The Future Places Environmental Essay and Poetry Prize 2021

Digital Anthology

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Contents

Poetry

First Place: Jane Burn, ‘Love Affair with Next Door’s Birch’

when they came two years ago
to cut the neighbour’s tree I felt her pain
she was a tower higher than I ever knew a birch to be

a great mast pinned to a deck of grass answering the rage
of westerly wind with her own splintered songs
it blew it blew again she stayed stood

they felled her partway belted a chainsaw to her waist
cut her down to size I winced at her halved length
she had lost her wavering heights I got the gift

of amputated wood stored her sideways left her bones
to be worried in the mouth of each new month yesterday
I took an axe and split apart her limbs saw her body

spalted bloomed inside with astonishing stains today
I have used up many hours to wear away the agony
of the blade soothed the rough skin taken her remains

through all the sandpaper’s grades through the pleasure of working
her smooth I have seen feathers and fjords white rot angels
intricate webs zone line thaumaturgies like she rotted

into her own beautiful world like this is the map
to her timber soul like there is a message written here
like she is asking *just hold me a moment and look*

Second Place: JR Carpenter, ‘what I am after. Is a language’

for every fold. of leaf. every wrinkle. of petal.
every bud. and blossom. of poplar. and aspen.

for an intimacy. born of proximity. of rose and peony.
bindweed. in the clematis. a tangle. of spurge and vetch.

for standing. still. watching. the heron fishing.
the weir dividing. smooth from thrashing.

for ducks. in the dappled. light. in the liquid. stream.
cut. through solid. stone. and private. green.

for how the sky. is two blues. and the clouds. find one hill.
and the feet. find a path. when height says. there isn’t one.

for how wind-worn hawthorn. has its way with limestone.
and the lengths the sun will go. to change the subject.

for this ageing. body. aching. longing. breathing heavily.
this last leg. this rock face. this soft. animal. needs.

a language. sparse yet sensual. steep yet accessible.
broken in places. yet able. to withstand. glaciers.

Highly Commended, Rose Proudfoot, '*Trails*'

I run alone from a house that is not mine
and is not anyone's

I turn onto the canal path
which is empty but only of people—

coots slide like toy boats into the water,
ducks tuck heads under wings, a lone heron stiffens.

The sun's first efforts are needling the surface,
steam rises in circles, dilating like smoke blown in o's.

I clatter in to the woods,
a scattering of self-made salt grits my lips.

I pass through string after glistening string of
trailing webs that hang in single strands across my path.

I can see them undulate through the oaks, vast as phone wires
rolling on and on into the great distance.

I feel the trembling of these journeys pulling out from
each corner of myself.

This place— despite my intrusion, my private failure to connect to the land
and our collective modes of destruction—

welcomes me back to its core each time I
tear through like an alien in my plastic shoes.

This land unfurls like a palm,
even for me, even in spite of me, mostly without me.

I nestle in for a moment,
then run on.

Highly Commended, George Richards, '*Boy Surfacing*'

(1)

the boy a shadow surfacing
from far below the water column

his split thumbs trailing the grazed
elbows of the rock sets up a dust

he has to scrunch his face to see through
his eyes oiling over calcite melting

between his fingers time spiralling out
from under his footsteps his gunged pupils

growing into boreholes caught in the sway
of ammonites he starts to feel

air again it reaches the back
of his neck *a little further* says the body

the reefs of his teeth the ruckles of his hands
gravid with lichen spores dancing

in the torchlight each thought
blowing off the head in the breeze

(2)

when it comes the understory might be
littered with windfall each moment might be night

folding over the body or a dawn that won't stop
bluing your hands you might come up into air

cut up by swallows your tiny voice
might carry for a while then fall into the drift

the emptiness later the soul humming inside
before the emptiness coming

take in the sight while you have it
the wind quietly untying its light

everything it took for you to get here
crossing over the exact point

where the universe breeds more universe
the oil of the cornea filling with open sky

Short-listed, Julian Brasington, '*Afon Anafon*'

This is a river that kills.
Barely ten foot wide
in three stepped stones
I am over across to Hades.

Sat upon blistered rock
reamed white and lime with lichen,
listening to water roll its glittering leaps
out of the mountain's green belly

it strikes me the same. An idyll
this side as much as the other, and I
alone here this late summer day
save for a few sheep ambling by

in search of the elusive flower.
It is hard now to imagine
how winter comes and these bare hills
bleed rain from every gully, spill

their bloated spate-brown guts
in two short miles downstream
where tangled sheep, a hapless man
trail like any other riverweed.

Short-listed, Victoria MacKenzie, '*Plantlife*'

1.
What if my heart
could photosynthesise –

I'd set it down in the sun
let photons pour

into its dark corners,
lighting it up

like a Chinese lantern.

2.
What if my skin
was covered in stomata –

breathing in CO_2
spitting out O_2

all those tiny green mouths
agape.

3.
What if my organs
were chloroplasts –

and within these cells
were cities of pigment

photons shuffling
electrons all day long

just a simple chemical reaction
like thinking.

Short-listed: Anna Orridge, '*Dead Ends*'

The strange thing about dead ends
is they're neither ends nor dead.
Your finger, although it's where
flesh meets air, an elemental precipice,
is still alive. A dead end job means
its hapless owner must persist.

And species that cannot persist,
the evolutionary dead ends -
beings that lose their means
of occupying a niche – dead.
Still their branch isn't a precipice,
a meandering route to nowhere.

Just trace the branch back to where
bifurcations of that line persist.
But when *ideas* lead to a precipice,
when living beings are means to ends,
that's when dead ends are truly dead.
Let's grasp the nettle of what that means.

Scientists talk of temperature means
rising, of records broken and where
wildfires will become the norm. Dead
heat: when two athletes persist
and win together. But this only ends
well with loss. The wire is a precipice.

But is it really true that the precipice
is irresistible to our feet? This means
of all the wild, apocalyptic ends
possible we'll get the one where
greed and crystalline inertia persist.
All finer urges, along with us – dead?

I don't know. Nobody, living or dead
can be certain. Existence is a precipice,
a tightrope walk. The poise as we persist,
the balance of beauty and terror means
something. For us to get somewhere.
think of the journey, less of how it ends.

Persist with all your means. The horizon
is only a precipice if that's where resolve
dwindles - the only true dead end.

Short-listed: Jonathan Skinner, ‘Calving’

this poem is for you you
know who you are
living your honest
and decent lives

you canaries in the global
coal mine

spring peepers on fire
on the calving face
of the ice, a vibratory membrane

calculating where the animal was
comparing the audio to the video
when the oil spill happened

a clusterfuck
of bohemian waxwings

finely coded
to minimize ship strikes
the cactus flowering

at the end of an industrial
age, complementary
not opposed

to the athletic endeavour
of recording
a singing planet
ah who, ooh who

threaded with the high
frequencies of white-throated
sparrows and shot through with
the bottle rocket calls of
redwing blackbirds

counting up
to look at the broadest
possible spectrum

because you're happy
anticipating the unexpected
series of themes

the bubbles and the sloshing
that the scientist is trying
to put a number on

the political information
embedded in a state sponsored
tour of the poem

the difference between aah
and ooh, falling
right into the pond

Essays

First Prize: Nicola Carter, ‘Fragments on the Mountain Edge

The way we see the world shapes the way we treat it. If a mountain is a deity, not a pile of ore; if a river is one of the veins of the land, not potential irrigation water; if a forest is a sacred grove, not timber; if other species are biological kin, not resources; or if the planet is our mother, not an opportunity -- then we will treat each other with greater respect. Thus is the challenge, to look at the world from a different perspective.

- David Suzuki

I. I enter the adit without a head torch. Without any artificial light. I do this because I am curious to know how the darkness will feel. The first few metres of the mine tunnel receives indirect sunlight, so I can see well enough. This area is referred to as the ‘twilight zone’ and experiences subdued temperature and humidity fluctuations. These conditions are ideal for small shade tolerant plants, such as liverworts, mosses, and ferns. And here they are, offering the walls and floor a living skin of green. As I enter the adit I feel the temperature drop immediately, cold air rushes towards me – a result of temperature or pressure differentials with the air outside. I walk slowly, cautiously, stepping between the tracks of the old tramway. Puddles of water have formed between the old tracks and are a constant here. I move deeper inside the mountain, leaving the verdant hues behind. As I move I notice the sharp edges of stone decrease in value, become less distinct, and then… disappear into black. I become submerged, engulfed. I loose my edges. I stand quietly in this blackness and listen. Water speaks. It drips from rock – precipitate and leaching. In certain places it has found and formed channels, and it streams down and out. Out to find its own level.

II. A wooden post marks the entrance to the adit. It is overspread with moss. The moss takes support from the wood, takes nutrients from the wood, uses the wood, and a few other essential ingredients, to become more moss. The cavities of the wood are filled with air, swollen with water, packed out with roots of moss, and microscopic things like bacteria… it is filled with plenty of not-wood…

III. The problem with boundaries is that the closer you look at them the less certain they become.

IV. Pigeons navigate using roads; bats fly along hedgerows and treelines; bumblebees way-find using paths and roads. I am a modern human animal: lines excite my eyes and awaken my attention. Lines. Edges. Contours. Boundaries. Thresholds. Peripheries. I wander channels, chutes and troughs carved by fingers of water that chatter and crash down steep fellsides. I dawdle the length of the becks and ghylls that languish and meander across valley bottoms, where many fractal-like

fingers of bodies of water connect. I amble paths walked by other human feet and tracks trod by non-human animals. I scramble grooves and gullies gouged by rockfall. I climb cracks and fractures that snake their way up crag-faces. I ramble alongside margins of vegetation: bracken, heather, and grassland.

V. *Black Star*, 634m, summit of Honister Crag.
A stack of silent stories sits atop the crag. Stories of human passage to this place. Each story is represented through selection, through the placement of a single stone. A stone that fit a human hand. A stone placed sensitively onto this precarious pile. A gesture made, an action, a mark left. Left to settle. Left to be joined by others. Form and meaning slowly transform as the wind and rains blows through the spaces between stones.

VI. Carefully, I lift a rock from the cairn. I feel its heft. Take in its blue-grey hue. Run my eyes and fingertips over every crevice, every wrinkle, every imperfection on its otherwise smooth surface. It is the definition of solid. I place the rock back onto the pile and as I do thoughts arise in my mind, thoughts half-remembered from Buddhist teachings. Thoughts around impermanence and insubstantiality and deep, deep time.

VII. I stomp down the incline, legs feeling heavy and sore, feet dragging lazily and lifting small pieces of slaty rock. I listen as the rocks clang against each other, as they tumble and catch in the air. The long resonant ringing noise the stone makes gives it its local terminology, ‘metal’. As I walk the landscape it becomes alive with metallic voice.

VIII. Adits have been driven into the sides of this fell – driven inside the mountain following slate veins that, long ago, outcropped at the surface. Humans dug through the outer skins of the mountain, revealed its dense inner core and blasted its hard skeleton. They chiseled away at the bones of the mountain. They created great recesses and channels within the mountain. They created entrances and hollowed out great halls within the mountain. They scooped out tonne after tonne of rock. And as the days rolled into weeks, rolled into months, rolled into years, rolled into centuries, so these dark chambers grew and grew. Where rock once stood there is now a dance of air, water vapour, dust and microbes.

IX. And yes! There is mould in the mine: interconnected networks of hyphae form fuzzy mycelia. Filaments of communication, connections, run deep. What multiplies here that is not visible to the human eye? What pulses and gyrates?

X. It is the emergence from the adit that I enjoy the most – the enrichment of my senses of vision and smell. Objects seem so much sharper. Hues so vibrant. The air feels warm and moist against my skin. I inhale deeply and taste the plants and soil. I inhale the very skin of the mountain as it releases itself into me.

XI. With each journey, the mountain alters me in small but significant ways.

XII. With each journey, I alter the mountain in small but significant ways.

XIII. Later, I think again about the cairn – the pile of rocks and the air and rain that swirled between them. I think again about boundaries. I try to think about them differently, see them differently. I try to consider them on an atomic level. Half-remembered college science lessons tell me that the atoms that form the rock are bound together in a relatively stable state. And that the atoms in the air have different properties – the atoms move rapidly in all different directions. So it would seem that the boundary between the rock and the air would be very distinct. But read a little more, dig a little deeper, zoom in a little further… and what you will find is that on an atomic level, a boundary does not have a fixed or exact location. Zoom in closely and the rock has no definite shape or form. Some of the atoms in the rock are reacting with those in the air. Some are being assimilated into the rock. The edge, the boundary, is fuzzy. Indistinct. As nebulous and hazy as the clouds that billow the flanks of the mountain.

XIV. And I half-remember Buddhist teachings that say that it does not really make sense to talk about 'things'. That the world is not a collection of 'separate things' that occasionally interact with each other. That the world is really a confluence of interdependent processes. That nothing has any self-existence. That the greatest delusion is the delusion of a separate self. A delusion of a duality between a separate self and the rest of the world. A world of objects. Rocks. Plants. Animals. Waterways. The Earth, objectified and externalised, is there for me to exploit in any way I want. And I start to wonder if the ecological crisis we face might also be a spiritual crisis?

XV. I realise that I cannot stand on the mountains edge.

XVI. I am descending the steep stone-pitched path when its shining glossy jewel-like violet-blue-black hues pull my attention. A ground beetle is lain on its back. Its legs move slowly, rhythmically, hopelessly, forwards and backwards, over and over. I imagine panic, confusion, shock… but the beetle's only response appears to be this stubborn and useless movement. I stoop, reach down, and allow its legs to hook onto the micro-indentations of my fingerprints and gently I lift it up, off the path, and away from the line of a hundred human feet.

XVII. Morning, late summer.

I wake to find the fellsides swathed in fog that conceals and reveals aspects of the landscape that surrounds me. I stand and watch as tiny droplets of water, aerosols suspended, shift and drift from place to place, carried in light breezes. They swirl and whirl. They slide and glide around each other. Sometimes they are tightly packed and sometimes they are more scattered. Sometimes many droplets journey together, moving in the same direction, surging and forming elegant

streams, and then, just as quickly, they disperse, become strewn and spin apart. I stand and watch as some collide with rock. Some collide with vegetation. And some collide with my flesh. Here and there. They condense on these surfaces, and where they do I watch droplets develop and pool together, form perfect little spheres of liquid. I look closely and see these drops of water refract and bend the landscape in a thousand rich and subtle ways. These droplets communicate a thousand rich and subtle ways of seeing. And as I stand and watch, the Earth continues in its steady motion and what I see is the star at the centre of the Solar System, our Sun, rise and warm the air. The clouds of fog appear to shrink slowly inwards from their edges, and what was almost tangible now gradually vanishes from my sight. The water droplets return to gas.

As one thing seems to vanish, an other is revealed.

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Second Place: Leonie Charlton, ‘Recovering Ground’

‘In this trembling moment […] is it still possible to face the gathering darkness, and say to the physical Earth, and to all its creatures, including ourselves, fiercely and without embarrassment, I love you, and to embrace fearlessly the burning world?’
Barry Lopez, from his essay *Love in a Time of Terror*

Martin and I were standing on the edge of a rock face, the overcast day was warm and close; fourth of July 2018, the day the golden eagle chick would be ID ringed. It was also our twentieth wedding anniversary, and our third visit of the season with Scott out to the eyrie – he pronounced it ‘aye-ree’. Scott was in his usual high spirits and full of eagle stories: the male he’d seen carrying off whole meadow pipits ’nests in his talons; this year every eagle territory between here and Campbeltown was occupied; within the 360° skyline visible from where we stood fifteen of those territories could be seen; the only sound an eagle makes is the contact call to its chick; golden eagles have no sense of smell; nothing will shake the female’s commitment to her young. Scott kept talking as he emptied his backpack, out came the climbing rope, a mallet, wooden pegs, harness. Tattoos darkened his skin, many designed from photos he’d taken himself on wildlife focused travels: a tiger; two spotted owlets; a totem pole; the view down Loch Etive from Buachaille Etive Beag; golden eagles - his biggest passion; a silver-backed gorilla – ‘cover up job from a lion rampant he’d got done in Blackpool’.

Scott was quick to laugh at himself. This man in his late forties emanated joy and positivity. When I asked him if he ‘gets down’ with how things are in the world, with the climate emergency, he was quick to answer: ‘Humans are the plague of this planet, but I’m a people person too. I love people, and connection makes a difference. I do my work on grouse moors and talk to gamekeepers, I can show them how every place needs eagles for balance, how the eagles are doing the keepers’ own job for them – predating on foxes, young badgers, stoats – so why not leave them alone, it’s not in their interest to intervene with apex predators, and most folk get it. But there’s a lot of corruption out there, across the board. I’ve had people asking me how much it would cost for me to make nest sites of harriers ‘disappear ’from my survey work. I used to get really low, really low, now I listen to zero mainstream news. It’s helped. I love this work, I love what I do. We can all do our bit, but the people who have the control in the world don’t do enough. That’s got to change.’

In his work as a wildlife surveyor Scott is coming up against corruption, habitat destruction, the effects of the climate emergency, and yet he remains positive. His own life story imbues the possibility for change. His interest in birds began as a young lad collecting eggs – peewits eggs, duck, geese, pigeon – for his grandfather, his *papa,* who wanted them for omelettes, ‘for good protein’. The people living next door to his grandfather trapped, caged and showed wild birds. 'That’s just what people did.’ He remembers

seeing a male bullfinch and a male goldfinch side by side in cages, an electrifying moment that turned his interest in birds into a passion. Scott went from collecting eggs for his grandfather's omelettes to collecting eggs for himself, not to eat, but to have and to hold. 'I never took a whole clutch' he assured me, 'I'd just take one'. He was sixteen the year he stopped, it was also the year he found his most exciting nests yet: Slavonian grebes, hen harriers, a golden eagle nest. He could have taken an eagle's egg but he didn't, and that was the moment he knew everything had changed, that it 'was time for a turn'. When I asked Scott if he thought it was his conscience speaking to him he replied 'no, it was the eagle speaking to me'. He left the nest untouched, went home, smashed his egg collection, and has never looked back.

'One of the healthiest chicks I've ever seen, 'Scott said, breathless after the climb up from the nest. 'The three things you need to watch – two feet and beak – see, hold her like this. 'He was expertly and gently removing the eaglet from the backpack – from where I was sitting on the ground it looked huge – and was passing it down to me, into my outstretched arms, my shaking hands. The yellow of its beak was a charge of colour, its eyes – large and luminous – held the reflection of the hill, the sky. Eyelids glided milky-moon-blue. There were tiny beads of moisture on its tongue, its breathing was heavy. I did what I do with horses when they are stressed - calmed my own breathing, concentrated on being in my body. Scott carried on talking, 'something I would love in this lifetime, if I had one wish, would be to see what *they* see,' he nodded at the chick, 'you know, they can spot the terracotta of a grouse's eyelid closing from four miles away.'

The leg ringing was quick and efficient, Martin held the pliers and followed directions. It was important to get the chick back on the nest as quickly as possible, and for us to get out of there so that the female bird could return. Holding something that wild, that *essential*, felt like the most extraordinary privilege, I also felt uneasy, having my human hands on this feathered creature, this panting epitome of freedom. I also understood that the information Scott was gathering would play its part in safeguarding future generations of eagles. He was measuring her tarsal bone, 'yep, I thought so, she's a female. She'll weigh about four and a half kilos right now, will probably fledge in a week, she's already fully grown bone-wise, the parents will be keeping her hungry now, dropping her body weight in preparation for flying. So much about these birds is hollow – their feathers, their bones.' The chick's heart was beating fast against my own, the heat coming off her body intense, but it was the smell that affected me the most. I inhaled her, a mixture of bark and horse, of spice - cinnamon maybe, of dry leaves. Then it came to me, fire.

She smelt of fire.

Then she was gone, back to the nest with Scott, the place that hadn't seen an active eyrie for years, but was locally known as 'Eagle Rock', a place that had seen eagles hatched during previous decades, centuries, possibly even millennia.

We watched Scott drive off, his wee dog, Alfie, strapped into his own seat belt; a dog with a steady gaze, bearded chin, one that 'does an excellent job of finding birds'. The pair drove off into a mystery of

early starts and late nights, all the birds – hen harriers and merlins, ospreys and white-tailed eagles, short-eared owls and golden eagles, the greenshank and the divers – between his home in East Kilbride and the rest of Scotland. Distance, he does it:‘ This time of year, ’he’d said,‘ I don’t stop.’

The space the eaglet had created sat vast and bright on my chest. I fought back tears. Her downy fibres were all over my t-shirt, my throat, my bare arms, and flakes of skin from her legs, her talons, stuck like tiny scales to my own skin.

I wouldn’t wash for days, and life would never be quite the same again.

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That summer three years ago, when we met Scott and the eagle chick, was also the year I began a creative collaboration with sculptor Lucy Gray. This led to an invitation from the Resipole Studios on the Ardnamurchan peninsula to develop an exhibition of sculpture and poetry – its remit ‘all things are connected’ – to be exhibited at the same time as COP26 in Glasgow. After a day walking the tidal shores of Loch Etive, resting in the lee of the mossy walls of long-ago shielings – *àirigh* in Gaelic, after a day of being sunned and hailed on by April showers, the working title ‘Recovering Ground’ emerged through layers of conversation, of silence, of listening to place. Barry Lopez’s describes walking in the desert: ‘In terms of what governed the line of my footsteps, my many changes of direction, my pauses, my squatting down, it was primarily my desire to pursue immersion - letting the place overwhelm me.’ It is our own experience of immersion in landscape that inspires Lucy and I in our collaborative work. It is also why we go back to the same area again and again, discovering for ourselves the meaning in Scottish writer Nan Shepherd’s words ‘the known grows with the knowing.’

