The same is true of philology in the higher sense of the term. The earth is a book made up of fragments and rhapsodies from very different

ages. Each mineral is a real philological problem. In geology we still await the genius who will analyse the earth and show its composition as [the philologist Friedrich August] Wolf analysed Homer.

(Die Natur ist für uns ein uralter Autor, der in Hieroglyphen geschrieben hat, dessen Blätter kolossal sind, wie der Künstler bei Goethe sagt. Eben derjenige, der die Natur bloß auf dem empirischen Wege erforschen will, bedarf gleichsam am meisten Sprach-Kenntniß von ihr, um die für ihn ausgestorbene Rede zu verstehen. Im höheren Sinn der Philologie ist dasselbe wahr. Die Erde ist ein Buch, das aus Bruchstücken und Rhapsodien sehr verschiedener Zeiten zusammengesetzt ist. Jedes Mineral ist ein wahres philologisches Problem. In der Geologie wird der Wolf noch erwartet, der die Erde ebenso wie den Homer zerlegt und ihre Zusammensetzung zeigt.)

(1966: 40, translation modified; 1856–61: 246–7)

Schelling brings together two related motifs, both of which echo those of his contemporaries, including Novalis: one is the trope of the hieroglyphs of nature, the other of the book of nature with immensely large pages. Depicting stone with hieroglyphic markings, or with runic-like markings, and drawing attention to its 'typographic characters,' as the Scottish geologist James Hutton did in his book *Theory of the Earth* (1795: 106) (Figure 8.1), or casting nature in medial terms as Schelling does, and as Charles Lyell will do some decades later, and subsequently also adopted by Charles Darwin, was commonplace in this period.²⁵ Earth was variously described as a

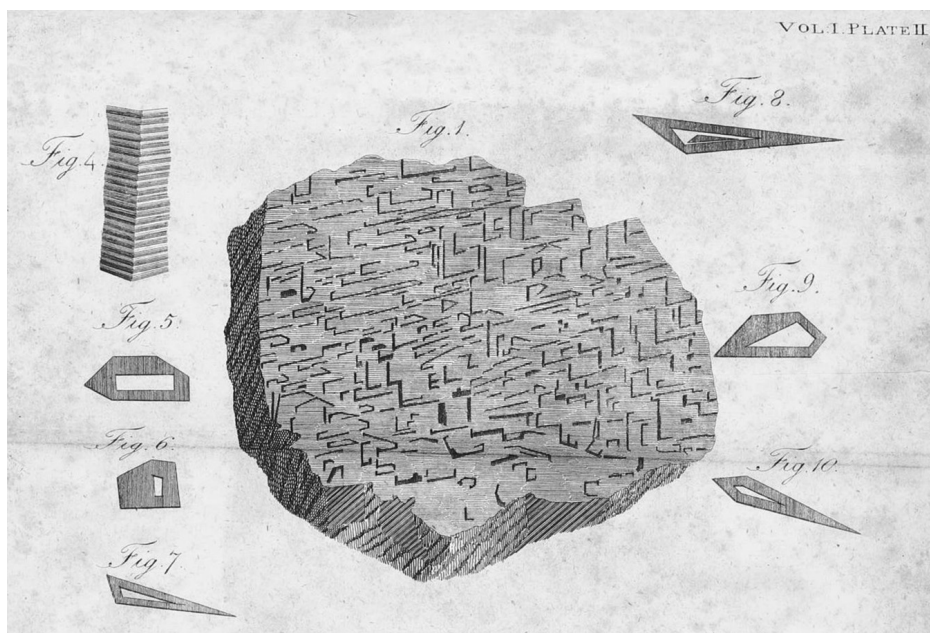


Figure 8.1 James Hutton, *Theory of the Earth, With Proofs and Illustrations, In Four Parts*, Vol. I, Plate II (Edinburgh: William Creech, 1795).



book, a library or archive, or an ancient monument. Lyell famously described the study of earth in terms of ‘the alphabet and grammar of geology’ (1997: 356), and Darwin referred to ‘the geological record’ as having been ‘written in a changing dialect’ and of earth consisting of a ‘volume’, with missing chapters, and pages of just a few lines each (2008: 229). Changing dialect means that earth has changed and transformed, and therefore has a historicity, something previous ages had overlooked, because they saw earth’s staticness not as slow history but as nature’s constancy.