Immersing oneself in the landscape can do two things simultaneously; you feel at once so small, unimportant, and reassuringly part of a vibrating living whole that encompasses deep time, and somehow, amidst all that enormity, you can touch base with your own elemental, essential self - this brief flare of blood and bone and spirit that is you. In the North of Spain, in Catalonia, near a town where I used to work, is a large rambling house in the pinewoods. Next door is a rehabilitation centre for people with long-term drug addiction. The patients may be invited by their psychiatrist to go next door for carefully administered ‘plant medicine’, specifically an Amazonian vine called ayahuasca. One person I spoke to, who is familiar with the process of taking ayahuasca, told me it cures many people of longstanding depression and addiction. The secret? People report *knowing* for the first time that they are truly connected with all of nature, that they will never again feel alone. That connection is a life-changer. It is well known that people who feel disconnected from others and place, who don’t feel a sense of belonging, or who feel isolated, are more prone to drug addiction, and other forms of disengagement such as alcoholism, gambling,

unhealthy relationship and sex patterns, and excessive unsustainable consumerism. In many ways the climate emergency is also a symptom of longstanding disengagement, of not feeling and knowing ourselves to be closely connected to the natural world. In David Attenborough's words: 'No one will protect what they don't care about; and no one will care about what they have never experienced.'

It is now late summer, and the 'Recovering Ground' exhibition is merely weeks away. Driftwood and bogwood, dried roots, gesso and jesmonite, palladium leaf, bone, graphite, tarnished silver leaf, French ultramarine and Prussian blue paint, acorns and charcoal, are all breathing 'being' into sculptures. There is also bronze in this collection, bronze poured on the shores of Loch Etive under a clear August sky. Now we are busy bringing language and sculpture together, inviting them to find their flow. It feels like alchemy. It's sometimes hard, frustrating, it's sometimes joyous. It is always an act of faith and it's full of surprises. Collaboration is a process of dissolving boundaries, of vaporising ego, of staying open, and above all of being in love with the process.

Recovering Ground

'You will love again the stranger who was your self'
Derek Walcott

When you come back to me
and call me by my name – *Ruadh*
I can breathe freely

when you stay long enough
for stillness to settle
I am unmuscled
in the softness of now.

Under a supple sky I rest
here where many places meet –
hawthorn and hill,
sea-loch and alder,
bog myrtle and river.

Under a supple sky I ache –
if I were the river this would feel like boulders moving

through the bed and breadth of me;
if I were a fox denned in the earth
it would be the liquid dark of my eyes.

Nan Shepherd, describing her playful experimentation with different ways of viewing the landscape – such as having her head upside down between her legs – writes in *The Living Mountain*: 'Details are no longer part of a grouping in a picture of which I am the focal point, the focal point is everywhere. Nothing has reference to me, the looker. This is how the earth must see itself. 'Might this world, where the focal point is everywhere, be one in which us humans can know ourselves to be part of a whole, no more no less, and to treat that whole – the earth-sky-seas – as if it were the palm of a newborn's hand, the underbelly of a horse. I said that vaporising ego is what collaboration demands of us, and yes, that's been my experience, and yet the poem that I wrote – that wanted to be written – is written in the first person, and is personal as well as universal, on the theme of how we humans can abandon ourselves. I have sat with a discomfort around this: *enough of the 'I', surely,* I say to my*self*, and on it goes, the reflection upon reflection of 'I', the echos of one's own mind. But there it is, this poem, written in first person, and resisting despite my attempts, at being written in any other way.

By honouring the poem, by listening to the poem, by staying with the poem, I come face to face with my own shame around placing selfhood at the centre. This is partly why I am writing this essay, as a response to, and inquiry into, the shame that creeps in. It is a familiar shame, an old shame. Even the wording for the Future Places Environmental Essay and Poetry Prize brings it up in me: 'This is much less nature and nature writing as a vehicle for personal recovery, and much more about the essay and poetry as restorative acts in the field of literature.' There is shame, there is also confusion; why can't the essay and poetry be both a vehicle for personal recovery *and* a restorative act in the field of literature? In fact, are they not completely intertwined; when the climate emergency has been created by humans, do we not need to look to ourselves to sort it out? To do that is it not important to get our own houses in order, to get our shit together? Kae Tempest writes in their book *On Connection:* 'And anyway, what is the difference between self-knowledge and self-obsession? One encourages the defeat of the ego, the other encourages a feeding of the ego. One, a deeper experience of connection to ourselves, which enables a more nourishing connection to others. The other, disdain for the deeper needs of the self, which leads to disdain for others.'

Tempest's words resonate. Is it not true that connection to self leads to better connection to other human beings *and* to the rest of the natural world, that this connection is vital if we are to effectively engage with the challenges of the climate emergency with courage and creativity. On a conscious level Tempest's words ring so true to me, and yet, when I inquire into my own shame around self-connection it pushes back with the vigour of chest-high summer bracken. It leaves me covered with grazes and

bloodthirsty ticks. I tweezer off the ticks and scratch at the bites. The itch is uncomfortable, this tension between my belief that noticing, heeding, and caring for the self is important, as is nature and nature writing as a vehicle for personal recovery – if that is what inspires and helps you – and then this insidious doubting that it can't be right spending energy and time on the self when the Earth and its denizens are facing the extreme challenges of the Anthropocene, when there is *so much to be done*. The environmental activist and theologian Alastair McIntosh writes in *Hell and High Water – Climate Change, Hope and the Human Condition*: 'as well as being a technical, economic, and political problem, climate change is also cultural, psychological and spiritual […] for all that I love scientific method, its honesty and its explanatory power, I believe that it has allowed modern humankind to indulge too easily in the arrogance of forgetting that our own inner realities also shape the world.' Surely, in order to effectively engage with climate change and biodiversity loss, we would do well, as a species, to attend to these inner realities that can shape the world.

When you are close in like this,
and *Ruadh* slips off your tongue
I can dare to remember
the threat of snares laid
among the innocent trees,
I dare to remember how you left me,
skin bursting in bites of steel,
throat frozen, mouth foaming crimson.

You get an inkling don't you –
familiar stranger,
of the agony of abandonment?

Between turns of ingrown rage
I get an inkling too,
of how sometimes exile is the only way.

You left me for the chase,
the taste of other women,
men, trees, beasts,
for blood and bark and pheromone,
for the potent draw of wounds

that won every time.

One of those fifteen golden eagle territories, visible to us on that July day back in 2018, happens to be in the glen where Lucy and I do our collaborative exploring. In 2018 there was planning permission granted for hydro developments in that glen, one of which was very close to an active eyrie. I was devastated by the proposed developments; I am very pro green energy, but there needs to be wisdom and delicacy employed in *where* these developments are sited. To my shame – there, that word again – I did nothing. My heart was breaking, and I was deeply concerned, yet I didn't write a single letter of objection. I verbally expressed my concerns to a friend in Scottish Natural Heritage – now NatureScot – the government body who I understood to have had the overall say in the planning permission. Beyond that I did nothing, absolutely nothing. I had my reasons for not taking it further, they felt important and valid at the time, but now I am not so sure. The consequences of the hydro development were that for the last two seasons the eagles haven't succeeded in breeding; they were seen trying to mate but were too stressed by the construction work – the dumper trucks, the endless flashing lights and sirens – to even lay eggs, let alone sit. When we don't stand up for the things we love, or stand up against all that in Walt Whitman's words 'offends our soul', then that too is an abandonment of self, a disengagement. Brené Brown, professor, author and shame and vulnerability researcher, says that shame makes us believe that we *are* bad, fundamentally different from feeling that we may have *done* a bad thing. She suggests that shame erodes our ability to change, rather than support it. Novelist and nature writer Melissa Harrison says that the way she chooses to use her time and her voice is to 'engender connection and delight', she adds 'this is an incredibly overlooked and powerful feeling'. She does this not because she thinks 'everything is going to be okay – the opposite really' – but because 'without that sense of delight and custodianship and love, we're fucked.'

I understand a little.
I have hunkered down, I have waited.

I see fox now, how she weighs the seasons
soft-footed, outfoxing,
but is killed, again and again – cubs 'slow starvation,
senses pierce the dark,
hope snuffles against musky earth.

Under April showers
this welling of sadness

settles at new levels,
allows something else;
from the sun comes the hailstone,
from the rock comes the smile,
from the lungwort comes the longing
to hold, to be held, to be whole.

I badly want to touch you.

The freshly poured bronze was warm to the touch. The raw sculpture was a bivalve shell; ‘It is called Sky, and is made to be held,’ said Lucy. On the inside was an impression of a single feather. Lucy told me that its meaning is ‘like, when on a bright day you have looked at the tops of naked branches against a bright sky, and then you close your eyes and see the of the branches translated behind your eyelids, including floaters, parts of your own anatomy. How what we ‘see’ is inseparable from ourselves.' ‘Sky’ is one of three bronzes that will make up the sculpture ‘Metanoia’ in the ‘Recovering Ground’ exhibition. Lucy explores through the elements of sky, water and earth the humbling effects of discovering, and rediscovering, our shared language with landscape and the rest of the natural world, including self, and the gravity that our actions and beliefs have on shaping the world. In the podcast ‘Landed’, part of the ‘Farmerama’ series, Highland farmer Col Gordon inquires into a statement he came across that rocked his world: *The small family farm is a colonial concept*. This challenged his lifelong beliefs, and led him on a process of discovery in which he explores earlier human relationships with the land he has inherited; the Gaels had a completely different understanding of land relations, one where land was held in common and where people saw the landscape as something they were part of, not as an asset to be parcelled up and owned individually. Through inquiry he feels he is decolonising his view of the landscape around him. He is inviting in new ways of seeing and being. Similarly, Lucy’s sculpture ‘Metanoia’ is about her feelings of positive repentance towards her relationship with the rest of the natural world, as she feels the reciprocity in the relationship with the landscape around her, and becomes aware of the one-sidedness that had been inherent in her art making until now.

See how the colour of me runs off your tongue like rain.
In this spell we stroke each other into a tree,
hawthorn – heart tree – unmistakably.
Each curve, gnarl, whorl, exposed root,
contour of bark, telltale of moss
a story of eroticism, of form, of life.

There, in the living wood I see the
Ruadh of winter fox, of trout spots,
of red-deer flank during the moult,
of eagle in dying light, in rising light.
I see the beauty of humanity –
the tenderness in fingertips
the faithful rise and fall of rib cage,
hearts feeding longing and fire
into kin and cultivation, art and hearth.

I smell smoke. Hawthorn burns hottest.

Eyes deep in reflected flames
the tide calls to us,
draws us along stars of upturned roots,
through air cut by snipe,
past the heart-blur of duck flying off water,
pulls us to the river mouth,
confluence of fresh and saltwater.
We lie down by the high tide mark,
its utter integrity –
the rolling together of
oak and berry, feather and kelp.

I badly want to touch you.

The day after the bronze casting, on that last day in August, I drove five hours north. I was on my way to help a friend on a cooking job on a deer stalking estate in Easter Ross. I was still in a bad place around the golden eagles up Loch Etive not nesting, the eagles that I had done nothing to help, and I was questioning my beliefs around that situation. For so long I had blamed the landowners: *Why aren't they doing more to care for the environment, for the eagles?* A system of inquiry, developed by American author Byron Katie, was helping me to question those thoughts, even turn them around; My question *Why aren't the landowners doing more to care for the environment, for the eagles?* might become *Why don't I do more to care for the environment, for the eagles?* Before being so quick to blame others, we can turn the gaze

inwards, do some housework on ourselves, then the lens we look out of through to world is cleaner, less distorted. It's not easy this detaching from firmly held beliefs, but it is possible, just as farmer Col Gordon showed by digging deep into the statement 'the small family farm is a colonial concept.'

Of course the world needs more action 'upstream' from governments and large corporation, from people holding power, the world needs it urgently, but as Byron Katie says, 'change has to start with one person, you know, if you're not the one, who is it?' People all over the globe are being that one, taking responsibility for their own actions and inactions; writing, singing, painting and sculpting them, laughing, dancing, crying, teaching and sharing and acting through them. We can take tiny steps, we can investigate our own practices and beliefs closely. We can do that with compassion, which is much more likely to lead to positive change than feelings of shame or blame. We hold in our hearts and minds the generations to come after us. We let the scales fall from our eyes. We always have a degree of choice; as Victor E. Frankl, the Austrian psychiatrist, philosopher and Holocaust survivor said: 'Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom.'

The Lodge where my friend was cooking was stunning. Opulent, beautifully maintained, set against the backdrop of hills covered in flowering heather and a clear, still freshwater loch. The news was full of the people of Afghanistan, of the recent Taliban takeover. As I explored the house I thought how tempting it would be, in this serene place, to turn my gaze away from the hard stuff, from the bombings and the hopelessness and the pain, form the terrified and broken-hearted women and men and children. At the top of a staircase I came face to face with a taxidermied wildcat, it filled the windowsill. I was transfixed, not even a dust mote moved in the sunlight that poured through the glass. This wildcat, in air smelling of lilies and cut roses, in front of that view of purple hills, was frozen in a hunting posture, tail and head lifted. I resisted the urge to turn away even as I remembered that other wildcat, the one Martin and I had killed in a snare - albeit mistakenly - in the early days of our hill-farm tenancy. That wildcat, for all I know, was the last in its line in our area. We've never seen another. I looked at the wildcat in front of me. My body tingled with the electricity of this other, frozen in time and space; I felt very awake with the memories, the feeling of responsibility, the sadness as I pictured that other cat, strangled by wire, the cat that was colossal and beautiful. Martin and I never set a snare again. We had set snares because we'd thought that was what was expected of us; we hadn't questioned it, even though, to both of us – even before the wildcat – it had felt wrong. We had abandoned ourselves, and by doing so had done harm.

To recover ourselves and to recover ground, to let ourselves recover and to let ground recover, and the whole of the natural world, we need to be in conversation with other people, and with the natural world in all its manifestations. We also need to inquire into our own beliefs, and beliefs held by those around us and further afield. Barry Lopez says in the essay *Love in a Time of Terror* that his walking off into the Australian desert was not so much an exercise in trying to improve himself as a naturalist, as it was an

effort to divest himself ‘of the familiar categories and hierarchies that otherwise might guide his thoughts and impressions of the place’. We need to pay attention to our own guiding beliefs and listen carefully, to remain vulnerable and open to change. As David Whyte advises in his poem *Start Close In*: ‘to hear another’s voice, follow your own voice, wait until that voice becomes an intimate private ear that can really listen to another’. We can’t fix everything by changing nothing, and sometimes, changing the self is the most useful, even radical place to start. It may not be easy, it may be messy, but we can’t make the proverbial omelette without breaking some eggs, and it might just lead to clarity and joy and healing and hope.

Clasped in bivalves,
we open in a golden helplessness of delight,
we glitter, pecked to life by barnacles and beauty.
Laughter blossoms, blisters,
explodes between the sinking hills.

I badly want to touch you.

Stay with me now,
call me by my name, again and again
until I sink to sinew and decay
until maggots rove my rotting flesh
until I am a mass
heaving cheerfully to humus,
until I draw in the iridescent beetle,
until bluebells thread me with bee after bee
and we sing back our space
in the undivided nature of things,
until we lean in, wavelet by wavelet,
and we dare, lightly, to touch.

Footnote:
‘Ruadh ’the Gaelic for ‘dark-brownish red/wild/fierce/rough/strong’

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In July 2021 we accompanied Scott while he ringed another chick from the same eyrie. She was a feisty and fit female, and we named her 'Breeze' for the Argyll Raptor Study Group records. In 2019 the parent birds hadn't been in good enough condition to mate. In 2020 the chick jumped too soon from the eyrie during a thunderstorm, and had sustained neck injuries it didn't recover from. It was such a relief to see this year's healthy chick on the point of fledging. 'All in all', Scott tells us, 'it's been a great year for the goldies'.

It is September now, Scott was out on the Ben Cruachan ridge yesterday doing flight path survey work, Martin happened to be there too, gathering sheep below him. Eagles were visible above which Scott identified as 'Breeze' and her parents, all well out of their own territory. I am curious about the porous boundaries of the eagle territories, like the porous boundaries between self and other, between human and the non-human. I let myself imagine what the eagle trio might have seen yesterday: the patterned remains of summer shielings, the burns running through; foxes and deer disturbed by the gather; ptarmigan beginning the Autumn molt; Scott and Alfie on the ridge, shepherds and their own dogs below; ribbons of sheep converging from the hillsides into one fluid-edged stream.

All those beating hearts.

And back at home my own heart straining, as I help our youngest pack for university, he too is now ready to fly the nest.

If the eagles were to head due west, just a few miles, they would see the large area of peat bog, known locally as 'The Moss', that my father has spent the last three years restoring; a place now glistening with pools and thirst-slaked peat and teeming with water-life. The sea is just a wing flick away, and I imagine future generations of eagles here – survival permitting – seeing a very different boundary between sea and land below them; the acid of the peat turning to salt as the sea rises inland flooding houses, neolithic cairns, the wildflower meadows where by then, my father's ashes will have been scattered. Will the human generations coming after us – survival permitting – move the beehives bit by bit ahead of the sea, will they, in Barry Lopez's words, 'be able to say to the physical Earth, and to all its creatures', including themselves, 'fiercely and without embarrassment, I love you, and to embrace fearlessly the burning world?' Will they, like the Gaels who went with their cattle to the high summer shielings, understand that the land has feelings and a soul.

Whether they have the love and strength required to embrace fearlessly the burning world depends largely on us, now, and how successful we can be in nurturing what environmental activist and author Joanna Macey calls the 'connected self'. She writes in her book *Active Hope* that 'recognising ourselves as part of the living body of Earth opens us to a great source of strength […] we stand at an evolutionary crossroads, and we, collectively, could turn either way. Our own choices are part of that turning […] When our central organising priority becomes the well-being of all life, then what happens through us is the recovery of our world.' Personal recovery through a connected sense of self with the rest of the natural world is vital, but only in as much as it contributes to a healthier more coherent whole in

terms of humankind, and the choices we collectively make. In Natalie Goldberg's book *Wild Mind – Living the Writer's Life* she quotes a *vipassana* meditation teacher: 'You meditate *by* yourself but not *for* yourself. You meditate for everyone.' Goldberg goes on to say: 'This is how we should write'. This is also how we can live. Rebecca Tamás in her essay *On Watermelon* envisages a future in which we attend to equality for human people and nonhuman beings and landscapes: 'We human beings love comfort, and such a radically different world may not be as comfortable as as what we, in the west, currently experience. It might, however, be a world with many forms of thinking available to us – of joy, of freedom, of pleasure, of community, of self-worth, and of love. Love for things that are nothing like us, and which may not love us back.

'Thou' will be the first visible sculpture in the *Recovering Ground* exhibition. Why is it called 'Thou,' I ask Lucy. 'Because it's not an 'I', not a 'you', not a 'she', not a 'he', not a 'they', not an 'it'. The sculpture's deeper meaning is 'now is the time for living.' 'Thou' is an impressive eagle-like bird. It stands over one meter tall and is made from driftwood, bogwood and found wood from the forest. Lucy has also incorporated gesso and corrugated cardboard into the sculpture and its talons are water gilded with gold leaf, as is the orb suspended from its beak. 'The orb represents the soul, being held, because now is the time for living, and when it's not', Lucy says, 'the eagle will drop the ball, so … make the most of it.'

Make the most of it.

It is up to us to decide how that goes while we still have a place on this planet. How might we constantly keep feeling for that balance point between doing the work to change ourselves – to break the cycle of present and past traumas in order to become more effective compassionate denizens of this world – so that ultimately we can forget ourselves, and get out of our own and the rest of the natural world's way; as Victor E. Frankl writes in *Man's Search for Meaning: '*The more one forgets himself – by giving himself to a cause to serve or another person to love – the more human he is and the more he actualises himself'. In Lucy's creative vocabulary eagles are the carriers of our soul, the question I am left with, is who do we need to be in order to be the worthwhile guardians of theirs?

Highly Commended: Anna Fleming, 'Dinorwig: Play and Resistance in the Post-Capitalist Landscape'

PERGYL! Hen chwarel
DANGER! Old quarry workings
Dim mynediad
Do not enter

Leaving Dinorwig tramway behind, clambering over fences, ignoring signs and padlocks, pacing up shattered slate staircases, passing roofless huts, we trudge up towards the big pit; bags loaded with climbing gear. Through the stone archway, we stop dead, completely unprepared for the sight before us. From this entrance platform, we survey the crater in astonishment. Terrace after terrace circles around the rim, plummeting down into a terrible rocky opening.

A sheep bleats and the sound echoes across the titanic pit strewn with so much rubble and debris and shattered rock. Blocks the size of cars, buses or houses litter the hillside, all perched precariously atop one another. Old rusting pipes, cogs, wheels, tramlines and ladders protrude here and there, standing out sharp orange within the mass of dark, jagged broken matter. It all looks so precarious; so hard to grasp the scale. Eyes adjust and start to pick out forms within the chaos. A black rectangle – a doorway – far across the pit on the opposite level reveals an absurdly small series of decrepit slate huts and buildings. From somewhere below my feet, down in the damp mossy depths, comes the sound of dripping water.
Among all the spoil, rubble and rusting industrial debris, great slate slabs circle and plummet down into the deepening core of the mountain. Unlike the chaos of choss, the geometries of these faces are startling. All the blasting and extraction work has created a magnificent body of cliffs – divided and split; severed and cracked – a feast of shadowed overhangs and sheer shining faces.