Although contemporary critics almost exclusively refer to Lyell’s and Darwin’s descriptions of earth in terms of metaphors of reading, strictly speaking they are metaphors of translation,²⁶ or perhaps not mere metaphors at all. After all, are books and their precursor book forms not made of earthy things such as stones, plants and animals? Do the stone tablet, the papyrus roll or the parchment codex not also belong to earth’s materials? And are processes that go into printing not also based on earth’s minerals and metals? Is the book, including its precursor and modern versions, not made of non-human things like clay, papyrus reed, animal skin, flax, wood pulp, silicon, lithium, and so on, harvested, prepared or extracted from earth? Or relatedly, how have these non-human materials been physically transplanted around the globe, when, where, to what effect; that is, how have natures been translated, as Alan Bewell (2017) asks, in the context of colonialist, environmental legacies? And in turn, how have natures in translation, say the importation of this or that plant, changed not just landscapes or whole ecosystems, as Bewell shows, but also the materials for bookish production at the microlevel – a natural history produced not just on paper but as paper? Is the history of written text not therefore also a history of intersections of culture and nature, of meaning and medium, inviting us to combine book history, nature’s materialities and the environmental humanities, as Joshua Calhoun (2020) has done for early modern studies by scrutinizing the material nature of the page? In a nutshell, is the history of media not literally a translation of nature and as such also a natural history of and as media?

8.4. Natural histories of translation and media

In a recent essay on the profound implications of the material/medial turn for translation studies, Karen Bennett makes this concluding remark: ‘it may now be time to consider the even more audacious integration of the natural world as falling within the remit of translation’ (2022: 69). One way in which to approach this task is to take the requisite steps towards a geomeia history of translation. The point here is that pursuing translation into the terrains of natural history must also turn into a natural history of media, or perhaps, into a history of the geomeia that exhibits the first act of translation, the first act of *setting something onto something else*, to take the composite word in German for translation – *Übersetzung* – literally: a setting down of one upon another, that is, a *deposition* legible in a script articulated by and as stratification. *Übersetzung* thus invites a conception of translation as adding layers to works in the cultural record. Moreover, the stratification model of translation would entail that we open the book of nature to pay attention not only to what is there





written but to what it is written upon. In so doing, we find that even the attempt to separate human from natural history will have been written, primordially, in stone. Put differently, a medium *will have been first* only *once* something has been placed upon it, once an *Über-setzung* has taken place. This entails a reciprocal relation: one cannot record without a medium, and *it will be* the recording that makes the medium into the medium it thereby becomes. Rock, that is, would not be a medium unless and until something (a script of jewels, a chiselled text, a cave painting, the heat and pressure differentials revealing stratification, etc.) is recorded on it, and there would not be a recording without the rock that could become a medium. And that is why there is an eco-translation prior to history: a primordial *Übersetzung*, so to speak, is an account of the *first emergence of recording media*. Translation *always also* takes place physically.

The earth is the first recording medium when it translates heat to stone, transforms stone to sand and so on and so forth. It records its multi-layered histories in stones and fossils, inside mountains, on bedrock and in rock faces. This is why the minerologist and the miner are privileged figures in Novalis’ and Tieck’s respective stories: these figures have first-hand knowledge of earth’s work and workings, its stratigraphic translations from one material form into another, and thus witness the autobiography the earth wrote in jewels and deposited deep in its colossal strata over unimaginable scales of time. When Heinrich and his companions, led by the wise old miner, first enter the cavern, the spectre of Georges Cuvier looms large:

what engaged the attention of all particularly was the countless number of bones and teeth which covered the floor. Many were preserved; others had marks of integration, and those that stuck out of the wall here and there appeared to be petrified. Most of them were of unusual size and strength. The old miner was delighted by these vestiges of a primeval age; only the farmers felt a bit eery, for they regarded them as clear traces of near-by beasts of prey, however convincingly the old miner showed that the bones were indications of inconceivable antiquity [...].

(was die Aufmerksamkeit Aller vorzüglich beschäftigte, war die unzählige Menge von Knochen und Zähnen, die den Boden bedeckten. Viele waren völlig erhalten, an andern sah man Spuren der Verwesung, und die, welche aus den Wänden hin und wieder hervorragten, schienen steinartig geworden zu sein. Die meisten waren von unmöglicher Größe und Stärke. Der Alter freute sich über die Überbleibsel einer uralten Zeit; nur die den Bauern was nicht wohl zumute, den sie hielten sie für deutliche Spuren naher Raubtiere, so überzeugend ihnen auch der Alte die Zeichen eines undenklichen Altertums daran aufwies [...].)

(1992: 78; 1987: 192)

That no human fossils had ever been found, as Cuvier’s paleontological work had made clear, despite Johann Jakob Scheuchzer famously mistaking a fossilized salamander for a human skeleton,²⁷ was archival evidence of a history before, and without, humans. Thus, the descent into the cavern/mine is synonymous with the discovery of earth’s historicity. Novalis’ miner looks to the mine for knowledge about this prehistoric world but also for wisdom. He rejects what we would now call resource extractivism and sees



the subterranean world of mines as ‘hidden treasure chambers of nature’ (*verborgenen Schatzkammern der Natur*) (1992: 66; 1987: 180) and wondrous landscapes with trees laden with ruby fruits that grow out of crystal soil (see 1992: 88; 1987: 202). This magic of mining²⁸ chars in the present-day context of the Anthropocene, even when the miner makes it clear that this underground world is not to be abused for profit but should be cherished for what it offers for the common good of all. Before I return to this issue, I want to stay with the idea that the mine is a source of knowledge about earth’s history (which too is a form of extractivism) and a place to marvel earth’s artistry.²⁹

Heinrich too senses earth’s tumultuous history when he enters the cavern and wonders about the vibrant world deep below: ‘might it be possible that beneath our feet a world of its own is stirring with tremendous life?’ (*wäre es möglich, daß unter unsern Füßen eine eigene Welt in einem ungeheuren Leben sich bewegte*) (1987: 192–3, my translation). But this is not a world untouched by humans since they also find fresh footprints that belong to the hermit who has made the cavern his home. The mine is thus a transition zone between the traces of natural history and the imprints of human history, a ‘latent Anthropocene’ to borrow Jason Groves’ term (2020: 3). That the cavern contains both human footprints and fossils of extinct animals, each representing traces from different times and of differing durations, is indicative of the multi-layeredness of history, what Reinhart Koselleck calls ‘the simultaneity of the nonsimultaneous’ in history (2018: 45).³⁰ In salient respects the novel lays some of the groundwork for understanding Koselleck’s geological metaphor for history (*Geschichte*) as ‘sediments [or strata or layers] of time’ (*Zeit-schichten*), where ‘time’ (*Zeit*) and ‘strata’ (*Schichten*) are moulded together to make history (*Geschichte*) – terms which in German hark back to ‘rock strata’ (*Gesteinsschichten*).³¹ Novalis literalizes this, especially in Heinrich’s cavern scene: he tells stories/histories (*Geschichten*) about rocks (*Gestein*).

Indeed, human history is addressed head on through the figure of the hermit, Count of Hohenzollern, who is introduced to us as a scholar of history books. Our first encounter with this figure is as a reader of a large book laid out on a stone slab, surrounded by other books scattered on the ground, as if emerging from the soil itself. What ensues is a lengthy exchange with the miner about the interrelations between natural and human history. That the hermit studies human history inside a cavern, which is the locus of earth history, suggests that human history is embedded in earth’s history.³² This is an important inversion, neither is ‘human history a recapitulation of the *whole* history of the earth’ to borrow Nicholas Rupke’s words (1990: 256) nor is human history the core or centre of history per se; that, rather, is the earth. Human history is repositioned as part of a larger non-human history. In other words, human history is *of* earth history, a smaller part of a larger whole. The same is true of media history. If earth itself is a storage and recording medium, then the presence in the cavern of the medium of the book, which too is a storage and recording medium, is a medium-within-medium.