Some are black as coal, where water seeps, flows and drips down the exposed rock. Other aspects radiate light, shining lilac-grey with the luminous quality of watercolour. Rippling lines dance across certain surfaces – streaks of white and turquoise that stand out against the darker purple rock face like the aurora borealis in the night sky. The mind somersaults as it realises that these distinctive lines mark bands of matter that dropped to a seabed some 500 million years ago.

Dinorwig is a striking presence within this corner of Snowdonia. Across the valley, in the village of Llanberis, where the steam train carries visitors up to the summit of Snowdon and hordes of outdoors enthusiasts congregate in pubs, shops and the fabled Pete's Eats café, the mountains of slate waste are all too visible. The spoil tips sit below Elidir Fawr, a peak shaped like a boar's back, whose name is tied to an ancient Celtic warrior-prince, but is also known as Electric Mountain, after the power station that hums with hydroelectric energy generated deep inside. When the sky is heavy, all those millions of tonnes of exposed waste slate darken, taking on a sinister character.

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Hands slide across the surface until fingers find something positive. There: an edge. Fingers grip tight, locking onto the cold slate. Toes follow fingers, stepping onto tiny edges. Calf, thigh and stomach muscles contract, pulling my body into the rock and up to a new ledge where eyes and fingers hunt for the next step.

This is new territory. I have never climbed on slate before and so I move with focused attention, letting my senses investigate. Like a cautious swimmer, I wade in slowly, letting my body adjust to the temperature, watching closely for jellyfish. I don't want to get stung.

Tapping suspect blocks, I listen closely for the telltale sound of hollow rock. I pull cautiously on the razor-sharp slate slithers. It all seems so delicate; so friable. Could they snap? What if I place a foot on a slab? Will it slide off?

The slabs have an uneven finish and opportunities lie in the rough edges. I cling to fractures, lumps, cracks and protrusions. Halfway up, I meet a distinctive runnel, an inch wide and a metre long. Squeezing three fingers into the bottom of the old drill line, I step up, moving with delicate precision. Unlike walking, where I could happily trundle along absent-mindedly, letting my focus and thoughts wander from this thing to that, in climbing, attentive observation is not a choice. It is essential.

On the rock, eyes scrutinise tiny details alongside bigger features, taking in sequences and vast environments; bringing all of the parts together in an effort to comprehend that place at that moment. But the eye cannot tell you enough. Skin – the largest organ in the human body – is also crucial to the process of sensory information gathering. Touch reveals things that the eye could never grasp. Many aspects of the outer environment are thus brought inside; internalised within the climbers' being – where they are put to immediate use. Every detail, every piece of information that the senses glean is processed and put to work by the body. Working closely with geology – reaching in, pulling out and performing the shapes that lie within the rocks – is a collaborative movement in which the climber embodies the landscape.

*

Our next route follows a groove that arcs up and right. But the edges feel wrong. My hands struggle for comfortable positions and feet must be placed as carefully as a ballerina en pointe – only I'm wearing the wrong shoes. Unlike gritstone – where you slap your foot onto a blank wall aiming to conjure a forceful friction between rubber and rock – slate has no friction. This rock requires absolute precision. Miss the spot and your foot shoots off. I'm wearing my dependable trad slippers, which are perfect for long mountain routes, but on these short sharp quarried edges, I would be better in a pair of tight performance shoes, which focus weight and power into the toes. Such unforgiving rock demands discomfort.

Pushing on up the wall, my hands and feet dance around the peculiar edges. Towards the top, the groove gives way to a slab. The holds become sparse and ever more precise. A dark line of water runs along the next thin turquoise shelf. I've learned enough about slate to know that if I step in the water, my foot will slide straight off – a wild release that could throw everything off balance.

I hunt around. There is nowhere else. My foot has to go onto this little shelf. I look closer. There is a tiny dry spot – the size of a penny. I place my toe on carefully and press down, stepping up. A rush of heat floods my body – but the foot stays on. The tension holds and I reach up for the chains.

'Okay, Adam,' I shout down. He takes in the slack and lowers me off the wall, back down to join him and Anna on the level.

In our little team of three, we work a small bay of rock – a cluster of quarried blocks, slabs and undercuts – looking out the lines that will open the rock and open our bodies. We take it in turns: one person climbs, another belays and the third watches on, calling up advice and encouragement. When the climber descends back down to the level, we shift roles.

Not so long ago, a different group occupied this space. A crew of four Welsh quarrymen dressed in corduroy trousers, hobnailed boots and flat caps. This slate bay would have been their bargain – their working rock face – that they had negotiated from the steward. To strike the bargain, the men read the rock extremely closely. A good bargain was highly sought after: there the slate peeled away in delicious slabs, *fel menyn*, like butter. The bad bargains were full of convoluted rock that was beset with defects: curls, veins, joints, faults and dense hard rock.

No helmets, no harnesses: to release the slate from the mountain, the quarrymen hung from ropes tied around waists and looped around thighs while they levered, wrenched, hammered, drilled and blasted away the very rocks that they stood upon. Their physical knowledge of the slate must have been extraordinary. Glimpses of that expertise can be found in the language. In the mines of Blaenau Ffestiniog, a vein of slate was known as a *llygad*, an eye: when the quarrymen opened the rock, they saw it as opening up

the slate's eye. Among the veins in that huge seam of slate, there was Llygad Bach (Little Eye), Llygad Coch (Red Eye), Llygad Newydd (New Eye) and Hen Lygad (Old Eye). The division of labour within the quarries followed the language. Those who worked the rock face spoke Welsh; the capitalists who owned the site and sold the finished slates spoke English. It was therefore proudly asserted that slate spoke Welsh.

Unfortunately, none of our crew speaks fluent slate.

As Anna climbs, I look out again, trying once more to grasp the scale of this place. We're climbing in a pit called Australia, the largest quarried area in Dinorwig. In this vast stony amphitheatre, sounds bounce off the walls and galleries, echoing through the empty air. Atop one of the nearby skylines, a climber leans over the edge, shouting commands to his partner.

'*Take it steady STEADY*
When you're ready READY.'

Water drips. Occasional feet set the loose slate clattering. A high-pitched mewl calls out from one of the distant corners. Child? Goat? Peregrine? In this eerie opening it is hard to place anything with absolute certainty.

Once, this quiet scene roared with life and noise and activity. Hammering, drilling, blasting. Shouts, rockfall, explosives. The smell of iron, sweat and sulphur; clouds of thick white dust. Men hanging off ropes, everywhere. The screech of cogs, wheels and machinery; wagons rolling along the levels and down the inclines conveying the slate out of the mountain, down to the workshops where the stones met the blow of hammer and chisel; split and ordered, neat stacks of oblong roofing slates were loaded up in hundreds of tonnes, every day, onto another fleet of wagons that were driven, steaming and chugging along tramlines to the port where these pieces of Elidir Fawr were shipped out around the Empire.

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The wind picks up. Bitter gusts blast into the open pit; shaking the stumps of brittle brown heather. Mist drifts over the hilltop and drizzle comes and goes – light specks fall, producing dark blemishes on the teal slate. Moments later, the marks vanish. It is October and under such leaden skies, even the grass seems grey.

The damp chill starts to penetrate. We pile on layers. Hates, jumper, coat, but still fingers and toes turn numb and muscles clench tight. The slate grows colder. In blazing summer sunshine, slate could cook eggs; today it handles like a mortuary slab.

After a few more routes and some cold sandwiches, we call it a day. Packing away the rope, we leave Australia, walking back out of that immense pit via the broken rattling slopes we came in on. But instead of retreating to a warm haven – and at this moment, the bright, light cosy world of Pete's Eats in Llanberis is exercising the most powerful pull – we stay in Dinorwig. We are curious about another climbers' route in the quarry. This one is longer and more exploratory; a wandering line that weaves around the vast workings, making use of the network of old tunnels, ladders, holes, levels and passageways created by the quarrymen moving around their workplace.

Scuttling around like three goats, we pick our way over loose gravelly slopes that slide down towards the emerald depths of a quarry pool below. We are not interested in the surface matter of Dali's Hole – the walls, waters and occasional trees do not hold our attention – we are looking for a black hole; a hidden hole; the tunnel entrance that marks the start of Snakes and Ladders.

We find the hole and head into the darkness.

Light. Water. Greenery. The tunnel leads out to a vertical chasm where the sky is distant, framed overhead by a great wedge-shaped cutting. A waterfall pours down the rock face and ferns and mosses grow in thick clusters on all of the enclosed, wet dripping surfaces.

Meeting this unexpected scene, my sense of the present collapses. Despite the decaying brickwork and rusting tramlines, I feel as though we have passed through aeons of geological time and emerged somewhere in the deep past.

Perhaps the Triassic time of dinosaurs, some 240 million years ago. Or maybe earlier still – the first ferns appear in fossils from 360 million years ago. Moss is older again: ancestors of the lush green pillows before me spread across the planet 470 million years ago; absorbing carbon dioxide and dissolving rocks, these powerful plants transformed the planet and triggered an Ordovician ice age. Back then, all of the rock upon which we stand was sat deep underwater in layers of sedimentary stone yet to be uplifted, folded and metamorphosed into slate.

Dinorwig does the strangest things with time.

Tripping over rusted old tramlines, we continue through the next tunnel and come out in another vast quarry hole. Here the ground is strewn with slate blocks and fragments, forming a treacherous sea of fangs and daggers that we must pick our way across, making for a set of iron chains.

At the top of the chains, another dark tunnel leads us on through the mountainside and then back out into the light, where we scuttle through yet more sliding slate chippings, hunting for another black hole. We walk towards a sheer wall of slate. At the bottom, there is a pile of rocks and between the rocks – a tiny black hole. Peering into the darkness, I make out a few stones. Some gravel. Beyond that, everything is black.

It's a tight squeeze so I take off my rucksack and slide down the rock, belly on boulder, back against the wall, legs reaching through darkness until my feet hit on something that feels like solid ground. I slither in and the ground, unexpectedly, holds.

Once inside, my eyes slowly adjust. The walls are rough and the roof high. For some reason this tunnel has been blocked off. Rockfall, perhaps.

Far away through the blackness, there is a small circle of light.

Anna and Adam drop into the darkness and we walk along the tunnel, following the rusting lines of old train tracks, careful to avoid stepping in the pools of water. The further we go, the more the darkness deepens, pressing in, black and awful. Depth is thrown. Distance becomes illusive. We pace through a black eternity. But gradually, as our legs keep moving, the circle of light swells.

Finally, we emerge blinking onto a gleaming slope of shattered rocks. Scree, sky, cliffs, moss, terraces, rusty pipes: it takes me a moment to make sense of it all. We have come out in Australia. Sometimes a climb helps to make sense of challenging geographies: working closely with the rock and following a line through vast, complex terrain can simplify matters, bringing a sense of order. But the order of Dinorwig is no easy thing to grasp. It doesn't help that the entire place is moving. Loose stones clatter, shift and slide beneath our feet. The walls above are clearly constantly changing, fracturing and falling. This place is restless. Unstable.

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Dangerous environments demand strong teamwork and a profound understanding between partners. For the quarrymen who created this perilous landscape, the camaraderie ran deep. Constantly orchestrating rockfall, dislodging immense blocks of crushing weight and razor-sharp slate edges, the communication and collaboration must have been next level. During the peak of the industry, a vast team of 3,500 men worked in Dinorwig; when the quarry closed in 1969, that number had reduced to 350. Despite the danger and hardships, when the Dinorwig quarry closed, many men missed it. They missed the crew and the work that had shaped their life since they were boys.

But as well as the lighter side of Dinorwig, there was also a terrible darkness. The human cost of such intensive physical work was immense. Accidents happened often. Fingers lost. Legs crushed. Limbs amputated in the on-site hospital. When someone died at work, the whole site would know and the quarrymen laid down their tools and went home for the rest of the day. The suffering went beyond the accidents. Physical toil, working in extreme environments, poor diet and poor living conditions all took their toll. Dust was pernicious. Whether drilling, blasting, chiselling or splitting, any action that breaks slate apart releases tiny particles that are easily inhaled, which then linger, like asbestos, in the lungs, damaging the soft tissue. At the widow's house, a special clean white cloth was laid out on a table by the front door and a big dish was placed in the centre for collection towards the funeral cost. Everyone contributed. Between 1822 and 1969, 362 men died in Dinorwig.

Immense fortunes were made from the slate quarries, but, as is the way, the wealth was not evenly distributed. Wages were poor. In 1900, in an effort to improve working conditions, all 2,800 men walked out of Penrhyn Quarry, Bethesda. The Great Strike of Penrhyn was the longest dispute in British industrial history. The strike lasted for three years, creating three brutal years of extreme privation in Bethesda. Homes were cold and dark. Schools closed. Some men left to seek work elsewhere. Some women turned to prostitution. Those who broke the strike were branded *bradwr* (traitor). But Lord Penrhyn did not yield. While families struggled to survive, the quarry owner was comfortably ensconced in Penrhyn Castle, an opulent mansion built from the profits of slate, sugar and slavery. To this day, the bitter impact of the strike is still felt within the community. Families were divided and the wounds may never fully heal.

The human cost of quarrying was best captured for me in two novels written during the early twentieth century. In *Un Nos Ola Leuad* (*One Moonlit Night*), Caradog Prichard captures a year of poverty, loss, grief and madness in a quarrying village. In *Traed mewn Cyffion* (*Feet in Chains*), Kate Roberts, portrays the constant struggle that a typical quarrying family faced trying to get by on the pittance that the men earned in the quarries. The novel details the day-to-day hardships by following the life of Jane Grufydd, who marries a quarryman and brings up their family of six children. The story is based on personal experience. Roberts grew up in a quarrying village in north Wales and her father was a quarryman; she wrote *Feet in Chains* when she was living in the valleys of south Wales, another industrialised region where the coal-mining communities suffered epic hardships.

Both of these books contain heart-rending stories. Both made me cry. Through the immersive, charming and deeply disturbing pages of *One Moonlit Night*, I plunged into a child's experience of life around the quarries. In that confusing world, the child-narrator is surrounded by troubled people and troubling incidents. Friends, neighbours and family members disappear: some leave; some die. The child must cope with loss after loss after loss. *Feet in Chains* places that cruelty within a bigger frame. Reading about the hopes, pains, fears, thoughts and losses of one quarrying wife and mother, I burned with rage and anguish. Roberts humanises the quarries while exposing the brutal inhumanity of the wider system. Her book reveals the true cost of slate. Structural injustices are written into the billions of slates sitting on roofs around the world.

*

To leave Australia, we clamber up a series of iron ladders, forged by fires in the foundry at the foot of the quarry. These long lines, variously bolted, chained or roped to the rock, are now cold and rusty. They link the levels; although often, one ladder is not enough for these huge faces and so, upon reaching the top of one line, in mid-air we must step across a gaping void to gain the foot of the next ladder. Such aerodynamic moves set the arches of the feet tingling. We climb slowly, gasping at the exposure, moving cautiously where the decrepit ladders are missing rungs and wobble with our weight.

On the rungs, my mind is with the quarrymen. Where my hands are now – fingers wrapped tight around the sturdy cold iron – theirs must also have been, countless times before. I think of the calloused textures of those hands – transformed by so much exposure to rock, tools, ropes, chains and weather. When I was little I sometimes shrank away from my dad's worn builder hands. His skin could be horribly rough, especially in winter, when the work kept him out in the cold and wet. Then, his warm palms split apart, opening into seams and cracks that bled and wept.

Such hard-worn hands remained remarkably deft. Not only did the quarrymen drill, chisel, split, chip, trim, blast and hammer the slate for a living; but in their free time they also crafted beautiful pieces of stone artwork. A friend shared a photo of the slate whistles made by her great-grandfather, Lewis Henry Jones. He worked on the rock in Dinorwig, suspended on a rope, tapping to make space for explosives. The whistles, carefully displayed on a piece of white fabric, look like artefacts from a museum collection. But the whistles are not on public display. They are part of family lore, kept in the home and passed down through the generations.

There are four whistles – two black, two olive-green – and each is a tiny piece of geometric wonder. The finish is so fine, the details so sharp, the lines so precise that they look as though they were carved from wood or ivory. But this is slate, and these little stone whistles are a testament to the skill with which the Welsh quarrymen handled their rock; breathing life into cold, sharp matter.

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Pulling over the top of one last ladder, we leave Australia and enter the sky. We are on a wide grassy platform at the apex of the quarry, high above the mounds of loose lilac chippings and deep plummeting holes, up at the point where the industry gives way to the mountain. Views stretch back down to Llanberis and out to the coastal lowlands, the Menai Strait and Anglesey. Yet once again, this new vista does not help put things in perspective. The quarry does not shrink to a comprehensible size – the scale expands. From here, we look out on the old ports where the slate was loaded and shipped around the world. And over on Anglesey, there are yet more homes where quarrymen rose at three every Monday morning to walk to the ferry, leaving their family for the week to work and sleep in the roughest barracks in Dinorwig.

A cluster of old buildings stands on this lofty platform and we make for a long one that has solid walls, a sound-enough roof and glass windows. The door is hanging off its hinges and a small metal notice has been nailed to the wooden panels: 'No Door to Door Salespeople'. Adam, playing the role of gentleman, lifts the door and we traipse inside.

A rusted stove stands in the middle of the open room. Above the greening floor, the walls are whitewashed, although the rendering is crumbling and falling away in places, exposing the slate blockwork. Scratched graffiti cuts through the plaster. *DYLEN. LESLEY + KEN 1992. PNUT BUTTA CREW 2013.* Tattered jackets hang from pegs and beside a rusting kettle a row of crumbling leather work boots are lined up against the wall. This is an old *caban*, the bait room, where the quarrymen gathered at lunchtime.

Today the caban feels quiet, damp and slightly decrepit; but this was once the heart and soul of the quarries. Picture a kettle steaming and stewing on the stove at the centre of the room. The quarrymen were furious tea drinkers and had their own way of preparing the brew. Their tea was not of the genteel tradition, where the water is lightly coloured by a passing touch of fragrant leaf. They knew how to get the most out of the precious leaves. Half an hour before the lunch whistle sounded, a boy was sent to fill the caban kettle with water, tea and sugar. This infusion sat stewing on the stove for thirty minutes before the men poured in, rattling their enamel mugs, ready for a cup of knock-your-socks-off quarryman's tea.

Thus warmed and restored, the men were ready for something different. Each caban was governed by a president and committee who organised lunchtime activities. To complement all their physical labour,

lectures and discussions were held on topics ranging from politics to current affairs, chapel, charity work and union matters. The quarrymen of north Wales took education seriously. Bangor University was built with donations from quarrymen who wanted to provide an education for their children. But they also enjoyed themselves. Eisteddfodau – competitive performances of music, poetry and literature – were popular inside these cultured hearts. Once upon a time, this tatty old building at the top of the quarry was filled with Welsh voices, laughter and song.

Like the quarryman's tea, Welsh song is a magical stimulant. There is nothing else like it. Growing up on the mid-Wales border, my education was steeped in Welsh language and culture and we always sang together in school assemblies. There were the fun songs like 'Cyfri'r Geifr' ('Counting the Goats'), a tongue-twister which gathers pace as the goats we count take on more and more ridiculous colours; the whole song accelerating into a dizzying cacophony of mangled vowels and plosives. We also sang songs of great energy and *emotion, like* 'Hen Wlad Fy Nhadau', 'Land of my Fathers', in which our little lungs always belted out the rousing chorus: '*Gwlad! GWLAD! pleidiol wyf i'm gwlad.*' My favourite though, *with its sincere, sweet and heart-felt lyricism,* is '*Calon Lân'.*

Nid wy'n gofyn bywyd moethus,
Aur y byd na'i berlau mân:
Gofyn wyf am galon hapus,
Calon onest, calon lân.

Not a life I ask of plenty
Gold and gems are not for me:
I desire a happy heart,
an honest heart, a pure heart.

There is something about this particular song that chokes me up. I cannot just listen to it – if I do not sing, the emotion forces its way out in tears – better to open the chest, let the words out and sing. I am not alone in my affection for this old hymn: 'Calon Lân' is now a rugby anthem, sung by tens of thousands of proud Welsh men and women in stadiums across Europe. With my back to the caban, looking out from the grassy platform at the top of Dinorwig, goosebumps prickle at the idea of a Welsh choir standing out here, shoulder to shoulder, singing together in a magical expression of valley, quarry, mountain, sea and air.

Outdoor art has a unique power*. It is part novelty since* art is so often housed within the built environment. Think culture: think city. There our galleries, museums, cinemas and theatres bring artworks and performances to large audiences. But while the walls and ceilings protect the pieces, they also shut them off from the wider natural environment. When art is performed in the outdoors – whether music, dance, theatre or story – there is always an air of spontaneity. Things creep in, unplanned and uninvited. The simple act of gathering, with others, in the outdoors adds a layer of importance and the site draws geography in, altering the audience's perception of that place and its environment. The work might force people to look a little closer; it might give them a new angle, a new understanding, a new point of connection. Art can be unsettling. It makes us think and feel.