Heinrich is fascinated by the hermit’s books and ‘leafed through them with endless joy’ (*blätterte mit unendlicher Lust umher*) (1992: 90; 1987: 204). We are told that each was ‘large and beautifully illuminated’ (*großen schöngemalten Schriften*) (1992: 90; 1987: 204), thus drawing attention to a materiality these works share with the medieval codex. One book takes his interest especially. It is written in a language Heinrich does

not understand but contains pictures which appear to depict scenes from his life. He thus recognizes himself in the book, reading the very book he is holding. The book, which is also a book-within-the-book, is not finished and its last pages remain obscure. That this book contains images in sequence which add up to a story anticipates the mid-nineteenth-century, proto-cinematic flip book (whereby successive drawings and later photographs are rapidly flipped by the thumb to create the illusion of motion), which had its forerunner in medieval miniatures, as researchers at the University of Heidelberg discovered when they digitally scanned pages from the Stuttgart codex from around 1470 of the *Sigenot* epic and found that the illuminations had been sequentially arranged with such frame by frame precision, along the principle of the storyboard or even the flip book, that when scrolling through the pages on the computer screen, the images could be watched like an animated ‘film.’³³ Alice Kuzniar does not pick up on this particular media-historical point but makes a larger one about ‘[t]echnologization of appearances’, ‘accelerated vision’ and movematisation in **Novalis** (1999: 219), when she points to the numerous references to signs, figures and images that appear to be mobile and mobilised by variegated light sources from sparkling stones to flickering flamelets to projected beans.³⁴ Heinrich’s book is thus already a medial *Übersetzung*, comprised as it is of medial layers that contain traces of both written and optical media technologies.

Something similar occurs in Tieck’s story, when Christian is handed a book – or rather, a stone tablet – from a cavern in the Rune Mountain by the *Waldweib* (forest woman). The tablet comes from a mountain, and therefore from earth, and is made of stone which is earth’s primal matter. Moreover, it comes from the Rune Mountain, the name of which references an ancient writing system (Gasperi 2015: 420), which suggests that the mountain and, by extension, nature write in runes. The story thus foregrounds stone as an ancient recording medium both in the geological and archaeological sense. Inlaid with sparkling stones, rubies and diamonds, ‘[t]he tablet appeared to form a fantastical, incomprehensible figure with its various colours and lines’ (*Die Tafel schien eine wunderliche unverständliche Figur mit ihren unterschiedlichen Farben und Linien zu bilden*) (2012: 61, translation modified; 1985: 192). It variously blinds and soothes Christian’s eyes with its colourful shimmer, but its cryptic design conveys no clear message other than lore for him and repulsion for his father.

My son, my heart shudders when I look at the contours of these stones and, pondering, sense the meaning of this strange syntax; see how coldly it sparkles, what gruesome looks these stones give [...]. Throw away this inscription [...]

(Mein Sohn, mir schaudert recht im Herzen, wenn ich die Lineamente dieser Steine betrachte und ahnend den Sinn dieser Wortfügung errate; sieh her, wie kalt sie funkeln, welche grausame Blicke sie von sich geben [...]. Wirf diese Schrift weg [...])
(2012: 72, translation modified; 1985: 204)

On the one hand, lingual translation is evoked by reference to hieroglyphic discourse and the task to translate nature’s strange signs into a comprehensible human language; here ‘concretized’ in the stone tablet, as Carlos Gasperi points out, ‘by way of petrification into a language of magical stones’ (2015: 420). On the other hand, the

‘magic tablet’ (*magische Tafel*) (2012: 72; 1985: 204) evokes the media technology of the magic lantern with its phantasmagoric projections. For, the capacity of the stone tablet to generate shimmering images suggests that affordances specific to the magic lantern have been translated – or transmediated – into the stone tablet, thus inserting an additional medial layer into the stone. The stone tablet contains at least two medialities, perhaps even prefiguring, as Groves notes, the touch-screen tablet device (2020: 260).