The songs and stories of Welsh folk culture, passed down through the generations, are rooted in the landscape, holding echoes of truths now lost. They tell how this place came to be, charting folk heroes and villains as well as writing giants, dragons and magicians into the rocks and hills. We practise this culture, keeping it alive, by sharing the stories and repeating the songs. Stories that I heard as a girl sat cross-legged on the carpet tiles of my school assembly hall, I now repeat out on the hill. On glimpsing the snowy flanks of Cader Idris from the top of another hill, I reach into my memory and share the story of the giant Idris with

my English friend. Idris, one of the great astronomers who used to sit on top of that mountain and gaze at the stars, philosophising on the meaning of life and the fate of mankind. Such storying brings character and personality to these distinctive topographies, giving us more to say about the place, beyond simply naming. Creative geography feeds the imagination and the social nature of these sharings enriches human relationships with natural places.

Ambitious new artworks can achieve something different. Over a year-long residency at Penrhyn Castle in 2017, artists Zoe Walker and Neil Bromwich produced a performance piece called *Llechi a Llafur/Slate or State*. The artwork tackled the fraught history of the castle and its relationship with the community of Bethesda. Inside the castle (now owned by the National Trust), the only acknowledgment of its connection to the quarry was an oil painting by Henry Hawkins, which depicts the slate quarry in a Tower of Babel scene of heaving industry. Outside the castle, the legacy of the Great Strike was still deeply felt by the community. The hardship, betrayals and gross inequality had not been forgotten. Many took a strong stance and declared they would never set foot inside the castle.

Working with the people of Bethesda, Walker and Bromwich created an artwork that finally brought the community's voices and the missing history of the strike into Penrhyn Castle. The artists constructed a sculpture of the quarry that was shouldered and carried, like an oversized coffin, by the people in a grand procession from Bethesda to the castle. Men and women – descendants of strikers and quarrymen – walked in and sang, filling the echoing opulent chambers with their Welsh voices. This piece helped the community to move into a new place – a difficult place – but one which they could occupy, finally, with a greater sense of agency, in a new reckoning with their heavy history.

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Leaving the lofty caban behind, we follow a path that trails on in the direction of Snowdon, or Yr Wyddfa, the Burial Place. Today the massif is hidden inside a heavy weight of cloud. We drop down into a little valley that leads to a cutting between two slate walls. Through the blasted cleft, a new space opens out. At our feet, the ground drops away, sharp. We are on the precipice of yet another pit. To access this one, we must abseil.

Someone has drilled shiny silver anchor chains into the rock and we thread our rope through the metal ring, coiling up the ends before tossing them out, wheeling through space, gravity tugging the ends down to the ledge below. One at a time, we feed the rope through our belay devices and begin walking backwards over the edge. The tipping point comes when the weight leaves your feet and the harness takes the strain. That is the moment of vulnerability: the moment you place your life on the line and find out whether the system holds.

It does, and I walk down the slate face, feeding the rope slowly through my belay device, dropping down to the next ledge where a large goat willow spreads its downy-grey boughs. On this journey through the shattered mountain interior we have met so few trees that this individual is striking. Peculiar even. The willow seems so out of place that it gains an aura of personhood – now tugging at the roots of some old Welsh folklore. Gwydion comes to mind, the mischievous sorcerer, who was forced to assume different animal forms – stag, sow and wolf – as punishment for his wrongdoings. Later, he animated an entire forest, calling up individual species of alder, oak, aspen, bluebell and holly to rise as warriors and fight in the Cad Goddeu, the Battle of the Trees. I had forgotten how spirited the Welsh landscape is; how the mytho-poetic stories live on in these hills and valleys where the language is still spoken.

Down. Another abseil and series of ladders lead us further into the base of the pit, where we stand at the bottom of the Lost World, deep inside Elidir Fawr. The air is sombre and deathly still. Suddenly, I feel very tired.

In Nan Shepherd's explorations of the Cairngorms, she writes about 'walking out of my body and into the mountain'. That Zen Buddhist philosophy has always chimed with me and I've sought out those moments in the hills or on the rock, where the self feels a little less solid, a little more fluid, part of something bigger. For Shepherd, entering a mountain is a slow process of becoming, of allowing the self to soften and mingle into the environment. Here, in Dinorwig, we stand, quite literally, inside a mountain. In the space above our heads, millions of tonnes of Elidir Fawr have been removed.

There is something medical about this rare internal viewing. We can see the mountain's inner workings. The quarrymen's work is like that of the surgeon who cuts through skin and flesh to open up bodies and explore the innermost matter. At first instinct, Dinorwig appears to be a post-mortem: the ruins of a savaged mountain. But the cutting work was performed on a living body that, while altered, remains very much alive. I think of Frankenstein – then recoil. That is not the right narrative for this place. In Mary Shelley's novel, Frankenstein's monster is the product of nineteenth-century experimentation; a cobbled-together approximation of a human who becomes a bitter outcast. Feared, shunned, hated and pursued. While Dinorwig is a troubling place with a difficult past, the quarry is not hated. The capitalists might have moved on, abandoning the site to extract resources from other landscapes using other human bodies; but in Dinorwig, life continues. Every weekend, scores of climbers pour in from across the country and every day locals walk, run and play in the spaces that relatives worked into existence.

Climbing in Dinorwig, the dizzying scale of waste, absence and industrial transformation is striking; but a beauty also moves within the walls. Mesmerising colours appear out of nowhere. The slate is not just grey or black. It is teal, mauve, olive, turquoise, caramel, lilac and scarlet. Strange shapes and patterns draw the eye in. In the lines and tones of one wall, a William Blake vision emerges – an etching of the human body, all sinew and lean muscle. For the climber, the towering walls, searing slabs and dark overhangs suggest an infinite range of physical sequences. These sharp features that were dug out of the mountain and sculpted by man invite us to think differently. To move with this rock, we must perform bold and experimental movements.

In opening the body of Elidir Fawr, the quarrymen exposed aeons of time and deep earthly processes. The wrinkles in the slate help us to imagine ancient movements – the laying down of sediments in long lost seas and oceans, the collision and division of continents – vast visions well beyond our normal scales of reckoning. Their expert work with this sharp and unforgiving rock produced luminous pieces.

On Rainbow Slab, a sheet of coloured slate that looks out over Llyn Peris, a rainbow ripples across the rock face – a giant three-dimensional fold that illustrates where the ancient seabed was pressed and buckled by the force of tectonic-scale movement. On this face, if you can maintain the constant body tension required to stay on tiny edges and little finger pockets, then you can pull up, moving through compressed layers of geological time to stand on top of a rainbow.

Short-Listed: Ian Carter, '*The gentle art of tramping*'

I have a way of exploring new places. It's very simple, though it does require an accomplice. I get myself dropped off in a remote spot, with an agreed pick-up point a few miles away, on the far side of an appealing tract of countryside. Critically, the drop-off and pick-up points are not readily connected by roads or public footpaths; this is about trying to find a way across a landscape that would otherwise be tricky to explore.

These walks are a somewhat less rigorous version of the 'trespasser's walk', pioneered in Edwardian times by traveller and journalist Stephen Graham. He took a compass, and having arbitrarily picked a direction, north say, he followed it 'resolutely to the guidance of the magnetic needle'. The title of his book *The Gentle Art of Tramping* hints at his reason for doing this. And he goes on to explain: 'It takes you the most extraordinary way, and shows what an enormous amount of the face of the earth is kept from the feet of ordinary humanity by the fact of private property.'[1] That is still very true today: access rights in England and Wales cover only a tiny proportion of the land.

Walking across private land runs the risk of unwanted confrontation, though no doubt less so than in Stephen Graham's day when small armies of gamekeepers patrolled the ground. I don't take my mobile – a phone would make it too easy to bail out and change the plan should I run into difficulties. Without one, the only option is to keep going and make the meeting point on time, come hell, high-water or irascible landowners. The nineteenth-century rural poet John Clare was an enthusiastic explorer of his local countryside in east Northamptonshire, and was intimately familiar with it. Yet he too was wary of local landowners when he strayed from public rights of way:

> *I dreaded walking where there was no path*
> *And pressed with cautious tread the meadow swath*
> *And always turned to look with wary eye*
> *And always feared the owner coming by;*
> *Yet everything about where I had gone*
> *Appeared so beautiful I ventured on*[2]

My one concession to minimising the chance of unpleasantness is to pick an area with plenty of woodland. This has a twofold advantage: such places are often rich in wildlife, and they are easier to move through unnoticed than more open landscapes.

Today is Monday 21 December, the shortest day of the year, and I'm marking it by trying out a new route. A walk on this day has become a personal tradition and, as with all traditions, it gains a little more traction and power with each repetition. I have just over six miles of crow-flight to cover, but it will be longer in terms of distance travelled on foot. I'll have to cross one small lane at about halfway, but much of the route can be covered using sinuous strips of woodland that hug the valley bottom. There are no footpaths; this is not a problem within woodland, but will make it more difficult to traverse the one section that has exposed, open fields. From the map these fields appear be overlooked by farmhouses, but I'm hoping the typical high Devon hedge-banks will facilitate safe passage.

My wife, Hazel, has dropped me at the edge of a wood near South Molton in mid-Devon, an unprepossessing market town that sits just outside the National Park, with signs offering it up hopefully as the 'gateway to Exmoor'. I have five hours to make the rendezvous and already things have started to go wrong. It's raining, of course, and I've forgotten my glasses. Anything closer than four feet away is fuzzy.

My 1:50,000 Ordnance Survey map is a meaningless mass of blurred lines and shapes. Thankfully, I have a workaround: inverted binoculars allow me to peer down and resolve the lanes, woods and field boundaries, albeit only about one square kilometre at a time. This is far from ideal for route planning.

I enter the trees and instantly feel more relaxed under cover. It's a deciduous wood with Ash, oaks, birches and a few huge Beech trees towering above an understory of Hazel and Holly. The trees are bare; most of last year's leaves are already on the ground, beginning their slow transition to soil. And it's quiet. There is no birdsong. I find that I'm more self-conscious of my own progress than I would be in spring or summer. Perhaps it's because the sightlines are longer and so I might be noticed from further away. Or is it because, in winter, there are fewer distractions provided by noise from other creatures? I'm acutely aware of every sound I make as twigs snap beneath my boots. I catch myself looking down to try to avoid them and then, if unsuccessful, quickly turning my head to see if anyone (or anything?) has noticed. Deathly silence; skeletal trees; the bones of a landscape; rot and decay all around.

Today, darkness will descend more quickly than on any other day of the year. There is a strange sense of time passing that is at its most powerful in a midwinter wood. Here are trees that have been rooted to the same spot for perhaps a century or more; some will have been here for decades before I even existed. While this year's leaves are disintegrating all around me, those for next year have already been made. They are there above my head in their millions, coiled tightly within buds, patiently waiting for their one and only chance in the sun. If I return in spring, they will be present, visibly, as new leaves. Six months later and they too will be lying around my feet, on their way to dust. For now, all they offer is potential – the coming spring in waiting, but not yet realised. On a day when nothing much is happening, these woods stand for change, and for the passage of time; they reveal the way that the years, and then the decades, rush past us almost unnoticed.

I walk on, passing through a group of old, twisted Holly trees, the view ahead now blocked by evergreen leaves, dotted with red berries. As I round the final tree, I startle a Woodcock just a few feet ahead of me. And at the same instant, *it* startles *me*, lifting sharply with an audible clatter of wings. It's loud enough that I mistake it for a Pheasant for a split second, until the shape becomes clear. The Woodcock is a plump, almost dumpy, brown bird, with short, rounded wings, and yet its escape flight has both speed and agility, making the species highly prised as a sporting bird. It is a wader, though atypical in shunning water in favour of damp woodlands and meadows. The Woodcock's main requirement is for ground soft enough to probe with its long, flexy-tipped bill, and cover in which to hide. In these wet woods it has plenty of both.

Further on I flush two more singles, and then two together. These individuals rise at a distance, in apparent silence. The birds think, wrongly as usual, that their cover has been blown and away they go to seek out another hiding place. Dark shapes weave through an obstacle course of trunks and branches – a string of inevitable collisions, each miraculously avoided at the last moment. As always when I flush a few in quick succession I begin to search for them on the ground ahead. And, as always, I'm unsuccessful. The Woodcock seems almost not to exist as a terrestrial bird. It spends virtually its entire life on the ground but it wears a cloak of leaf-litter; its intricately patterned brown, grey and black feathers provide a perfect match for the woodland floor. So, for us, this is a bird of the air, glimpsed for a few seconds on the rare occasions when we stray too close and force a reveal. Only as the light fades at the end of each day will it launch into the air voluntarily, making for its night-time feeding sites, often transitioning from the cover of woodland out to the fields beyond. For obvious reasons, Woodcock tend to shun busy places when hiding during the day. Sticking to well-used paths and places busy with people is not the way to catch up with this most enigmatic and mysterious of birds.

* * *

Despite the lack of a path, it's not too difficult to pick a way through these woods, though straight lines are rarely the way forward. There are fallen trunks to work around, the odd stream (already heavy with the day's rain) to jump, and waterlogged, boggy areas to negotiate. I think I'm heading in the right direction but as I've never been here before I can't be sure. For most of the walk there are no houses, farms or other evidence of people, and I have no idea how far away these things are. Perhaps there are no humans for miles in all directions. This dearth of information adds to the experience. It brings a sense of freedom, of not knowing what is around the next corner, and an alertness that comes with trying to pick out a passable route ahead. This is not the usual way of things these days. We follow signs and paths, often on visits to well-run, carefully managed nature reserves. We revisit familiar places time and time again. This too brings its benefits: we most readily notice the unusual and the way that the seasons change in places we know well. But spending time in a place we don't know is life affirming. And, for most of us, the experience is all too rare these days.

As ever, I attempt to light on somewhere to eat lunch where there are no visible signs of humanity. Is this becoming a minor obsession? Walking further inside the wood I find a place that seems to fit the bill. I'm surrounded by mature trees and even with the paucity of leaves, the fields beyond are no longer visible. All I can see are the trees and shrubs that make up a native English woodland – one that might have existed, on this very spot, before humans first arrived in the area. If there are any distant anthropogenic sounds that might otherwise be heard, they are masked by a light breeze through the branches above.

I've already poured out a coffee when I see the problem. A single pixel of the scene has been dislodged. Hugging the trunk of an old Ash tree a few metres away is a thick stem of Ivy. It's a full five inches in diameter, one of the oldest I've seen. And there, about three feet from the ground, is a small gap where a section has been cut out by chainsaw. I can see the chunk of wood lying in the leaf litter below. This is a sight that is all too familiar along the local lanes and footpaths. There must be a secret network of individuals who roam the countryside, seeking retribution for the way this plant clambers over trees to access the light. Here, in the middle of the wood, it managed to evade detection for decades judging by its size, until a human finally tracked it down. Ironically, the tree is succumbing to Ash dieback disease, as are many in this wood, so now both tree and Ivy are dying. My obsession is confirmed: I shift to a new spot where the vandalism is safely out of view.

Twenty minutes later and I'm almost standing on the lane before I realise it's there. It is sunk well beneath its flanking hedge-banks, hidden from view, with no traffic to give the game away. Surprisingly, Devon has more miles of road than any other county in England – it's just that most of them are tiny lanes that see very little use. The entire valley at this point is hidden from the rest of the landscape, with a couple of old farmhouses on the upslope a few hundred metres away. I'm reminded of the thoughts of Ted Hughes when he first moved to this area in the early 1970s:

> *Buried in their deep valleys, in undatable cob-walled farms hidden not only from the rest of England but even from each other, connected by the inexplicable, Devonshire, high-banked, deep-cut lanes that are more like a defence-maze of burrows, these old Devonians lived in a time of their own.*[3]

This quiet, concealed valley still feels timeless and somehow disconnected from the rest of the world. Being alone and reliant on nothing but foot-power and initiative to find my way out, the effect is all the more powerful. There are no sounds, no people, and even the livestock are missing – no doubt holed up in a large shed somewhere for the winter, to spare the saturated ground. In three hours of walking I've yet to see another human, and discounting the odd passenger jet high overhead, there has been no sound of human activity.

Nonetheless, this landscape is now very different from the one Hughes would have known. The sense of timelessness is mere illusion, as it was in his day. In fact, he was all too aware of the pace of change when he lived and farmed here in the 1970s. He lamented the passing of the old ways in his writing, with progress driven on by 'the regular sales blast of *Farmer's Weekly*, with its dazing propaganda for new chemicals, new methods, different chemicals, new gimmicks, new short-cuts, every possible way of wringing that critical extra per cent out of the acreage and the animals'.[4] Fifty years on and the fields have been fertilised, ploughed and reseeded beyond recognition. Apart from a few forgotten damp corners, they have lost their wild flowers and their birds, being grazed hard in summer or subject to multiple cuts of silage. The old hedges and woods still hold life, and probably look much as they did in Hughes's day, but few creatures are able to scratch a living in the pastures that dominate the scene around me.

To reach the next section of woodland I skirt the field edges, hidden from old Devonians in their farms above by the high, thick hedges. I find a well-worn animal run in the bank and scramble up inside the hedge. Now I can work my way along the top of the wide bank, old tree stems on each side, last cut many years ago. Red Deer hooves have pushed sharp slots into the earth, showing that they too use this place to pass unseen through the landscape.

In one of the larger fields, I can just make out the lines where lost hedges once divided the land. They show as slight depressions in the ground, left from the old ditches – ghosts of an ancient landscape. What would have been four or five small fields is now a single vast expanse of grass, dominated by one or two species; there is more space for livestock and machinery but less for the wildlife that tries to cling on around the fringes.

It's a relief when I reach the next wood and slip inside, knowing that the rest of the walk will be under cover, provided I can find my way to the far end. A lone (planted?) Wych Elm near the stream still has a few luminous yellow leaves, the others lying on the ground beneath. They are by far the brightest things on view on a day that has remained stoically dull and grey. As I learn later, when I look it up, they are the largest leaves of any native tree in Britain, and I can't help wondering if they turn a brighter yellow than any other tree. The stream carves a route through the wood. It provides an easy course to follow and will take me close to my meeting point if I can stick with it for a couple of miles.

At the edge of the wood, I have a little spare time to reflect before my lift arrives. It's been almost five hours, and apart from crossing a lane I've been away from legitimate rights of way all this time. Does the pleasure of doing this come simply from stubbornness and a desire to break rules for the sake of it? It's more than that, I'm sure, but I find it hard to pin down. Later that evening I re-read sections of Nick Hayes's powerful book on trespass and the battle between private land ownership and public access. Here, he describes his feelings after an unexpected close encounter with Red Deer in the heart of a Suffolk wood:

> *This kind of moment is only available off the path. It is an accident, unwilled and unplanned, but it comes dressed as poetry. It is prosaic, but it feels like a miracle, it feels meaningful, and it leaves me with my heart thumping in my throat. The deer were so close they felt dangerous; not aggressive, but wild-eyed and unpredictable. I would swap a hundred nice walks along a pretty Right of Way for this one moment of magic.*[5]

That's it. The perfect encapsulation of the joy of properly exploring a place on your own terms rather than following a route that has been predetermined. We spend most of our lives moving along paths, streets and walkways that have been laid out for us and which constrain the routes we take. We follow lines that bind us to the will of others, surrendering any sense of freedom. Take the path and you might see deer (though it's less likely) but that's not the point. An encounter won't leave your heart thumping in your

chest as you stumble unexpectedly into them, or they into you. But off the path, as with the Woodcock from earlier today, the experience will come dressed as poetry.

[1] Graham, S. (2019) *The Gentle Art of Tramping*. Bloomsbury, London (originally published in 1926).

[2] Clare, J. [1793–1864] 'Trespass', from *John Clare: Poems Selected by Paul Farley* (2007). Faber and Faber, London.

[3] Hughes, T. (1979) *Moortown Diary*. Faber and Faber, London.

[4] Ibid

[5] Hayes, N. (2020) *The Book of Trespass: Crossing the Lines that Divide Us*. Bloomsbury, London.

Note: Ian Carter's latest book, *Rhythms of Nature: Wildlife and Wild Places Between the Moors*, to be published in May 2022, will include a chapter based on this essay.

Short-Listed: Ruth Bradshaw, '*Stories of co-existence*'

The sight stopped me in my tracks. White petals strewn across the path. I couldn't tell whether they had just been scattered randomly or were artfully arranged in a pattern that had been disturbed by the wind. What was clear was that they had been plucked from the tiny patch of wood anemones I'd been admiring only the day before. Of the dozen or so flowers only one had been left undisturbed. The remnants of the others were now at my feet, their edges already starting to curl up and turn brown. All that beauty and future potential destroyed for the sake of a few minutes' entertainment.

Wood anemones are attractive flowers but it is their status as an ancient woodland indicator - one of those plants whose presence signifies the area's long woodland history – that often makes them particularly valued. Here at One Tree Hill in South London it's possible they may not have occurred naturally. The area was once a park and many of the trees date from that time or have regenerated naturally in the last few decades since the area stopped being managed as parkland. As is often the case, benign neglect has been nature's friend. Before the area was cleared to create fields, it would have been covered in trees and now the trees are reclaiming this land. The park was created in the early twentieth century following a long campaign to protect the area from enclosure as a – presumably, pretty steep - golf course. From the top of the hill you can see St Pauls' Cathedral and people have been coming here for centuries to admire the view.

Even if the wood anemones had help reaching One Tree Hill, it was still a delight to see them growing there. I've often seen vast swathes of these flowers when out walking in the countryside in springtime but there was something special about seeing them in this suburban setting so close to home. Their destruction left me feeling dispirited and annoyed with my fellow humans. Why is it that we cannot be content to simply enjoy the presence of something beautiful or unusual? Why must we so often claim for ourselves what others might benefit from too? I know I may be reading too much into what happened. It was probably a child who picked the flowers unthinkingly, tempted by the unexpectedness of finding them. There are not many wildflowers here, and certainly there have been fewer this year than in many previous years.

One Tree Hill is surrounded by streets of terraced housing and so inevitably has been much visited during the pandemic. The woods have been loved almost to death in certain places, the understorey trampled and the ground compacted. Many new paths have been created as people sought to keep their distance or discover somewhere new on their daily walks. Only the places where the brambles grow too thick to penetrate have been left undisturbed.

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The Canadian writer, Charlotte Gill, describes humans as "biological capitalists", a species hardwired to squeeze as much as we possibly can from the world's natural resources. For much of human history we relied on this ability for our very survival. The human population was small and consumed only what it needed for warmth, shelter and sustenance. But we are an ingenious and inventive species. Over time we have found ever more ways to consume the world's resources, becoming skilled at adapting other species to meet our needs and inventing huge numbers of new products and technologies. We don't know when to stop and not content with merely having enough, we must always have more.

But I don't believe Gill's phrase should be applied to all humans. When the biological capitalists of Western Europe arrived in the so-called "new world", they encountered human populations whose lifestyles and way of managing the land was based on a far more equitable approach to other species. For generation after generation, these people had limited their demands of the land to ensure that it would continue to provide for them in future. But the new arrivals saw only a wilderness to be tamed and exploited. They did not even attempt to understand that it might be possible to have a different type of relationship with other species, or that a different type of civilisation might exist. They did not bother to learn from the Native American practice of leaving behind enough of any wild crop to ensure healthy regrowth. Failing to

comprehend why this fertile land had not yet been “cultivated”, they set about imposing their agricultural practices, property rights and biological capitalism on both the human and non-human populations. Wild mammals and birds were slaughtered indiscriminately. Plants that once grew abundantly became scarce. The human population did not fare much better.

A similar story accompanied the Europeans’ arrival on other continents and it is a story that’s far from over. Biological capitalism is now making such demands on the world’s natural resources, that it is potentially undermining the planet’s ability to continue delivering for us in the long-term. We now know too that the impacts of human activities have changed the environment to such an extent in recent centuries that we have entered a new geological era, the Anthropocene. Current levels of consumption in the developed world rely on globalised systems of production and intensive forms of agriculture which require ever increasing amounts of land and resources. This cannot go on indefinitely. We are in danger of using up all the resources on our own planet but some would prefer to focus on securing the resources of other planets rather than finding ways we might live differently on the planet we already have. It is a logical next step for biological capitalists but it’s one that saddens me. Given our long history of choosing short-term gain over what is in the long-term interests of both humans and non-humans, it’s doubtful we will treat other planets any more wisely than our own.

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Much has already been written about the impact of the pandemic on people’s connection with nature. It’s certainly good to find a silver lining in this very dark cloud but I find the idea problematic. For a start, it is our efforts to keep ourselves separate from one particular part of nature that has so completely upended our lives. Talk of connecting with nature also implies that this is something from which we are otherwise removed when in fact we are as much a part of nature as a bumble bee, a wood anemone or a coronavirus. The different parts of nature are already connected in a myriad of ways, some of which, like pollination, are well understood. Other connections, like the fact trees can communicate with each other, have only been discovered relatively recently, and there must be others still which we have not yet found. What there is certainly plenty of evidence for is the impact that human behaviour has on the non-human world. I’m worried that setting ourselves apart from other species by suggesting we need to make a special effort to connect with them risks perpetuating the kind of activities that have already resulted in so much damage to the planet. It isn’t a connection with nature we need so much as a better awareness of our part in it and a greater sensitivity to the impacts of our behaviour on other species. In other words, we need an empathy with all parts of nature.

The phrase “nature connection” may just be intended as a kind of shorthand to demonstrate the importance of us acknowledging the other species around us but what we call something does matter. The words we use have an influence. After all asylum seekers are often viewed differently from refugees. Public funding is generally more acceptable if it is described as an investment rather than a subsidy. Too much of the new-found connection with nature seems really to be just a use of nature or rather a use of natural spaces with no real attempt to understand the species for whom those places are home. Perhaps it’s that lack of understanding that leads people to unthinkingly pick flowers, to trample undergrowth or dismantle dead hedges that have been built to protect certain areas. It sometimes seems we are not content to watch and wonder, we must always have and hold. Denied many other forms of entertainment, we turned our need to acquire to what could be found outdoors instead.

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For the last few years, I have been a conservation volunteer helping to care for One Tree Hill and other woods and green spaces in South London. Getting to know these places better has completely transformed my relationship with the natural world. I have learnt that many of the places that I once thought of as wild only look the way they do because of how they have been managed over time. I now understand too that most other so-called wilderness does not conform to the dictionary definition of that word. Far from being uncultivated land, most of the places we think of as wilderness have been heavily influenced by human activity, often for centuries, millennia even. Some of the remotest parts of Highland Scotland were being

farmed in Iron Age times. Even in the Amazon Rainforest, there is evidence that indigenous people have long been growing fruit trees and medicinal plants. There is probably little real wilderness left in the world, and almost certainly none in Britain.

Conservation volunteering has also given me a much deeper appreciation of the way in which human behaviour impacts on the natural world and the way in which non-human species interact with each other. For most of human history, this kind of knowledge was both essential and commonplace. Many of the practical conservation tasks we undertake as volunteers today such as coppicing, hedge-laying and scything are activities that our ancestors carried out for generation after generation until only a century or two ago. All those earlier generations would have been only too keenly aware of their "connection" to nature and their reliance on other species.

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The place I've escaped to most often during the pandemic is a hill-top park about 10 minutes' walk away from where I live. The few grassy acres of Hilly Fields were saved when the surrounding streets were built at the end of the nineteenth century. The bandstand has long since gone but now there is a community orchard, a café and a children's playground. I've never been more grateful for this park than in the strange months since March 2020. It's been much used by lots of other local people too, the setting for everything from hen parties to Kungfu classes at times when such things could take place and other venues were still out of bounds. But I've been visiting regularly since I first moved to this area more than two decades ago. One of the things that has always drawn me here is the view from the top of the park.

Look out to the north and you are unmistakeably in the capital, the skyline dominated by the tall buildings at Canary Wharf a couple of miles away. Look to the south and there are other distinctive towers – the television transmitters at Crystal Palace and its smaller neighbour at Beulah Hill. But here surrounded by the trappings of civilisation, or at least the twentieth century version of it, you can also see evidence of a much older, wilder landscape. The television transmitters are built on a ridge of high ground and, at first glance, this appears to be almost completely wooded. Look more closely, you will see houses and other buildings too. But that initial impression is not completely wrong. Whole stretches of this ridge are covered in trees.

Here, just a few miles from the centre of the city, are remnants of a vast area of woodland which once stretched across most of this part of south-east London. At a time when the city was no more than a collection of wooden buildings by the side of the Thames several miles north of here, most of the people in this area made their living from the woods or at least relied on them for their survival. These would have been terrifying places then, filled with bears, lynx and wolves. Even after all the carnivorous mammals were exterminated there was still the risk of robbery or worse at the hands of bandits. People ventured into the woods then because they could not survive without what was in them. For centuries, the woods continued to provide shelter, fuel, fodder and more, and for all those centuries people cared for the woods, taking just what they needed but never too much. Trees also played a crucial role in the city's early development which was almost entirely powered by wood and charcoal made from wood.

London would not exist without the trees which it replaced but Londoners' relationship with the woods has changed, just as it has in many other places. There are other materials available from which to build our homes and heat them, other ways to power our industry and other uses for the land. No-one in Britain survives on what they can forage from the woods today, but they are still vital to many of the things that we take for granted in modern life. Every day, every one of us makes use of numerous items made from trees – toilet rolls, cardboard boxes, notebooks and more - many of which we use once and then discard. Now that we're finally grasping the harm of our addiction to single-use plastic, the search for an alternative is often leading us back to trees. Paper products are more natural, biodegradable, better for the environment all-round. I know all that. But do we really need so many disposable straws anyway? Perhaps we should sometimes stop to think whether we could do without instead.

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It is a cruel irony that just as we finally seem to be understanding how much we depend on the natural world we are destroying ever more of it. Millions of trees are felled around the world to satisfy our demand for timber, firewood, paper and tissue-products. Millions more are felled as land is cleared for agriculture, buildings and transport infrastructure. Even though fewer of us make our living directly from the land these days, the choices we all make every day are having an even greater impact on other species, on our fellow humans and on the earth itself. Our untamed appetites risk destroying both wilderness and civilisation.

For as long as we were directly dependent on the natural world, we lived in ways which allowed it to exist alongside us. Now too many of us seem to want to eliminate other species from our everyday lives. We cover our gardens in paving stones and plastic grass and bathe them in artificial light, preferring to see the wild as something that exists elsewhere, to be appreciated on natural history documentaries or on visits to far-off places. Eco-tourism is helping to protect the few remaining pockets of wilderness left on our own planet from those who would exploit them for their resources. But when there are fewer and fewer truly wild places left in the world, it sometimes seems a shame that we cannot be more content with just knowing those places exist. If we must experience them for ourselves, we add to the pressure on them both through our presence and the impacts of our travel. In the words of the conservationist Aldo Leopold "when enough have seen and cherished, there is no wilderness left."

Perhaps that desire to view nature as something separate from cities is because there are too many reminders in the urban landscape of the damage that humans are doing to the natural world. All that concrete and tarmac makes only too visible the price we pay for civilisation. In the countryside it is easier to convince ourselves that we are living in harmony with nature. We can look away from the habitats that have been destroyed and cannot see the species that have been lost. It is possible to ignore the environmental impacts of our lifestyle choices in such a setting. No wonder then that some people prefer to view nature as something that can only be encountered when one is separated from the concerns of everyday life. But we cannot separate ourselves from nature. It is a part of us, and we are a part of nature. It provides us with many benefits. But nature is not wholly benign even now that we no longer live in fear of large carnivorous mammals as our ancestors did. As the events of the last 18 months have forcefully demonstrated, there are still parts of nature which threaten our lives. That the risk now comes from something so small it cannot even be seen through an ordinary microscope has not stopped it being both deadly and incredibly disruptive. We still do not know for certain how the Covid-19 virus entered our lives but lots of the evidence links its arrival to the destruction of wild places and our treatment of other species. Here again our desire to have ever more when enough might do threatens both civilisation and wilderness.

I believe we need to start thinking of wilderness in different terms and in ways that allow it to co-exist more easily with civilisation. The "wilder" part of "wilderness" suggests a relative concept. What is "wilder" or "less wild" in one place might be something very different from what is "less wild" in another location. Defined in those terms, the woods I can see from Hilly Fields are definitely part of London's "wilder" ness. But this kind of "wilder" ness is also the wildflowers that grow in cracks in the pavement, the fox that strolls through my garden occasionally, and the peregrine falcons that nest on the chimney at Tate Modern. It is The Unofficial Countryside Richard Mabey wrote about nearly 50 years ago. In his words "the ability of wildlife to survive literally on our doorsteps is remarkable…it is a story of co-existence". And if we give it half a chance urban wildlife can prove to be very resilient. When I returned to One Tree Hill a couple of weeks after seeing the strewn petals, the small patch of wood anemones was covered in flowers again. Perhaps fewer than there might have been but they were still there, still beautiful and still raising that intriguing question about the woodland's history. I hope they will be left undisturbed next year.

If we want our story to continue happily, we need to focus more on co-existing in ways which allow both humans and non-humans to thrive as well as survive. We need to cherish the less wild places whatever form they take, while also protecting the very little true wilderness left in the world and seeking to create wilder places everywhere. Above all, we need to stop thinking of the wild as something remote and distant from our everyday lives. One Tree Hill and many of the other places where I volunteer are surrounded by

traffic-clogged streets and the homes of thousands of people. The city outside is as noisy and polluted as ever but in the woods, enclosed within the trees' protection, it is possible to forget the presence of the modern world for a while. This is the unofficial countryside but it is also "everyday nature". Places people can walk through on the way to and from work or school, visit in their lunch break or for a couple of hours at the weekend.

Parks and other green spaces have proved vital to helping many urban dwellers get through the pandemic but they are still essential, even in more normal times. That they provide a home for some of the birds, insects and other wild creatures we share this planet with and who are so essential to our own future should be reason enough for protecting and enhancing London's green spaces. But by absorbing pollution and carbon, reducing the "heat island" effect and improving air quality these places also make the city healthier, even for those who don't visit. These benefits will become even more important in future and many can now be quantified but I don't want us to become too reliant on numbers to justify the existence of urban green space. It is the qualities that you cannot put a figure on that are truly valuable.

As a species, we have not yet fully evolved to the urban life that the majority of people now live. If humans survive long enough – and when I am feeling pessimistic that seems unlikely given the damage we are doing to the planet - perhaps we will eventually become fully adapted to city living. But we will never be able to do without wilderness altogether nor without the places in our cities which offer both humans and non-humans a refuge from hectic urban life.

Short-Listed: Patrick Laurie, ‘The eel, a whipstock, a Roman candle’

It’s said that salmon are the kings of fish. Like kings, they lean easily upon the support of wealthy courtiers, particularly in times of need. As their fantastic migration has slowed and begun to falter over the last half century, anglers have been glad to pay for studies to monitor that journey to the waters off Greenland. The money is a gesture of love; it’s not hard to raise cash for salmon conservation because many of the interested parties are millionaires. Since childhood, these people were raised on costly fishing holidays to the Tweed and the Dee. The grown-up demands of a working life might drive them far across the world, but when the water is right, they’ll drop everything to fly back like ospreys to cast their flies in the rich, prestigious pools. It’s a rare level of devotion; an age-old tradition between humans and fish which leans wickedly to one side because the fish are fading.

Salmon have friends in high places, but spare a thought for lesser species which fade and wither in the murky water. There’s little love for the sparling or the allis shad. Who is there to care for the the countless eels which fail to make landfall every year? Their absence will never make a headline or draw a crowd, but they leave a hole as big or bigger than kings.

Eels fell from prosperity under cover of darkness. I only learned of the loss by chance when successive attempts to trap and catch them in the ditches failed. At first I wondered if I was doing it wrong. Maybe my creels were flung out too soon after rain, or too long. But then I searched around and learned that eel numbers have declined by more than ninety five percent in the brief span of my own lifetime. I was not failing to catch them, they had simply gone, and with such a ghoulish sense of mystery that their departure felt like the restoration of order and reason. Because you can believe a salmon when it jumps to the rising water. There is something wholly evident in the silver glare which lies within the living span of our ability to imagine it. They are fish, but they inhabit the uppermost end of that word. Eels have crossed out of that line on a journey to somewhere else. And ask yourself what salmon ever lay for days in the sheet mud of a lairy ditch? What salmon teemed in gellish schools as elvers do to climb and reclaim weirs and walls? If salmon strike you as dear, wait until you find the wet fields creeping with eels on a sodden night when the moon is half-broken through the clouds and you walk with caution in reeds alive with sea-meat. It’s not love we feel, but something similarly intense.

Checking rabbit snares in the darkness one night as a boy, I found the pools moving like soup in the torchbeam. In ten minutes, I had gathered fifteen eels of more than a pound apiece. Even with their heads sned and tipped in a coal sack, their muscles recalled the requisite churn of swimming. I turned them out into a wooden box and when we came to eat them in the morning, they’d hidden their headless bodies in the corners. In that, they seemed to have exceeded the constraints of natural law. Anything can be magical in moonlight, but eels transposed their wonder to the man-made span of a wooden box-bottom.

I was young when that happened. Perhaps it’s gross to recall it now, but remember that eels were once meat for millions, supped and slurping in the hands of Pearly Kings and Queens. Eel meat is a byword for simple nourishment, and even I can remember them passed in bags or rolled in newspaper above the bar in the pub; page three girls possessed with an innersquirming. I can remember men who had no legitimate business on the river, smoking in the hedgerows and waiting for the darkness to fall. Some of these poachers had traps, but others worked with leisters and lamps in the hawthorn shade. Then eels at the fish market on slushy beds of ice; eels as a catchable currency and the assurance that if all else failed, dinner would

come from the burn or the ditch with a turnip boiled and a tattie lifted from the roadside drills.

That's the magical paradox of a creature which stands legless with a foot in two worlds, simultaneously humdrum and fantastical; commonplace and crazyplace in a folk history which sprang from the understated friction of repetition. As Yeats explained it, "folk tales are full of simplicity and musical occurrences, for they are the literature of a class for whom every incident in the old rut of birth, love, pain, and death has cropped up unchanged for centuries: who have steeped everything in the heart: to whom everything is a symbol". That is the water where eels swam; at home in the simmering pot, then surging to a candlelit afterlife in mythology and lore.

The Morrigan swam as an eel down the river Bann. The Ludham serpent slipped around the Norfolk countryside like a nightmare. Even where eels do not express themselves by name, they lend a knowing discomfort to the dark night. The poet Eugenio Montale's eel was a pagan being, spellbound by a slitheringly erotic single-mindedness: "the eel, a whipstock, a Roman candle, / Love's arrow on earth, which only / Reaches the paradise of fecundity / Through our gullies and fiery, charred streams". That's Robert Lowell's loose translation from the Italian, but Montale's original is hardly more veiled[1]. Graham Swift's *Waterland* contributed a similar reappraisal of eelish angst, but the connections are ancient and oddly contradictory. Pair Montale's phallic sense of destiny with Ted Hughes' depiction of a creature "Alone / In her millions, the moon's pilgrim, / The nun of water". There's little coherence in these two imaginings of lust and chastity, and perhaps that's an understandable reaction to a creature which defies classification. Where they meet is perhaps in the recognition that eels are frequently a man's tool in writing; a specifically male adolescent motif, predictable only by association with the governing shift of moon and tides.

It follows that if you want to catch these halfling creatures, you pay attention to grander cycles. To ensure success, you must look well to the season and a million small drainings of the contours after a wet night. If you're happy to do those well-connected things, then why confine your efforts? The river might rise from unseen rains which fell fifty miles inland; you cannot always see the cause or the reason, and if you're seriously invested in success, it's little extra work to spare a thought for water sprites and ghouls which ride in the roiling rubble. If you're trying to catch the indefinable, you are entitled to feel dissatisfied dealing only with things you can handle. There's a powerful imaginative part to this game; we believed that we were pulling eels out of the water, but instead they were pulling us in to a deep, imaginative murkiness.

As the eels decline and their numbers fail, we're called to unpick their failures. We shine a light upon their innermost stories and see them as a mechanism which lives or dies on the back of a million ecological variables. Ocean currents, correlations of plankton and krill all sway in the leaky wake of dwindling ice caps. It took us a long time to realise that eels travel across the Atlantic to spawn their eggs in the weedy Sargasso sea. Then as feeble elvers, they drift with an almost meaningless wriggle in currents which bring them back again. It's a brainboggling odyssey, but it is no more or less intense than the ignorance which preceded it. In the days before we knew what an eel was and how it fared at sea, we told ourselves stories instead. These stories stretched our imagination, like the eels which strode out of the water on the ends of their tails and made a forest of houses and the road to somewhere so far distant that travelling there would annihilate the memory of leaving.

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[1] l'anguilla, torcia, frusta, / freccia d'Amore in terra / che solo i nostri botri o i disseccati / ruscelli pirenaici riconducono / a paradisi di fecondazione / l'anima verde che cerca / vita là dove solo / morde l'arsura e la desolazione

It's not clear that modern research tells us anything more spectacular than the tales we already knew, but in the rush to conserve and protect the damaged world, we have made a clear attempt to place the purity of ecological study above all other lenses. Forget centuries of folklore and mythology; the only acceptable terms are scientific. It has become a simpler transition because as their numbers have declined, eels have ceased to breathe down our necks. A handful of scientists examine the situation in minute detail, but the rest of us have found it easy to worry about other things.

The people who found value in eels do not have time to hang around waiting for their return. Their connection was more vital, and it was founded upon the hand-to-mouth memory of need. So there is no loyalty to the cause; no lingering backward glance. Eels failed, and if you were relying upon them to feed your family and pay your bills, you simply looked elsewhere for something that could. It wasn't without a swirl of regret, but only rich people can afford to pour money into nostalgia and a sense of what's right.

For all that we seem to have moved on from eels, scar tissue has formed in the aftermath of our old relationship. We look back on our use of natural resources and cringe to wonder how we grew from the ancient work of trapping eels in wicker tubes to catching them *en masse* in custom-built factories. Seamus Heaney's engagement with eels was strongly influenced by the existence of an eel-works at Toome in County Antrim, just a few miles from where the poet was born. In describing this place, Heaney balances two understandings of an ancient bond; his eels have both imaginative value and economic significance as a commodity, processed through hard labour and the fumes of diesel smoke.

So much of Heaney's poetry carries a cast of nostalgia; a backward glance to childhood and the added weight which accompanies adolescence. Heaney mined the symbolism of eels so deeply that Ted Hughes advised him to live and work around the fisheries at Lough Neagh. He considered it, and it would have been interesting to read his poetry if it had been based on a more quotidian understanding of the trade. As it is, the eel-infested *A Lough Neagh Sequence* seems to come from some primitive dreamland which feels decidedly vintage and oldfashioned today. After all, eels are now protected by law. The eel-works at Toome have been downsized and only continue to operate under a special EU derogation. Even that licence is granted upon a greater emphasis on traditional credentials and cultural identity, part of which was established by Heaney.