As we have seen, the earth is overtly described as a book by geologists in this period; Heinrich encounters books deep inside the earth and Christian receives a book of sorts that too comes from inside the earth. Translation is omnipresent here as both reading and recording, and thus as irreducibly both semantic and medial. That is, translation is omnipresent both as readings of a record and as recordings of these readings: the book and the stone tablet bear the traces of strange figures (suggestive of hieroglyphs and/or runes) that invite translation; the same figures sometimes also appear to be in motion, and thus point to intermedial translation. On the one hand, storage devices such as stone tablets, books, flip books, magic lantern slides manifestly belong to the world of culture, as do their modes of inscription. On the other hand, these objects also belong to nature, are *of* nature. Nature as book (Schelling, Lyell, Darwin) is turned into the book in nature (Novalis, Tieck). Why else would the hermit’s books be strewn over the ground, the uppermost stratum of the earth, or Tieck’s tablet be bejewelled, made of the mountain’s stone? Each book scene is an image of geomediation and therefore of the natural history of culture. Novalis’ and Tieck’s fictions do not make nature into culture but make culture an integral part of nature. Put differently, human history is integrated into earth history, what Donna Haraway (2003) would call *natureculture*, and media history is integrated into earth history, what Jussi Parikka (2011) calls *medianature*.

8.5. Geomedia and translation

Among Novalis’ notes for a romantic encyclopaedia, he includes this: ‘PHYSICAL HISTORY: Enquiry into the question whether or not nature has essentially changed with the growth of culture?’ (*PHYSIK[ALISCHE] GESCH[ICHTE]: Untersuchung der Frage ob sich nicht die Natur mit wachsender Kultur wesentlich geändert hat*) (2007: 8, translation modified; 1993: §54). In this note Novalis foreshadows the implications of his own profession, namely that of a mining engineer, and the effect that mining has had on the environment since the late eighteenth century, which is the date often given to the beginnings of the Anthropocene – although it could be dated earlier, starting with colonialization, plantations and intense farming, or perhaps even extending the timeline as far back as humans’ first use of fire. The magic of mining that we encountered in the figure of the old miner is alien to us in the context of our fossil-fuelled modernity that now threatens the entire planet. While it is tempting to ‘recover from Novalis’s subterranean sages an ecophilosophical ethos’ that could direct us to ‘an alternative way of thinking and doing (or desisting from) mining’ than that which prevails in our profit-driven model of intense resource

extractivism (Rigby 2017: 112), it is just as important to expose the descent into the mine as a descent to the dark side of ecology, as Groves has suggested (2020: 22). What is brought back to the surface, into the light of day so to speak, is not just an enlightened sense of the inorganic liveliness of nature that stirs below our feet. The descent into the mine also brings to the surface, in the sense of making visible, a hidden complicity with environmental devastation and what Heather Sullivan calls 'dirty nature' from which, she says, Novalis and his contemporaries tended to look away (2011: 121). While, that is, they importantly refocus our attention on the grounds of our history in the earth's, they tended not to see that, if rock layers revealed awe-inspiring vistas of deep time, the mechanism of this revelation augurs and accelerates end-times for all life.

Their ecocritical deficit notwithstanding, however, Novalis and Tieck irrevocably recast the earth as a medium that makes legible the transformations and traumas in and between its stony layers. If so, when does media history begin? Indeed, what is the difference between 'natural' and 'artificial' media? Media theory has addressed these questions and drawn attention to the imprints and inscriptions of human history in the geologic record in distinct ways. John Durham Peters' work, for instance, has expanded the study of media into geological, deep time, arguing that earth as a repository of readable data too is a medium (2003; 2016) and that media therefore encompass not just technical but also elemental media. This is a reorientation, he argues, which is 'fully relevant in a time when our most pervasive surrounding environment is technological and nature [...] is drenched with human manipulation' (2016: 2). Like Peters' entangling of geology and media, Parikka too has made a 'return to earth',³⁵ focusing on mines and mining especially. It is from the depth of the mine that we can excavate the prehistory of media and examine the materialities of media: 'the depths of mines', Parikka says, are 'essential places for the emergence of technical media culture' (2014: 6). Our media technologies come out of mines, they come out of the earth, but they also go back into the earth as toxic substances, and thus become part of earth's history in the future. We only need to think of the lithium that powers the battery of the computer. Its extraction is inhumane and so is its waste disposal. 'Media are *of* nature, and return *to* nature', writes Parikka (2011), which is why extraction and waste disposal are inextricably linked. Paradoxically, this is also why the computer is 'millions, even billions of years old' (Parikka 2015: back cover) and why dumping its components will seep contaminants into bodies now³⁶ and into the deep future. Here, too, the distinction between artificial, technological, human-made media and natural media is not as clear-cut as we might think.

The inscriptions of human history in the geologic record – plastiglomerates for instance – leave their marks and scars on earth when plastic amalgamates with stone. This too is *Über-setzung*: plastic is *über-setzt*, *set upon* stone. Throughout earth's long history geomedia has made such acts of translation visible in/on stone. If so, when does translation history start? This question prompts us to dig more deeply into the *raw* and *crude* materialities of translation. From a book- and media-historical perspective, for instance, we might consider how raw materials – such as stone or nature's other non-human plant- or animal-based materials – have shaped or are shaping writing and translation.³⁷ Or, nudging the issue closer to the environmental humanities, Michael

Cronin's work has indicated new paths for thinking about translation ecocritically, including taking into account resource extractivism and exuberance in terms of just how much energy high-tech networked translation saps and burns (2017: 6). When viewed through the lens of the energy humanities, we would have to rethink, as Patricia Yaeger (2011) and Imre Szeman (2011) have suggested for the field of literary studies, how we might frame our historical inquiries. To apply their thinking to translation studies: what would happen if we framed our historical inquiries of translation not according to centuries (the eighteenth century, nineteenth century, twentieth century) or periods (the Enlightenment) or movements (Romanticism, realism, post/modernism), but in relation to 'Wood, Tallow, Coal, Whale Oil, Gasoline, Atomic Power, and Other Energy Sources' (Yaeger 2011: 5), precisely those things that have made our media and cultural products possible in the first place? In what units of time or according to what spatial coordinates (regional, national, continental, planetary) would we then organize our studies? To ask about the material conditions of translation and how these changed and are changing in tandem with specific energy sources would require a shift from cultural to natural history.

Such an approach might even shed light on why George Steiner posits translation as a form of 'open-cast min[ing]' in *After Babel* (1975/1998: 314), a metaphor which has vexed translation scholars.³⁸ Yet, if we follow through the chain of associations of Steiner's four-pointed hermeneutic model for translation – trust, extraction, appropriation, reparation – and seize on wordings such as 'the shell smashed and the vital layers stripped', 'materially thinner', 'empty scar in the landscape', 'despoliation', 'importation', 'consumed', 'energies and resources', 'piston-stroke', 'disequilibrium throughout the system by taking away', 'violent transport', 'economic', 'compensation', 'conservation' (1998: 314–19) in the order in which they appear in his text, a pattern emerges that is expressive of what Yaeger calls an 'energy unconscious' (2011: 306): a hydrocarbon culture which not only motors cars, drives economies, oils the modern war machine but oozes into all aspects of our un/conscious lives. The acknowledgement page in *After Babel* is signed off by Steiner and dated October 1973, the same month that OPEC declared their intent to cut oil production, the culminative act of a bubbling oil crisis in that year. Am I extracting too much meaning here? Through a petrocultural lens, the 'shell' is more likely to be the fossil of plankton once buried by sediments and cooked by heat and pressure, and now the source for oil, than the 'eggshell' that Brian O'Keffe (2021: 218) sees in Steiner's choice of words; and the 'metaphorics of consumption' (O'Keffe 2021: 226) less about feeding stomachs and more about oil addiction; which is to say that all the talk of extraction, energy, resources, economics and finally reparation do make sense in the context of drilling for oil, digging up fossil fuels, plundering of earth, and colonialism. So, when Steiner says that 'words have [...] their concavities and force of tectonic suggestion' (1998: 308), we should perhaps take this literally. And here we are back in mining territory and with Novalis to give the last word to the miner, who translates into human language, one can assume, what the rocks told him: 'nature has no desire to be the exclusive possession of any single individual' (*Die Natur will nicht der ausschließliche Besitz eines einzigen sein*) (1992: 70, translation modified; 1987: 184).