Other eel-works in Britain have been closed and forgotten because we have begun to understand that humans cannot be trusted to manage and exploit natural resources. In the pursuit of more and greater quantities, we take too much; we lose our ability to understand natural symbols. The change creeps upon us like poison to complete the narrowing of what John Moriarty calls "the modern mind'. In his essay "The Third Battle of Magh Tuired", Moriarty embarks on a metaphorical quest to understand the exchanges of nature beyond the claustrophobic confines of modernity. He stands "knee deep in a river washing my modern mind: downstream, in pool after pool, the fish died". It's a direct expression of our severance; our embarkation not only on a journey which leads us away from our roots, but a journey that is profoundly inimical to ancient connectivities. Even the taint of modernity in the water is enough to send fish and eels both belly-up. Eels founder in the immediate pain of commercial processing, but it's the accumulative clout of climate change and global warming that hurts them hardest. We can shut the eel-works and forgo eel-meat, but we're all complicit in the real harm. The species' collapse has left us in a strange position. Mystical superabundance has been reduced to a brittle niche. It's not clear how much legwork is required to invert the meaning of a symbol. Will eels find traction as an icon of decline, or

does the fact that they've been relegated from common parlance perform the same job?

It's clear that active, data-backed conservation provides only part of the answer to their loss. There is room for older truths compiled in literature and folklore which ask the question which inevitably follows the solution. If science allows us to learn how to protect creatures like eels, literature tells us why we should seek for it. That's an established principle, but it's unrealistic to expect that these creatures will ever flood back into our modern world. Even in the days of their superabundance, if you worked mainly indoors and kept civilised hours, you might never have seen a living eel. Restoring them would not necessarily bring them streaming back into our lives like the salmon crashing headlong up the noisy falls. We would still need to go looking for eels, our relationship transacted through a skilled, open-minded vigilance which is only held apart from sorcery and shamanism by the thinnest veil.

It's reckoned that if we stop believing in faeries, they die. That much was recorded by eighteenth century folklorists and it was translated into modern parlance by Tinkerbell. Understanding that faeries have often served us well in providing an imaginative space to think about ourselves, it's clear that eels have served a similar purpose; you do not need to see these creatures to have the experience of knowing them. Simply to believe that a single unbelievable eel might be present is the seed of a beginning. And where faeries offer a wholly imaginative canvas, eels are doubly challenging because they can also be picked up and held; eaten and skinned. In retrospect, it's clear that in the creeping efficiency of the eel-works, we narrowed our take in the wrong direction. It turns out that we didn't need their bodies to nourish us. Mankind's survival does not depend upon a sustainable source of eel-meat, and it's the loss of their imaginative potential which strikes far harder.

Conservation depends upon a balance of imagination and reality. We are guided by data, but the disparity of attention shown to eels and salmon confirms a suspicion that we see only what we are looking for. Literature is one of many hopeful outlets to confirm and endorse the value of subtleties and detail; to balance the boat and prevent us from overturning it with a monied rush to one side or another. Salmon will always draw a crowd, but eels take a little kindling to reach the same heat. When writers like Hughes and Heaney focussed upon eels, they did so knowing that we had reached a moment of transition from ancient to modern. They could not have foreseen the spiralling collapse of the species; that the story was almost wholly told. In tapping that ancient symbolism and aligning it with eternally ambiguous themes of adolescent masculinity, they tuned in to tales which ran from pre-Christian unease to the reality of commercial exploitation. It was for my generation to chart the next step in the early 1990s; a story I found as a teenager when eels performed their greatest conjuring trick and were taken or vanished in the space of what seemed to be a few short years.
The current upsurge of interest in nature writing is in part founded upon the recognition that wildlife can play a restorative role in our lives. That connection is often celebrated as something new or innovative, but it is really rooted in a much older tradition. Of course there is value in nature as a means to escape from the pressing claustrophobia of modern life, but some of this relief is based on breaking the continuity of our selves. When the weekend comes, we can free ourselves with a trip to the woods or a walk in the hills; we can pull for the joy of clean air before Monday drives us to roll out of sight again like a porpoise. There is optimism in that escapist glee, particularly if it allows us to develop a greater awareness of the living world. But beyond that brisk, restorative break, we should also remember nature as a powerful source of more-than-literal value.

Eels are only a single thread in this fabric which allows us to think in natural terms, to deploy language, stories and symbols which reintegrate the lost or severed connections to every part of our lives. That engagement is a form of insurance for when reality fails us; if we cannot

make time to escape, or if the creatures we need are becoming harder to find. But it also allows us to occupy a headspace which does not depend upon our ability to compartmentalise our lives or hold our breaths just long enough to make it outdoors again. This kind of sublimated, imaginative nature is no replacement for the real thing, but when actual experience is drawn up alongside an ancient web of stories and ideas, it can be profoundly nourishing.

We should not accept biodiversity collapse. We are duty-bound to protect the natural world, but eels reveal how symbols can change and react to shifting human expectation. At a time when nature can often feel scarily unavailable, a restoration of faith in stories and symbolism may provide fresh points of access.

Short-Listed: Gregory Leadbetter, ‘The Cucumber Spider and the Transnatural Tongue’

I stepped from the screen-fatigue of my house into the late afternoon light of my garden. It was early May, 2020. The contagion raged in quietness: the unfamiliar absence of an over-the-horizon white noise – lost currents of traffic – amplified sound and presence close at hand. The last of the scent on the apple tree’s blossom carried the hum of its visitants. I’d let the forget-me-nots run. A speckled wood flickered past my ear. And then a greenness, bright and distant as a planet suspended in its local heaven: the lilac bloom lush with the weight of its fragrance. I hung there, too. Holding my breath, I approached.

So green, on such purple: a tiny, luminous spider – its web almost invisibly fine over mouths of flowers many times its size – new to my personal science. Its abdomen, no more than two millimetres long, was the most vivid pale green bulb: its thorax, like its legs, translucent. Up close, I saw a ‘v’ of dots – each as black as its mount of eyes – taper to the source of its silk. This green was no camouflage – not here in this lilac – but a blazon of wonder.

I lost track of how long I watched it slowly thread its net of air, but eventually took photographs to share on Twitter, tagging my local Wildlife Trust. I wanted to broadcast my marvel, but also to pose the question of its presence, so unfamiliar in its familiar form – and soon the answer came. This was a cucumber spider, the Trust told me: look for the red spot under the tip of its abdomen. I had not noticed that before, but I went back to look and there it was – a smudge the colour of human blood – and now the spider grappled with some even more miniature prey, already subdued beyond recognition.

So, my wonder had a name: the cucumber green orb spider, to give it its full common name in English, or araniella cucurbitina in binomial classification. I was glad to have these. I could speak of the spider – add it to that unwritten list of creaturely encounters that I could discuss in the shorthand of a shared terminology. I liked the names, too: that figurative marriage of ‘cucumber’ and ‘spider’ has a charm of its own, and the colour of its abdomen does indeed resemble a gradation in the green flesh of a cucumber. The chant in its Latin name is a delight. Why was it, then, that I felt something akin to disappointment in knowing these names?

These names, I knew, had somehow dimmed the glamour of my unnamed wonder. Some aspect of human consciousness tends to dupe us – or almost dupe us – into treating knowledge of the name as sufficient knowledge of the life it names. What did I know, in knowing its names? The life itself, or a verbal sign that gestures to such knowledge? The danger is that the unknown life is forgotten beneath a satisfaction in the surface of the name: or, to put it another way, that the wild being is forgotten beneath the civilised form. We all too easily misidentify classification with comprehension – killing off curiosity and closing the inlets of wonder.

This was not the first time that I had recognised this tension between naming and taming, and I am not the first to have felt it. Reaching for the satisfying intellectual click of a name can, in John Fowles’s words, cast a ‘veil of deadness, of having already happened, over the actual and present event or phenomenon’. Enthusing in his notebook after a walk through Watendlath in 1803, Samuel Taylor Coleridge writes that his ‘passion’ for plants and flowers was ‘always deadened by their learned names’. The wonder and mystery of a living encounter is at risk of being reduced to the token acknowledgement of a pre-existing category. This is the ‘death’ in the name, where innocence expires in the grip of experience.

It's a problem that every poet knows: how not to kill the beloved thing in the act of utterance. Something dies when the mind defaults to a slackened attention – wherever it has a sense (rightly or wrongly) of having been there, seen that, done that before: wherever the force of reality is tamed. This is the 'death' in cliché: life slips from its loosened grasp. Of course – in our current state of evolution, at least – the filtering function in our nervous system is in part enabling, too, in preventing us from being exhausted and overwhelmed either by fear or wonder: 'Too bright for our infirm Delight / The Truth's superb surprise', as Emily Dickinson writes. And yet there remains the urge and need to dilate the aperture of our consciousness – to reawaken our powers of attention, and the powers they nourish, which waste wherever they do not grow.

How, then, to name the 'superb surprise' of the actual and the present – the truth of encounter, the wonder that goes by the name of the 'cucumber spider' – without extinguishing its vitality? The problem of naming is a problem of language: one of the fundamental forms of civilisation. Is there a way to let in the wild with words – for the organ of civilisation to be, at one and the same time, the organ of the wild?

The poet can draw on the intimacy of their own experience for an answer, because this is the very riddle of their art: how to turn an obstacle into a key – an impediment into a path. The alchemy of poetry is to make language into a form of life – even to 'create a soul / Under the ribs of death', as Milton has it. Poetry, in this sense, need not necessarily assume the form of a poem – though of course it might. Rather, it is the poetry in and of language itself: those implicate qualities in language that constitute its self-altering, reality-altering power – that is, its transnatural power.

The word 'transnatural' is not widely used, and has always been rare. I reclaim it here to convey the principle that brings the 'wild' and the 'civilised' into dynamic relationship: a relationship that – in its poetic state – language itself can embody and enkindle. Once a near-synonym for its sister-word 'metaphysical', the mystique of its historically sporadic use gives 'transnatural' a certain latitude suited to the sense with which I invest it: at once denoting the unknown life of the natural order in which we participate, and the nature-altering power by which we modify that order and our relations within it. Its prefix suggests the self-transcending capacity in nature to cross beyond its own boundaries, and indeed the activity and reality of that which does not exist in nature. The transnatural imbues the natural with the imaginal, the spontaneous with the artful.

The wild silence of any living being – for example, the cucumber spider – is not wholly comprised in any name: there is a gap between the name and the named, the known and the unknown. The paradox is that language can also bridge the gap it makes – can act as a differential that also brings us into a vital relation with wild being, where life speaks to life. This is the storying of our habitat, in which our language becomes our ghost at large, that – by its touch – forms an invisible bond between our inner and outer lives. In this, a name is not an absolute mark of sufficient knowledge, withering curiosity, but a story that calls to the source of story in ourselves: the coeval impulse to speak and to know at the root of language, which constitutes its poetic origin. Both the name and that which it names might stir the source of utterance – might act upon us as an existential disturbance that arouses our epistemic appetite: the desire for a knowledge that grows and alters our being because it awakens our own transnatural powers.

Struck by the greenness of the spider, I thought of the medieval romance Sir Gawain and the Green Knight, where the greenness of the Green Knight taxes translators of Middle English to this day: his colour is 'enker-grene', for which the best modern rendering might be 'utter-green'. Its greenness defies our words

for green, even as it calls upon our impulse to name it. This uncanny quality – the dark rhizome from which the nonce word 'enker-grene' grows – is apt in the context of the poem: after all, the Green Knight is an 'aluisch mon' – an 'elvish man', a transnatural being. The emergence of that term, however, is merely a vivid example of the self-generating principle fundamental to language: the dark rhizome within our experience from which words spring into life and agency. That life is inherently figurative, and hence poetic. The modern English 'spider' derives from the Old English spiðra, 'spinner'. 'Language', says Ralph Waldo Emerson, 'is fossil poetry' – and the fossil moves and lives anew when I think of what I saw as the 'cucumber green orb spinner', with all the peculiar suggestiveness of that name.

Language needs its poetry to revive the relation between knowing and unknowing – to keep open the inlet of mystery upon which, in fact, language itself thrives. This applies to the poetic tradition no less than to language in general. If we consider a 'poeticism' merely the iteration of a conventional expectation, then one of the functions of poetry is to de-'poeticise' language: to break through what Coleridge called the 'film of familiarity' – which deadens perception – to a dynamic wakefulness, re-activating our participatory relationship to our habitat. The art of poetry transcends its own artifice. It both names and un-names at one and the same time. In this self-germination of its latent life, language becomes truly creative: not merely a passive reflection of reality, but a constitutive power. In its poetic, self-altering state, language participates in the making of reality – becomes a source of experience, a quickening presence – and the 'wild' and the 'civilised' share an origin.

My garden, where I encountered the cucumber spider, embodies a kindred paradox. It is at once wild and civilised, a site of their intersection: a space bounded by human law, worked (though lightly, in my case) by human hands, but nonetheless a place where the wild thrives, as the presence of the spider disclosed. The wild and the civilised are not truly opposed in a garden – indeed, they too share an origin, and a garden may involve its own form of poetry: the cultivation of life ultimately beyond the gardener's deliberate control. The inextricable entanglement of the human and the more-than-human is explicit in a garden. Opposing a definition of the 'wild' as 'free of humans', and the 'cultivated' as 'free of Nature', the ecologist Vandana Shiva describes the 'wild' as the 'self-organisation of life': in cultivating this 'self-organising energy', she writes, we are 'cultivating the wild'. The words 'culture' and 'cultivation' share an etymological root in the Latin cultus and colere, whose meanings blend the cultivation of land, ritual, and the education of the person. In each of these contexts – as in gardening, as in poetry – to 'cultivate' is to connect the actual to the potential: to create the conditions for as yet unmanifest forms of life to flourish.

To 'cultivate' also implies an act of will – not as an attempt to impose, force or determine a fixed outcome, but to open an enabling, receptive, mutually quickening relation: to work in concert with the wild. Indeed, this form of will can itself be cultivated, being essentially akin to a certain disposition or quality of attention. Another paradox becomes possible: that of a practised noticing, an educated instinct, a sensitivity developed to the point of becoming infused with spontaneous response. The will, in this sense, is an elective power that establishes a relationship with the unwilled – the ineffable life in which we participate – in ways that also activate and conduct its spontaneous energies. In these qualities, once again, the 'wild' and the 'civilised' are coeval.

Poetry itself is at once inherent to the self-generating life of language and one of the quintessential arts of human civilisation. In poetry, the deliberate and the rational not only allow for the presence of the undeliberate and pre-rational, but work in concert with that presence – direct it, cultivate it – to produce supra-rational effects: effects, that is, that nourish both our rational and pre-rational powers. Poetry, in

this way, epitomises a form of order at the common root of the wild and the civilised, and hence embodies a solution to the conundrum I felt when I learnt the name of the cucumber spider: the question of how language can enliven rather than deaden the inlets of wonder. Moreover, in manifesting a willing exposure to self-altering influences both within and beyond ourselves, poetry symbolises a way of being in relation to the more-than-human cosmos we inhabit. It awakens our attention to the life without our ken, amplifying our sensitivity to the mystery of its presence. Poetry lives in the ecstatic moment of its making, as its making works upon us. In poetry our unknowing becomes a form of gnosis: not the acquisition of information, but a transformation of our being – a spur of our becoming – an organ of our psychophysiological growth. Poetry is a form of metaphysical inception.

Culture – what we cultivate and how we do so – conditions our relationship with the living world, just as the living world conditions the character of our culture. 'Nature' and 'culture', like the 'wild' and the 'civilised', need not be held in opposition. Poetry is at once a wilding and a civilising of the self: a making of the wild and the civilised that leads both from and to their common origin. Like the spider, language spins from its own living substance, and its self-modifying genesis is a form of life with the power to fascinate, rouse and alter the mind to which it speaks. In its poetry, language speaks with a transnatural tongue: a creative agency and germinal power that vivifies reality.

'In Wonder all Philosophy began: in Wonder it ends', says Coleridge, paraphrasing Aristotle. I think back to the greenness with which I began, and the doubleness in the magicking of language. I step once again into the garden. The cucumber spider is long gone, but something lingers: this, the poem that I never wrote, in which both name and nature glister.

Short-Listed: Saskia McCracken, '*Field Notes from the Isle of Barra*'

Day 1 ~ Compass

The ferry from Oban to Castle Bay, Barra, is delayed to avoid a berthing clash with livestock. Then again because of morning fog. Or perhaps the fog delayed the livestock who in turn held us up. Cows maybe, or sheep. We are entangled in animal worlds before we even step onto the ferry. Once we've boarded we head straight to the deck. Next to the big steel door which takes us there is a faded blue poster with photographs of different cetaceans you might see in these waters; the Sound of Mull, the Atlantic. There are all kinds of dolphin: bottle nosed, white-sided, white beaked, common striped, and Risso's dolphin; there are whales too: minke, sperm, sei, fin, orca. And porpoises. You can tell by their fins which is which if you look close enough. We're hoping to see any of these creatures. I take a photo of the poster on my phone to help us identify any wildlife we spot.

The sea is calm silver grey with hills rising on either side of us – grey stone, soft greens. Gulls dip in and out of the wake. A cormorant with wings fanned dries itself on a rock in the bay. We stand at the railings, me adjusting my binoculars, the wind tugging at our hair and coats. The others are looking at Baby. She turns her yellow plastic binoculars around and does not look at the sea. I am not expecting to see anything, just hoping, when suddenly I spot three fins slicing through the ocean beside us. I yell and point, all thoughts of which fin denotes which animal forgotten. They are there one minute, gone the next. By the time everyone else has scoured the water there's nothing to see. Later, below deck, Baby holds her binoculars up to her eyes, points them at us and shouts, dolphins!

The further out we go, the whiter the still ocean and sky become, the softer the blue outlines of the islands we pass. The horizon vanishes. We can see jellyfish and seaweed floating alongside the ferry. Small opalescent discs, moons perhaps, and larger orange pulsating compass jellyfish, tentacles streaming. Just like the one that stung me in Aberdovey a few weeks ago. They like warm water. One year, on the Isle of Muck in the Inner Hebrides, they washed ashore, loads of them. A rime of bubbles on the shoreline. My brothers, in their boots and jumpers, stamped on them. For the feel of those squelching bodies. They met no resistance. Now hundreds of them come to Scotland each year. And everywhere else. Drawn to the warmth, they clog cooling pipes in power stations, Torness in Scotland, Oskarshamn in Sweden, Ashkelon in Israel, Turkey Point in Florida. You can watch videos of men in hardhats raking the bodies away as they slop out of pipes. The men's voices are drowned by the sound of heavy machinery.

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We go below deck. Hours pass. All land fades and we are on open ocean. The shadows smudging the white horizon could be distant islands or clouds. Manx shearwaters skim the surface, then they are gone. One white gannet, vast, yellow-naped, sails past without beating its wings. The Atlantic stretches pale to pitch black if you look straight down. Suddenly everyone rushes to the window with phones, cameras, binoculars. They are calling, pointing. There, leaping ahead of the ferry, bodies arcing black out of the water and fins darting alongside us, dolphins. Then they're gone and everyone goes quiet, return to their seats, the glow of their phones. Baby is more interested in the dial that focuses her binocular lenses than what she can see through them.

We're all here for different reasons. Greg has been ill and needs to recover, I've been commissioned to write a series of heritage trails about the island and develop signage for each route, and Ben and Hannah want to show their daughter the world beyond locked-down Glasgow. All of us are curious about the wildlife

of the island and its shores, its blooming machair, Hebridean orchids, otters, seabirds. The Sound of Barra is a Marine Protected Area rich in kelp forests, some of the most dynamic ecosystems on earth, and the islets to the north are home to the world's second largest breeding colony of grey seals. I want to include these things on my trails, and Ben and Hannah want Baby to be immersed in all the wonder of this biodiversity.

Eventually we see gulls on the horizon, and shadows, grey, then blue, taking form and rising like the backs of whales curving out of the sea. To the south, the small isles of Vatersay with a long white beach, Pabbay, Sandray and Mingulay. To the north, Eriskay and the Uists. Dead ahead, Kisimul castle in the bay. Each island is dappled with grey rock and greenery, run through with blooming heather. We have arrived.

Day 2 ~ Shells

We are staying in a wooden lodge in Leanish, a township on a headland not far from Castle Bay. Coves drop down on either side of us. Sheep graze outside the window. Starlings crowd the garden. There is a telegraph pole, felled, behind the lodge. There have been no trees on this headland, or indeed most of the island, since Neolithic times. Barra is one of the southern most of the Outer Hebrides archipelago, known collectively as Na h-Innse Gall (Gaelic for island of strangers) or the Long Isle, which is a ridge of metamorphic rock. This rock, mostly gneiss, was formed 3 billion years ago by volcanic action and has since been shaped by glaciation: sculpted, scraped by moraine, banded, folded. You can see ripples, each seam a curling current, in the surface of the gneiss, exposed all over Barra. They seem to shift like waves as you walk over them. The coastline of the island, especially on the West coast, is both ancient and, in geological terms, young at the same time. The machair is grassland, thick with wildflowers and marram grass, formed by sand made of crushed shells which has blown in from the Atlantic to create a shifting landscape which covers, which reveals the ancient gneiss. The island is not fixed. Raised from the deep by shifting tectonic plates, its surface is subject to the wind, casting sand in drifts, dunes. Shells forming machair, subsidence revealing the bones beneath. Then, now.

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I wake to the sound of a crash. Ben saying, Greg, are you alright? Are you ok? And then after a pause, Greg's voice. Where am I? Hushed talking. You collapsed. I claw at the surface of sleep and sink back, dream of telegraph poles falling, wires splitting like nerves.