Notes

- 1 According to Novalis: '[g]rammatical translations are translations in the ordinary sense' (*[g]rammatische Übersetzungen sind Übersetzungen im gewöhnlichen Sinn*) and '[t]ransforming translations, if they are to be authentic, are of the highest poetic spirit [...] The true translator of this kind must in effect be an artist' (*Zu den veränderten Übersetzungen gehört, wenn sie echt sein sollen, der höchste, poetische Geist [...] Der wahre Übersetzer dieser Art muß in der Tat der Künstler selbst sein*); by contrast, 'mythic translations are translations of the highest style [...] They do not give us the actual work of art, but its ideal. There exists, I believe, still no complete pattern of this' (*Mythische Übersetzungen sind Übersetzungen im höchsten Stil. [...] Sie geben uns nicht das wirkliche Kunstwerk, sondern das Ideal derselben. Noch existiert, wie ich glaube kein ganzes Muster derselben*) (1987: 337, my translation).
- 2 Intercultural exchange is tinged with German nationalism in Novalis (2014: 212).
- 3 Rudwick (2005: 506) uses this phrase after Georges Cuvier.
- 4 This phrase is by Berman (1992: 103–22), who explores Novalis' translation theory in relation to natural languages, whereas I explore it in relation to the languages of nature.
- 5 For 'natureculture', see Haraway (2003); for the reworking of this term into 'mediaculture', see Parikka (2011).
- 6 That nature speaks is also a theme in Shelley's poem 'Mont Blanc' (1816): 'Thou hast a voice, great mountain [...] not understood / By all'.
- 7 For a fascinating take on the significance of Novalis' reference to 'scored disks of pitch or glass' in relation to 'sound-figures' and 'nature-writing by way of electricity', see Pfannkuchen (2021).
- 8 The Jena romantics' entire understanding of literature, as Huyssen has shown, is 'übersetzerisch' (translatory) (1969: 145).
- 9 There has been a noticeable increase in publications over the past decade that have expanded the remit of translations studies; see Bassnett and Johnston (2019) who call this an 'outward turn'.
- 10 On this point and on the expansion of the discipline of history into deep time, see Tamm (2019: 4–5).
- 11 That translation is not necessarily lingual or ~~inter~~textual, but variously semiotic, multimodal, visual, performative, sensory, experiential, speculative, medial and material, has gained traction in translation studies of late; see for instance, Cronin (2017), Marais (2019), Weissbrod and Kohn (2019).
- 12 I am taking my cue here from Peters, who has explored geology as an inquiry into media (2003). Elsewhere, he makes an elegant case why media studies might wish to switch focus from *media as environments* to *environments as media*, and thus expand to include elemental media, see Peters (2016: 3).
- 13 The golden age, Novalis says elsewhere, is a time when words would 'plasticise' (*plastisieren*) and 'musicalize' (*musizieren*) (1987: 437, my translation) – a formulation that is as relevant to multimodal translation as to the intermedial relations between art forms.
- 14 Additionally, his notes suggest that he was planning to have Heinrich transform into 'Flower – Animal – Stone – Star' at the end of the novel, following, he says, Jakob Böhm's thinking (Novalis 1987: 283).
- 15 'Intra-action' is Karen Barad's alternative term for interaction, through which 'agency' can be understood 'as not an inherent property of an individual or human



to be exercised, but as a dynamism of forces', as Whitney Stark explains, 'in which all designated "things" are constantly exchanging and diffracting, influencing and working inseparably' (online at: <https://newmaterialism.eu/almanac/i/intra-action.html>).

- 16 See interview with De Landa, given at the 1996 *VirtualFutures* conference at the University of Warwick, where De Landa ushered in a 'geological turn' that arguably gave rise to the new materialism; see also De Landa's book (1997), where he explains that 'organic chauvinism' has led us 'to underestimate' not just 'the vitality of processes of self-organisation' but also the dependency relation of both 'living ceatures and their inorganic counterparts [...] on intense flows of energy and materials' (1997: 103–4). Insofar as earth is self-organizing, it is productive, producing itself.
- 17 Although Mahoney makes this point in relation to *Henry von Ofterdingen*, it is just as applicable to *The Rune Mountain* (1992: 119).
- 18 For a critique of the biologism inherent in the Gaia figure, see De Landa (1996).
- 19 The geologist James Hutton famously made this point (also picked up by Charles Lyell) in his *Theory of the Earth*: 'The result, therefore, of this physical inquiry is, that we find no vestige of a beginning, – no prospect of an end' (1795: 200).
- 20 As Bennett explains, 'Why advocate the vitality of matter? Because my hunch is that the image of dead or thoroughly instrumentalized matter feeds human hubris and our earth-destroying fantasies of conquest and consumption' (2010: ix).
- 21 The idea that earth is man's workshop, that is, that earth is 'put on the rack' to give up its secrets or treasures, is Francis Bacon's.
- 22 See endnote 1.
- 23 Le Guin and Novalis share a conviction of the importance of translation: for Le Guin 'the act of writing is itself translating' (1989: 112), and for Novalis 'all poetry is translation' (2014: 213).
- 24 Le Guin presented sections from her short story at the 2014 conference *Arts of Living on a Damaged Planet*, the proceedings of which are in Tsing et al. eds. (2017).
- 25 On Cuvier, see Outram (1984: 141–60); on Lyell and Darwin, see Beer (1996: 95–114) and Peters (2003).
- 26 Mehne (2008) makes this mistake, despite citing evidence which points to metaphors of translation rather than reading.
- 27 Scheuchzer had ascribed to the fossil the name *Homo Diluvii Testis* (The Human Witness of the Flood, 1726), see Rudwick (2005: 500).
- 28 As Ziolkowski notes, 'the figure of the miner and the image of the mine helps distinguish German Romantic literature not only from German literature of the ages preceding and following, but also [...] from contemporary English Romantic literature' (1990: 19), where mines were associated with coal around 1800 rather than silver and gold given that industrialization happened much earlier in Britain than in Germany (25). See also Weiler (2020), who discusses the contradictions between Novalis' role as a saline mine assessor, weighing up profitability, and his poetic work.
- 29 The miner 'takes delight in their peculiar structure and their strange origin and habitat than in their possession' (*fret er sich mehr über ihre wunderlichen Bildungen, und die Seltsamkeiten ihrer Herkunft und ihrer Wohnungen, als über ihren alles verheißenden Besitz*) (1992: 69; 1987: 183).
- 30 Koselleck's concept of 'the simultaneity of the nonsimultaneous' lends itself to the Anthropocene, where through acceleration and compaction present-day human footprints are becoming rapidly legible in the deepest and oldest layers of the earth.



- 31 I am drawing on an explanation of Koselleck's geological metaphor by his translators, Hoffmann and Franzel (2018: xiv).
- 32 Rigby draws a similar conclusion (2017: 123).
- 33 See Cod. Pal. germ. 67, especially 15v-20r at the University Library of Heidelberg, online at (in scroll mode): <https://digi.ub.uni-heidelberg.de/diglit/cpg67/0042/> scroll; for additional details, see Karin Wehn and Ingo Linde, 'Daumenkino', Telepolis, 18th August 2005, online at: <https://www.heise.de/tp/features/Daumenkino-3402298.html>. On the late medieval/early modern flick book as a optically primitive precursor of the nineteenth-century proto-cinematic flip book, see Gunning (2004: 31–2).
- 34 This is especially the case in the Klingsohr fairy tale section of the novel: 'Then the high stained-glassed windows of the palace began to brighten from within, and their figures moved. Their movements grew more lively, the stronger the reddish light became, which began to light up the streets' (*Da fingen die hohen bunten Fenster des Palastes an von innen und heraus helle zu werden, und ihre Figuren bewegten sich. Sie bewegten sich lebhafter, je stärker das rötliche Licht ward, das die Gassen zu erleuchten began*) (1992: 120; 1987: 232). Kuzniar hazards that if 'one were to project Novalis' tale onto screen', it would be akin to the 'digitally rapid flow of flashing images in a video game' (1999: 220). Alternatively, if projected against a cloth screen, the 'reddish light' play, framed as it is by a window, is already recognizable in the pre-cinematic technology of the shadow play; as are the faint and glaring lights, the 'beam of light' (Novalis 1992: 133) and the 'flamelets' (134) that are visible through cracks in the rock or through cracks in door frames.
- 35 On these two trajectories in media studies, respectively represented by Peters and Parikka and representing 'a return to earth', see Harris et al. (2018: 4).
- 36 See the film documentary *Terra Blight* (2012), online at: <http://www.terrabligh.com>.
- 37 In a fascinating analysis of Simonides stone poetry, the classical translator and poet Anne Carson demonstrates how 'the physical facts of the stone and the stylistic facts of the language' go hand in hand (1999: 111).
- 38 As Robinson puts it, 'For example, I read "The simile is that of the open-cast mine left an empty scar in the landscape" and think: *um, really?*' (2021: 128).

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