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The start of the walk is an old telephone box. There is no phone, no glass in the windows. Just dandelions exploding into colour around the base. We cross a stile and walk through a boggy field of cows, thick with marram grass and buttercups, cow parsley, red clover, bog cotton and abandoned lobsterpots, twisted with frayed blue rope. A redshank bursts from the undergrowth as we approach. We pass a crannog in Loch Tangasdal, once a tower three storeys high, now a ruin. Then up over gneiss and grassy coastline, heathered, to Dùn Bàn, the ruin of an Iron Age Fort. It's on a headland with inlets cutting into the island all around us. Waves rush up in white foam against the rocks. The fort is so embedded in the landscape it is hard to tell where the natural and human-made shapes begin and end. It is simply made up of concentric circles of stone, loose like teeth ready to come out. All is submerged by grass, lichen, by the castings of worms.

Behind us, on the slopes of Beinn Tangabhal, boulders are scattered like the forgotten marbles of a giant, of an ice age. Some of those boulders, perhaps, made up the fort. They are piled in faint traces of a drystone wall with grass growing thick between each stone. They are covered in thrift, roseroot, succulents, and lichen. The thrift flowers have paper thin, pale petals. Their dried roots cover the boulders in strange shapes, like an ossified shell, like coral. Thrift, or armeria maritima, takes its common name from its ability to thrive in unlikely places – sea cliffs, tidal edges. In Gaelic it is called tonna chladaich: beach wave.

From the dun we walk along the shore, across the machair, to the white sandy beach, and swim. This is a place of changeable collaborations. Lichen is not a moss or plant, but a symbiotic combination of fungi and algae; the hill is built of geological and human activity; seashell sand and grasses shift as machair; and the machair in turn, loosening across the gneiss, forms an unstable landscape. Each wildflower calls to the great yellow bumble bee, who replies, humming.

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In the evening, we stand in the garden behind the cabin and crane up at the dark skies overhead. We can see Cassiopeia, Ursa Major and Minor, Aries, and the more we look the more stars appear. And planets. To the east, Jupiter is bright, Saturn, a little further south, more faint. We are gazing at astrological bodies that are here, or rather there, now, hundreds of millions of kilometres away. The haze of the Milky Way seems to glow. We see a shooting star. And satellites. More than I've ever seen before, slowly roving across the night sky. Maybe seven of them. These are called artificial satellites because there are natural ones too of course, moons. There are many kinds of artificial satellite, for navigation, observation, communication, monitoring the weather. These are mostly American, Russian, Chinese. There are over 3,000 dead artificial satellites and rocket stages floating in space, and over 900,000 pieces of space junk. But we can't see them from here.

Day 3 ~ Memento Mori

We read in the sun behind the cabin while Baby sleeps. I am in Quinhagak, Alaska, surfacing with Kathleen Jamie. I am learning to pay attention to birds, wildflowers, the way the land is alive with history, how the stones tell ancient stories and how archaeology gives people their past back. So many prehistoric sites here are not excavated. We can only guess at what lies beneath our feet, duns merging with hills, standing stones fallen, being reclaimed by mud, grass, worms.

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Today, our swimming things blown dry on the line, we head to Vatersay. This island is just south of Barra, is connected to it by a causeway which looks like it was built recently from rocks cut out of the nearby cliff, ripped from the gneiss on the Barra side of the water. On the way to the start of our walk we stop at the site of a plane crash, where a 1944 training exercise went wrong. There's the usual kind of monument with names and dates. But there's also the remains of the wreck, another kind of memorial. First, a wing, metal peeling back from the interior scaffolding. A little lower down the slope which tumbles to the sea, the body of the plane covered in rust and rust coloured lichen. Bracken grows through the windows and gashes in the metal. The shape is unrecognisable. Printed on the side: Attach bomb / Loading Platform. The flora of the

island is gradually covering what we've left behind. Then further down, near the sea, the other wing, resting gently in the grass.

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We reach an isthmus and walk across the machair to another monument, this time dedicated to the Annie Jane, a ship wrecked in the bay in 1853. It is hard to imagine a wreck in such a beautiful place; white sand, clear, still seas, the sun bright and saturating all it touches. Three hundred and fifty of the people on board, who were emigrating to Canada, are buried here. The Atlantic stretches beyond them. We see flowers which look like they might be the wild Hebridean orchids we've heard about. But they're just Common Birdsfoot-trefoil, from the pea family. There are a few Scottish bluebells and a handful of melancholy thistles.

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We walk the length of the beach and climb another dun. The fortification is from the Iron Age, but below it is a Bronze Age burial cairn, excavated in the 1990s. There is little evidence left as the stones were 'removed to be used in other local projects' according to our guidebook. So the burial stones of the past become the homes or dry stone walls of today. And where all these wildflowers flourish – lesser burdock, bog cotton, buttercups, marsh thistle – is a palimpsest of the graves of ages: Neolithic, Bronze, Iron, Industrial, the World Wars, and now the bright lives of corn marigold, common knapweed, melancholy thistle, and yarrow.

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From the dun we walk to a solitary standing stone overlooking Pabbay, Sandray and Mingulay to the south. These islands are no longer inhabited. The story of the stone is lost. Who put it there, when, what its purpose is, how deep it goes. Lichen bloom, pale green and brittle, on the surface.

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We cut our walk short to go to the beach but leave the track and get back to the road through a boggy field. Ben falls over, Hannah steps tentatively from tussock to tussock, I get one boot full of water, the other smeared with cow pat – Greg is on the road already. We eventually scramble over a bent metal cattle gate out of the field. Three farmers drinking pints of beer stand in the doorway of an old, corrugated iron barn, watching us. You aren't the first and you won't be the last, they say in their lilting accents, almost Irish. They laugh as they tell us about the tourists they've watched over the years falling over in the bog, getting stuck in the mud, emerging covered in cow pat. Baby says, cow poo, clean it in the sea. And we do. We swim at another white sandy beach on the isthmus. There's an old fence made of wooden posts and rope mesh collapsing and half buried in the dunes. Coastal erosion that looks like an installation artwork.

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Later we head to Borgh on the west coast of Barra, which has a standing stone. In the 1860s, a Viking burial ground was found next to it. A woman buried there had been found with two bronze brooches, buckle tongues, a whetstone, comb, and iron weaving tools. She is not the only Norse woman here. We drive to Cille Bharra chapel, built around the 7th century and named, like the island, after Saint Barr. Pictish and Norse

artefacts have been found here, as has a stone slab with a beautiful carving of a knotted Celtic cross on one side. On the other side is a runic inscription: 'after Thorgirth, Steiner's daughter, this cross was raised.' It is from the 10th or 11th century, and suggests that some Norse settlers on the island had converted to Christianity. All over the island, the Gaelic culture is steeped with Norse influence. You can tell by the place names: Borgh is Norse for town; Leanish, where we are staying, means headland; Bhatarsaigh (Gaelic) is often spelled Vatersay; vat is Norse for water, ay for isle: isle of water.

*

That evening we watch Yellow Cat, a brutal dark comedy from Kazakhstan. There are no cats in it. Lots of the characters are killed in a whimsical manner. In the closing shot the bodies of the protagonists are loaded onto a helicopter and carried off into the distance, over the vast, bleak Kazakh steppe. It is a landscape without humans, without animals. The opposite of here.

Day 4 ~ The Kelp Cutters

This morning we went to the distillery in Castle Bay. It's a single storey building with a shop, with an adjoining room that has few stills for producing gin, which appears to double up as a storage space. The Isle of Barra Whisky Distillers Ltd. was established in February this year. They have yet to build the extension which will house their whisky distillery. Prior to this alcohol has always been imported to Barra (it still is – the gin is mostly for tourists). I bought a bottle of Barra Atlantic gin, which proudly declares its key botanical to be carragheen seaweed, handpicked from the island's shores. I think about this artisanal product when we get to North Bay, where you can see the remains of an old kelp factory. It was built in 1828 and claimed to employ 500 people, although many of them must have been kelp cutters, who never spent much time in the factory. They spent hours tearing up kelp forests along the coast and sailing with their baskets to the north wall of the factory. The wall rose from the sea and had seven doors which opened onto the water. At high tide, the boats drew level with the doors, and the kelp cutters hauled their baskets through them, into the noise of the factory. There it was gathered and burnt to ash. Each anemone, sponge, wrasse, urchin, each brittle star, and blue-rayed limpet caught among the fronds was burnt away.

The kelp industry boomed in Scotland in the early 1800s during the Napoleonic Wars, when import taxes were high and kelp couldn't be acquired cheaply from Spain. It was gathered and burnt to make ash – potassium carbonate (potash) and sodium carbonate (soda ash) – for the production of glass and soap. The heritage interpretation board near the wall calls this a soda bottle factory. Perhaps it made bottles with the ash, perhaps it made the products for creating bottles. The lives of those cutting the kelp were no doubt very different from the lives of the gin distillers cutting carragheen. When the Napoleonic Wars ended in 1815, coinciding with changes in glass production, the industry in Scotland collapsed. The factory on Barra was built too late to make any profit and wasn't open long. Today, the kelp forests are protected, have recovered, are flourishing. If you spend enough time exploring them, you look hard enough, you will find anemones, sponges, wrasse, urchins, star fish, limpets. You might in turn find seals, twisting in the ocean at a distance, looking just as hard, at you.

Day 5 ~ Seal Bay

We decided last night that today we'd visit Allathasdal. A Bronze Age burial site there was exposed by sand dune erosion in 2005. It was excavated swiftly as the newly exposed contents were vulnerable to the elements. They found four bodies which had been resting there for thousands of years. This morning I am reading Kathleen Jamie's 'Links of Noltland,' set on Orkney, where she says that coastal erosion all over Scotland is revealing such ancient sites. Good for archaeologists, bad for everyone and everything else. As the kelp forests grow, the sand dunes collapse, the balance is off kilter.

*

Our walk takes in the Iron Age galleried Dun Chuidhir, from the fourth century, later occupied by the Redcoats in 1746, and excavated in the 1950s. The archaeologists found Pictish pins, dice, needles, combs decorated with concentric circles, all carved from bone. I had hoped to see some of these artefacts, but they are held by National Museums Scotland on the mainland. The Barra heritage centre, which could hold other treasures, has been closed since March 2020. We pass the fort, little more than tumbling drystone walls today, and look out over the hills inland, and the Atlantic to the west. Way markers are scattered, broken, across the grass. We follow them up through Allathasdal Glen to a cluster of ruined black houses, where people lived alongside their cattle until they were displaced during the Highland Clearances. Some to Glasgow, some to Canada. We have lunch in one of the houses and leave when the midges descend – the first of the holiday. The glen is sprinkled with tormentil, a yellow perennial, and heath speedwell, a purple flower. In each ghostly structure life bursts between the cracks.

*

There aren't many seals in Seal Bay. At first it seems there are none. Just aquamarine water with daker patches of seaweed, ridges of stone further out in the water. The broad white sandy beach is criss-crossed with more animal than human prints: big cloven cow hooves, paw prints, wide webbed feet – herring gulls probably – narrow claws of other birds. Most of the tracks have alternating steps, others, with the prints in pairs, suggest little birds hopping across the sand. Ducks float past and kittiwakes soar overhead. Where the dunes have subsided, the roots of the marram grass are exposed, thick with sand, like rope trickling from each overhang. There are burrows in the sand where the dunes have subsided, inhabited by birds, mammals perhaps.

Two sanderlings pecking at the shoreline trot away quickly as we approach. Then a seal in the bay, head just above the surface, watches us. As we focus our binoculars we see others further out on the rocks. Their wet bodies flash in the sunlight. We hear them keening across the waves. We show Baby and teach her the word seal. She holds the binoculars the wrong way around and becomes absorbed by the dial that focuses the lenses. Seals, she mutters, and keens quietly to herself.

We find a sheltered spot in the dunes, build tumbling castles, eat sandwiches dusted with tiny grains of sand. Hannah and I, holding Baby's hands, walk slowly, exploring the rockpools. We see shrimp-like creatures darting in the pools, which are rimmed with limpets, anemones, dog whelks, and lots of algae. When we return to the picnic blanket where Ben and Greg are reading, there's a tiny green watery creature like a slug or centipede on my bare foot. I return it to the sea. The sanderlings look on and return to shoreline when I retreat. An oystercatcher lands at a distance and pecks in the waves.

Baby and I spend the rest of the afternoon wading in the shallows, her small hand in mine, observing sticklebacks and picking up different kinds of seaweed. I identify them with my little guidebook and teach her their common names: bootlace, sea lettuce, oar weed, bladderwrack, sea potato, brown alga, sugar kelp, carragheen, wrack, algae. We lift handfuls out of the water, watch them droop, drip water down our arms, and release them back into the ocean where they expand again, fronds spreading, as though coming back to life. They drift in reds, greens, browns. Baby asks, what's that? What's that? We go over their names, gather them, let them go. There's a polaroid photo of us, backlit, two tiny smudges against the Atlantic, vast and lit up in dazzling splashes of bright white. There is nothing but ocean between us and the next continent. A few birds, a boat. And below the surface, other worlds.

*

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Short-Listed: Laurence Rose, ‘Timestream’

> She holds herself fast to nothing, in a halo of flat blue luminous East, uplit by hot lowglowing West: her hang angelic, angular; finger-feathers drumming air; twist-and-spread of tail; telescope of neck; stead-fast skull, ice-locked gaze, scanning lines that she and her kind only can read, inked in ultra-violet vole-piss: short lifelong odysseys along the furrowed clag.
>
> Field notes, 31 July 2021, Shelley.

At a hover, the kestrel’s geometry is simultaneously one, two and three dimensional. Her binocular gaze emanated at a unitary point where three axes of space met. That the whole rest of her body swung, stretched, beat, reefed and banked to make it so, to defy a swirling breeze, also defied time. For how could she foretell the wind’s next whim, and instantaneously trim?

Beneath her was the bank of a stream, steep on her side, less so on mine. Beyond the bank on both sides, and especially so on hers, the land rises steadily. Her field is bounded at the far end by a thicket of birch known locally as the Broggs, an old name that once signified tenants’ right to fodder their animals on brash cut from the trees. Beyond the Broggs the field rises again, to a hill-brow at 728 feet, two-thirds of a mile away. That is 112 feet higher than the top of the valley on my side, the stream’s left bank, where I live.

A recent August, it was a hot mid-morning, I crossed over and walked up to the spring which rises out of the flank of the valley on her side and followed the water that trickles from it. For the first hundred yards the trees that mark its course stand apart from one another: a wych elm, a few oaks and an ash; a silver birch and a sallow. A tangle of bramble gave nectar to three comma butterflies, a small white and a meadow brown, a garden bumblebee and a honeybee. A wren sang a watery version of its spring song while a yellowhammer was in its fullest high summer voice. Hazel, alder harbouring a thick understorey of bramble, foxglove, Rosebay willow herb, hogweed and broad buckler fern, obscuring the view to the stream and muting its voice. Then elder, holly (with shiny green berries) and rowan (with paler, matt green berries). 250 yards from the spring, the first crack willow and its red papules of sawfly galls. A plank bridge afforded a first look at the stream itself, less than a foot wide, hardly visible but heard trickling through a thicket of angelica, woody nightshade, valerian and male fern, broad buckler fern and bracken.

At one point, while the stream continues to fall, the land starts to rise, so there is a sudden deep cut that widens and becomes a wooded gulley 50 or 60 yards across, dressed of mature oak, with scattered holly and rowan. The wood thickens; where the stream skirts the wood at its right bank I entered among the dark, cool trees: beech, sycamore and hybrid lime planted 150 years ago, perhaps, and oak there naturally. At the farther end of the wood, where the stream runs across the bottom of our field, I watched two small, dark butterflies chasing upwards in a double helix above a wych elm tree. One came down to eye level and settled, closed its wings and tilted precisely broadside to the sun. Its brown hind underwing was hemmed by a torque of orange-red cells; a thin line of white, like a chalk scrawl on a wall, marked its wings with a W. A white-letter hairstreak, a denizen of the elms.

The stream disappears into a culvert under a railway line and over a further 113 miles will acquire a succession of names. It will be called Shepley Dike, Thunder Bridge Dike, Fenay Beck and Lea Beck in its first eight miles before joining the River Colne at Dalton; the Colne will flow another 1.8 miles into the Calder at Bradley, east of Huddersfield. From there the Calder flows for 28 miles and into the Aire at Castleford. The Aire has another 31 miles to its myn, or mouth, at the River Ouse by the village of Airmyn; 14 miles farther downstream is the confluence of the Ouse and the Trent at Trent Falls. The two rivers form the Humber Estuary, discharging 62,500 gallons of water every second, driving a final 38 miles to the North Sea, including perhaps a gallon from our stream.

The kestrel hovered 1204 yards from its source, thirty feet above its surface and two years later; after which, within a week, the wych elm went suddenly yellow. In no time, time was at an end for the hairstreak's tree. The ashes of ashes had already been drifting away. Meanwhile, the oak chronicles continue, barcoded in vascular cambium and locked for posterity.

~

Nothing occupies the fourth dimension as comprehensively as a river. They have time in their control, for the faster a river flows, the more it appears to stand still:

> The Juutuanjoki is swollen by meltwater and crashes over its boulder-strewn bed, shaping itself into many-braided breaker-waves. The waves themselves stand still: the water may be agitated into opaque whiteness, and it may speed along its channel without relent, but there is a constancy of fetch and form in the waves; they froth in one place, feather in another. There is no surface-drifting flotsam to draw the eye into movement.
>
> Field notes, 23 May 2016, Inari, Arctic Finland

At least, they are the guardians of history. The hillside where our stream rises is also a kind of confluence, where three mediaeval ethnicities are preserved in the names of places. The spring once watered land owned by a family who lived among Angles and Danes, speaking either Cumbric or Old Welsh, in a place that came to be called Cumberworth, the enclosure of the Celt. The slope faces north towards an escarpment, or shelf, and a village named for it: Scylf in Anglian, today Shelley. Across the watershed to the south, where the River Dearne flows along the valley of the farm of the Danes, is Denby Dale.

The oldest words are the names we gave to rivers long ago. It may have been the Cumberworth Celts' ancestors who first spoke the name Calder, in the Iron Age Common Brittonic language, referring to the river's stony bed. The names of the Colne and the Dearne may be even older, since no-one has been able to work out their derivations.

You had to know the names of rivers, to know the boundaries of lands. In the old religions, you might name a goddess after a river or a river after a goddess. You understood the value of the flood in the wintertime; and how much was too much, how early too early, how long too long. To propitiate, you might offer her your best sword, perhaps one forged for no other purpose. (By

chance Calder and Caledbwlch – Excalibur – share a Brittonic root meaning ‘hard’). When the Romans came, they merged their gods and yours, and in the valley of the Calder, in the year 208, raised an altar to your Brigantia, their Victoria:

> *Deae Victoriae Brigantiae et numinibus Augustorum Titus Aurelius Aurelianus donum dedit pro se et suis se magistro sacrorum Antonino III et Geta II consulibus.*

Then at some point, rivers lost their meaning.

It started while the Romans were still here. They controlled the excesses of rivers’ behaviour, containing their rages and floods, harnessing their power and bounty for milling corn and for irrigation. For seven centuries after, the technology developed until by Domesday, 1086, there were 5,642 water mills in Norman England; twice as many two centuries later.

In the lowlands of the 17th century, descendants of Norman land barons were to believe their profits constrained by the vast floods that rendered the Fens, the Humberhead levels and the Somerset levels usable only in summer, by peasant graziers worth little in rent. They imported Dutch expertise in Cornelius Vermuyden who cut new, fast, channels for the rivers, the quicker to drain the land for year-round tillage. The 17th century saw a loss of wetlands at a scale unprecedented and unrepeated.

To command the waters to flow at the beck and in the service of man was to play God, and as if to an ancient Greek script, Earth-bound gods vied with each other for supremacy. Some formed alliances to dam rivers that flooded villages and valleys deemed in want of a lake; others drove pipes through mountains to take the waters from one basin to replenish another.

The old river goddesses had no answer to the ingenuity of modern man, or so it seemed. Rivers became the powerhouse for new industrial might, and for their beneficence were rewarded with the resulting effluent and given the task of transporting it out of sight and mind and into the ever-receptive sea. So began the gradual disconnection of people from nature.

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The otter’s name has a source as ancient as any. It can be traced to a linguistic watershed in the Pontic-Caspian steppe. The original Indo-European speakers who spread out from there, aided by the first wheeled vehicles, had a word that has been reconstructed by scholars as ud-r-o, ‘water animal’. Its descendants can be found from Galway Bay to the Bay of Bengal, from Old Irish odoirne to Bengali uṭa. I sought the animal in the waterways of the Old North – Yr Hen Ogledd – as a symbol of the loss and re-finding of meaning in rivers. Symbolic, in other words, of hope for nature.

That otters should disappear from the dead rivers that ran through the cities and industrial towns, and for miles downstream, was inevitable. Their disappearance from rural rivers was unexplained at first. It was the time of the Silent Spring, the late 1950s and 1960s, when the United States government and the agrichemical industry waged war on insects, irrespective of whether they were injurious, neutral or beneficial. The UK entered the conflict in 1956, and millions of birds died as

collateral damage, having accumulated lethal levels of organochlorine insecticides via their food. Branches off the same food chains fed otters: the chemical weapon of mass destruction Dieldrin was detected in 81% of otters examined between 1963 and 1973. This was enough to explain the otter's rapid disappearance, but not its failure to return when agrichemicals were brought under greater control.

Four decades earlier, in the 1930s, the fate of Britain's rivers had been placed in the hands of consortia of farmers – Internal Drainage Boards appointed to oversee and coordinate floodplain drainage. Riverbanks were raised to protect pasture from winter floods, simultaneously destroying both riverine and wet grassland habitats. Wet woodland, reedy fringes, oxbow lakes and river islands were lost, along with the otter holts and fish nurseries they harboured, and the otters they hosted. The otter's fortunes reached a low point at the end of the 1970s, when they had gone from everywhere except the West Country and parts of Northern England, were disappearing from large areas of Wales and were shrinking from the lowlands in Scotland. By 1979 otters had apparently gone from 95% of 2,940 sites that were known to have held them previously.

Then they came back, gradually at first.

It was sixty years – to 1991 – before the law required Drainage Boards to take the needs of nature into account. The realisation that rivers and the land through which they flow are interlinked systems has been gradual, and partial. There are many who refuse to accept that reengineering nature to an improved design is a vain conceit. But change has started. Britain's rivers have begun to be cleaned up after two centuries of industrial and urban pollution and fish have returned to previously sterile watercourses. Otters began to spread back into England from their strongholds in Devon and the Welsh border lands. Now they swim in once-dead rivers running through cities. Otters live contentedly in Stoke-on-Trent, Reading, Exeter and Leeds, as well as in many smaller towns like Ilkley, Kendal, Thetford and Winchester.

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I walked downstream along the left bank of the Tweed one December afternoon. I averaged one mile an hour for six hours, and dusk fell as I approached Berwick. So far, I had seen no otters. As I rounded the final, wide bend, three bridges hove into view. One, the railway viaduct, I had crossed from the south earlier in the day. Through its arches I could see the arches of the 'new' 1928 road crossing; and through its arches, those of the Old Bridge of 1611. Amid the thickening gloam of the walled town, the river was still reflecting the twilight, and was glass-smooth, so any otter breaking the surface would be easily seen.

"Between the two road bridges at low tide" was the advice I had been given. Low tide was at 8.45 pm, and I returned to the Old Bridge an hour before, by which time the sky and the water were dark, except that the water reflected Christmas lights that adorned the lampposts at intervals along the New Bridge. Their reflections, on river water now running low over its stony bed, shimmered like torches of gold and silver flame. A heron was barely visible in the shadow of the quay, maybe using the Christmas lights to enhance any flash of fish in the darkness. At midnight, I gave up.

Next morning, within five minutes of arriving at the river I caught a brief glimpse of a shape in the water a hundred yards upstream. It reappeared closer but disappeared again immediately. Definitely an otter. It next reappeared about 50 yards away, then 30 yards, alongside the nearer pier of the first arch of the Old Bridge. It was close enough for me to see its cream-coloured canine teeth as it chewed at its catch, but each view was for a few seconds only. A dog otter. It swam round to the far side of the pier and disappeared under the second arch. I walked back downstream to get a better angle. The otter appeared on the surface, and rafted rapidly downriver for about 40 yards, before turning back, effortlessly porpoising into the current.

> The otter becomes the river, becomes water. It flows, it swirls, eddies, rips, rafts, drifts; it becalms, streams, gyres, abates; it swells, churns, ferments, seethes.

Field notes, 5 December 2017, Berwick-upon-Tweed

The waters of the Tweed discharge into the North Sea and turn south to circulate anticlockwise around its basin. They join those of the Aln and the Coquet, the Wansbeck and the Blyth, south to the Tyne, the Wear and the Tees; they are joined by the River Esk at Whitby, the Sea Cut north of Scarborough, the Gypsey Race at Bridlington, container ships for Harwich. At Spurn Point they meet all the waters of the tributaries of the Humber, containing a contribution from the nameless stream that flows at the edge of my field. It is like a migration. Except, that a river's source is no beginning, nor the sea an end. Water is always going somewhere else, because it has always come from somewhere else. It is time given substance. Panta rhei, Heraclitus said, and: "No-one ever steps into the same river twice".

~

Prematurely crisped and umber elm leaves, the ashes of ashes, oak leaves recycled and precipitated as caterpillar frass, mortal remains of tawny owl and half-fledged jay, bat-snipped ghost moth wing, excrement of water cricket and who knows whom else, shards of eroded shale, flowers of yellow clay and grains of plastic sand enter the stream and are carried downriver and down-column. It will all settle somewhere, in some combination unique to the spot and the moment. A proportion will branch off into sampling bottles and the back of a van for a journey to the lab and someone will declare it High, Good, Moderate, Poor or Bad for its chemical and its ecological status.

Otters will swirl and eddy and delight in Kendal and on Twitter, go late-night window-shopping in Salisbury High Street, donate their bodies to science; and science will find an increase in reproductive abnormalities, caused by endocrine disrupting chemicals.

Now consider the freshwater shrimp. Its place is at the other end of the food chain and in the detritus of riparian society. Yet, it has the power to hold back the flow of time. The old Silent Spring cocktail of pollutants that we thought we were rid of long ago has been found to have persisted in the environment all the while. The shrimp, Gammarus pulex, is found where more delicate beings cannot abide, such as waters polluted in the distant past by Dieldrin. In rivers with high levels of pollution, dippers feed on the shrimps, and toxic chemicals accumulate in their bodies as they are compelled to gorge on low-nutrient, highly contaminated prey. Persistent organic pollutants are

bioaccumulated and biomagnified by animals. For twenty years official tests used to assess and report on river quality failed to notice the chemicals' presence: they are found in less than ten percent of river water and sediment samples but more than 90 percent of wildlife tissue. The result is that despite earlier reports to the contrary, no English river, lake or stream achieves Good chemical status or better. Only 14% achieve Good ecological status.

We classify rivers according to the absence of what should be present and the presence of what should be absent. Rivers have become flows of data, measuring past failings and present inaction. No longer boundaries to lands, no longer threads of toponymic narrative; no longer streams of intergenerational consciousness.

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The otter, then, is a symbol of hope but not of success. Look to the Wye itself, the Anglo-Welsh river from which the otter launched its reconquest of England. It is laureate of every accolade available: Area of Outstanding Natural Beauty, Sites of Special Scientific Interest (four of them), Special Area of Conservation, National Nature Reserve. With each of these designations comes a different promise of protection from harm. None has prevented the transformation of the Wye from crystalline cloudmirror to slime-choked shit creek in the space of a decade.

The reason is this: in the UK, and over much of the western world, rivers flow across two different planes of reality.

There is a world in which mountains give birth to rivulets and streams; their plants and their soils absorb and release rain and snow-melt; their ghylls, gullies and gowts guide the waters downhill. The rivers grow with each tribute acquired along the way. Names are given to rivers, rivers give names to towns. All is united at the touch of the flow and the flood: unity in anarchy!

Then for administrative purposes, rivers barely exist at all. They are the mere sum of the conceptual parts into which they have been divided by a thousand years of land-obsessed public policy. From 1066 onwards, land-based prerogatives have relentlessly narrowed until barely any of the private privileges of land ownership are subordinate to any of the shared benefits of good land management. With land comes rights to the water that runs through it: to abstract, to bridge, to defend from flooding, to divert, to drag, to drain, to dredge, to dump, to fish, to ford, to navigate. All are regulated to some degree by some agency or other. Rules apply. Applications to suspend the rules are processed. Licences are granted. On the land itself, field by field, district by district, decisions are reached, compromises agreed, conditions laid down, permission received, consequences ignored; and cumulative impact disregarded as nobody's business.

In the catchment of the Wye, it is the land that is killing the waters. The phosphates that cause the algal blooms that rob the river of its oxygen leach from 1.5 million tons of chicken manure that is spread on the nearby fields each year. Many times more than can be taken up by crops or sold on as fertiliser, it is toxic waste dumped in plain sight: the by-product of ten million hens living in more than 150 newly-approved intensive units in Powys. In five years, the county has become Europe's largest producer of eggs somehow legally classed as free-range.

The river's famous drifts of white water crowfoot are no more, and fish suffocate in the lime-green algal slime that flourishes in the phosphate-enriched, warming waters of a 21st century summer. Heraclitus said that everything flows – meaning change happens in everything, everywhere, all the time, a comment on the nature of reality. "No-one ever dumps into the same river twice."

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Once, rivers answered to no-one. The course of their flow was self-determined, their will indomitable. For our respect and understanding, they were generous in return. For every act of despoliation, however, they harbour an irredeemable grudge, and will exact their revenge. The ancients understood this. Their Excaliburs and their altars were symbolic of the unity of the river, source to sea, and of the unity of nature, themselves included.

It has been said that western knowledge sees the world in pieces in order to profit from it – scientific understanding is utilitarian, anthropocentric and exploitative, while indigenous knowledge is more about understanding the interconnectedness of things. Could a confluence of ideas from across the traditions offer a new way forward?

In 2012 the Indian Supreme Court ruled on a case involving that magnificent animal, the Asiatic wild buffalo. The State of Chhattisgarh had failed to prevent its dramatic decline, and cited severe financial shortage in its defence. The ruling, which went against the State government, began with a simple reminder that the Indian Constitution, in Article 51A (g) states that It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures. What the ruling went on to say has been resonating in environmental cases since:

> Environmental justice can be achieved only if we drift away from anthropocentric to ecocentric principles. Many of our principles like sustainable development, polluter-pays principle and intergenerational equity have their roots in anthropocentric principles. Anthropocentrism is always human interest focussed and the non-human has only instrumental value to humans. In other words, humans take precedence and human responsibilities to non-humans are based on benefits to humans. Ecocentrism is nature-centred where humans are part of nature and the non-human has intrinsic value. In other words, human interests do not take automatic precedence and humans have obligations to non-humans independently of human interest. Ecocentrism is therefore life-centred, nature-centred where nature includes both human and non-humans.

Five years later the Uttarakhand High Court explicitly applied the principle of ecocentric law, recognising the Ganga and Yamuna rivers and ecosystems as 'living human entities' and juridical and moral persons. The decision, prompted by religious activism and environmental concern, meant that polluting or damaging the rivers would be legally equivalent to harming a person, and legal custodians were appointed.

Days later, 430 miles downstream in Agra, Brij Khandelwal called the Agra police to report an

attempted murder. Khandelwal, a journalist and activist, told them that the Yamuna, which turns eutrophic as its flows through Delhi towards Agra, is ecologically dead. “If the river is dead, someone has to be responsible for killing it,” he said.

Only days before the Uttarakhand judges sat, in New Zealand the Whanganui River was recognised by an Act of Parliament – the Te Awa Tupua Act – as an indivisible whole and a legal person, ending a 140-year dispute and protracted negotiations over Māori land claims. The Ganga and Yamuna ruling was directly modelled on the Whanganui case. Both spring from the premise that the deep cultural connectivity between people and the rest of nature is an expression of the very concept of nature itself.

India and New Zealand inherited their legal frameworks and political institutions from Britain, and have shown them capable of adaptation to accommodate traditional belief systems. In Latin America, contemporary environmentalism and indigenous tradition are combining to assert the fundamental rights of nature. Ecuador has embodied in its constitution the assertion that nature has inalienable rights to exist, persist, maintain and regenerate, and its environmental protection laws and systems now spring from this premise. In Bolivia the Law of the Rights of Mother Earth (Ley de Derechos de la Madre Tierra) declares both Earth and its life-systems – which combine human communities and ecosystems – as titleholders of inherent rights specified in the law.

In Britain, there would be no need to invoke long-abandoned river goddesses, if we can only hover kestrel-like to gain a new perspective, a systems view of life. Which is really an old perspective, an ancient ability to discern patterns and relationships, to understand context and connections, and flows.

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Notes

Deae Victoriae Brigantiae …. consulibus. “To the goddess Victoria Brigantia and to the deities of the two Emperors, Titus Aurelius Aurelianus gave and dedicated this altar for himself and his family, during the third consulship of Antonius and the second of Geta.” Inscription on an altar found at Greetland, near Halifax dated to 208 CE by reference to the consuls. Downstream, near Castleford another reads: “To the goddess Victoria Brigantia Aurelius Senopianus dedicated this altar” but this one cannot be dated with the same precision.

Yr Hen Ogledd, in English The Old North, is the historical region of northern England and the southern Scottish Lowlands inhabited by Cumbric-speaking Britons in the Early Middle Ages. Elmet in the west of Yorkshire was one of the important kingdoms of the Hen Ogledd.

Silent Spring by Rachel Carson was published in 1962. It documented the adverse environmental effects caused by the indiscriminate use of persistent pesticides. Silent Spring brought environmental concerns to the American public and led to a reversal in the United States' national pesticide policy, including a nationwide ban on DDT for agricultural uses, and inspired the modern environmental movement.

Panta rhei (Everything flows); No-one ever steps into the same river twice: Heraclitus lived in Ephesus c. 535 – c. 475BCE.

Bioaccumulation and biomagnification of persistent organic pollutants: see Fredric M. Windsor et. al. (2020) Environment and food web structure interact to alter the trophic magnification of persistent chemicals across river ecosystems, Science of The Total Environment, Volume 717, 137271

River Wye pollution: research by the universities of Lancaster and Leeds suggests that an extra 2,000 tonnes of phosphates a year are being tipped and spread onto land in the Wye catchment. This equates to 1.5 million tonnes of manure. Farms located near a water course are required to demonstrate how they will stop the run-off seeping into the river, but according to the Radnorshire Wildlife Trust there is very little monitoring or inspection of the poultry units by the statutory agencies responsible.

Ganga (Ganges) and Yamuna Rivers: the Uttarakhand High Court ruling was almost immediately stayed in the Indian Supreme Court at the request of the Uttarakhand government and local authorities, who supported the proposed legal status in concept but were seeking implementation guidance.

Short-Listed: Jane Smith, '*Crossings*'

It might seem a strange thing to say, but it's toads who really changed the way I see the world and my place in it as a human being.

Actually, toads have even changed the way I want to use human language – to the extent that I'd now like to revise my previous sentence and use 'toad beings' in the same way that I use 'human beings'. We're all busy being beings, after all. Aren't we?

Beginnings

Having grown up in an industrial city, I can't remember even seeing a toad until I was already an adult. Then again, I wasn't exactly looking for them. I didn't really like being outdoors, I didn't know anyone who regularly spent any significant time in nature, and I certainly wasn't equipped in any sense at all to get outside and engage with my wider environment.

In my early thirties, I took up hill walking, mainly because I'd started a new job in Manchester and the Lake District was suddenly within easy weekend reach. This opened up huge vistas, literally and mentally. I was coming across icy mountain streams for the first time, and chocolatey peat, and bracken, and lichens, and hares. I could feel a new kind of nourishment coming from the natural world now that I was seeing it, feeling it, hearing it and walking in it. Before too long, I was sitting in my office daydreaming about the hill walks I'd be doing at the weekend or relishing the things I'd seen during the previous weekend's walks – iced-over waterfalls, ancient trees, sunsets. And walking became a daily habit.

One evening, walking out of a local wood onto a country lane, I noticed lots of dead frogs, which in fact turned out to be toads, on the road. They'd been run over. Seeing the same the following night, I contacted the national charity Froglife, who explained that the area must be toad-rich, and that the key time for toad fatalities on roads was in early Spring during their spawning migrations. They suggested I come back to the same site on an early Spring evening to check on the situation.

A few months later, in early Spring, I went back to the site one evening and sure enough, dozens of toads were crossing the lane, while others seemed to be sitting in puddles or in the middle of the road. Some had been run over. I called Froglife the next morning and they told me I could set up a toad crossing where volunteers help the toads get across the road safely to their spawning ponds.

Behind this practical advice was an incredible natural phenomenon. Toads reach sexual maturity from around three or four years old, and at that point they make the arduous journey, sometimes of several kilometres, back to their natal ponds to mate. En route, they face multiple predators – most animals bigger than a toad will try to attack or eat them; toads breathe through their skin, so pollution, pesticides and herbicides are all a huge problem for them; many fall down open farm grids or road grids; and many are run over by vehicles, because their migratory route will usually include having to cross roads.

I called my ecologist friend Olivia, sent off for toad patrol packs from Froglife, and for the first couple of weeks it was just myself and Olivia helping the toads over the road, either carrying them by hand or plopping them in buckets on busier nights. We were soon joined by another friend, Claire; by the end of that first Spring season there were fifteen of us on the rota and we'd safely crossed 891 toads.

I don't think I had any idea, then, that the toads would bring me to question so many things I'd taken completely for granted about the world around me.

Questioning

After our first toad patrolling season, we realized that grids were a real problem. After spending many hours scooping toads out of grids with children's fishing nets, we knew we had to find a better way and we hit on the idea of temporary mesh over the grids to stop the toads falling down them.

I would go over to our sites in the mornings to mesh the grids, always checking them first to make sure no 'eager beaver' toads, early-season migrants, were already down there. One sunny day, I'd checked a grid with my torch and couldn't see any movement so started to mesh it over. Standing back to admire my neat work, I was about to move on when I heard the unmistakable sound of amorous toads, coming from down the grid. Unpeeling the mesh but still unable to see the toads, I lowered my fishing net and bingo – a toad couple in flagrante, and so attached to each other than I had to scoop them up as an entwined pair. Placing them down in a nearby field, they tumbled out of the net still embracing in the long grass, and that's how I left them.

It turned out, of course, that 'toad season' didn't finish once the toads had crossed. Knowing what I now knew about their hugely perilous amphibian journeys, having seen the wonder of the Spring migrations at first hand, the toad beings seemed to take a gentle hold of my consciousness and started to change, or more specifically to deepen, not only the way I saw the world, but also my place as a human, and human society's responsibilities, and our relationships, or lack of them, with the wider, wilder world.

I began to question human behaviours more readily. Why did we build roads and runways and housing estates and high-speed railways so freely, with such scant consideration for all the other species who call those spaces home? Who gave us that right? And if it was a self-anointed sense of entitlement, where did it come from?

Equally, a sense of being a member of one species also began to emerge. I'd hardly ever thought about what it meant to be a human being. I'd never really thought of myself as a-human-rather-than-a-something-else, but I did now. I could have been a cat, a bat, a rat or, indeed, a toad – but I was a human. Where did that leave me? And what were my obligations to other species?

I began to feel a heavy and uneasy sense of being part of human society – locally, nationally and globally. I was a member of a species whose actions through industry and commerce and war and agriculture impacted on every other species. But where were we accountable to all those other species?

Finally, I started to wonder how we could change, as humans. I knew full well that I myself was changing very quickly. Being outdoors hillwalking had changed me; night walking on badger patrols had changed me; the toad crossings had changed me. I could feel myself evolving away from an anthropocentric way of being towards something more humane, wider, more loving, truer and deeper. And something much more comfortable.

Beings in Time and Space

Sometimes on toad crossing duties we come across huge toads, mainly elderly females. Toads can live up to twelve years in the wild, growing ever bigger as they age.

One night, I saw a very large toad making her way down the very middle of a lane to a popular spawning pond. On closer investigation I saw she was elderly, and so big I couldn't even hold her safely in one hand, having to put my torch away and cup her in both my hands instead. She was as dry as paper, obviously in urgent need of water. When I put her down on the ground near the pond I gave her a spray of water and enjoyed her very visible appreciation of it before she took the last few slow steps to the pond.

How many years had she been visiting this pond to mate? How many overly ardent males had she fought off? How many young had she produced, how many grids had she avoided and how many cars had she dodged?

I often think about that dry old girl at the end of her journey and feel nothing but admiration for her, surviving for all those years in the wild and carrying herself with such dignity for what was almost certainly her last mating season.

A few years ago, archaeologists working at a site around twenty miles from my home in Cheshire found the 10,000-year-old fossilized remains of a natterjack toad. Natterjacks – *bufo calamita* – favour open country rather than woodland, and after the spread of woodland across much of Cheshire many centuries ago, natterjacks became stranded on a coastal strip in the Wirral, where they're now highly protected and known affectionately as 'the Bootle organ' for their distinctive gribbet.

Common toads, or *bufo bufo*, on the other hand, thrive in or near woodland. Given that Cheshire, in common with the rest of England, has lost so much of its woodland to farming and construction, common toads have suffered greatly from habitat loss. Our toad crossing site is unusual in that it's part of a small hamlet which has only seen one new road built since the 1890s; the country lanes we patrol today were there over a hundred years ago. But even here, toad fatalities on the roads are very significant. Some toad crossings in the south of England help toads cross very busy roads and even dual carriageways. Road-building has decimated so many toad populations, and in many places it has rendered local toad populations extinct.

I myself have a car. I even drive to the toad patrol, as there's no public transport. I park well away from the main toad sites but even still, I might be running toads over on the way there without even knowing it.

As a driver I've accidentally killed wild animals when I couldn't avoid it. Once a pheasant darted out of a hedgerow and straight in front of my car; one night I hit a zig-zagging badger who had strayed onto the M6. Many times, rabbits and squirrels have darted under the car and I've seen them run off through the rear mirror.

We humans love to get from A to B as quickly as possible. But at what cost? Sometimes it feels as though our little island is overloaded with roads and railway lines, all of which have stolen wild animals' habitat in their making and cut through the precious remaining habitat.

What must it have been like 10,000 years ago, when the natterjack toads were still living inland and we didn't have roads or trains or guns or housing estates or combine harvesters? We must have co-existed peacefully with the species, or those we weren't eating, at least. Did we make collective human decisions with other species' welfare in mind?

And if we ever did, why don't we do that now?

Human and Not-Human

We always wear thin gloves when we're handling toads, partly to avoid spreading diseases among local populations but also because toads secrete a toxin that can prove problematic for humans as well as other animals.

One night I'd forgotten my gloves but it turned out to be a slow night anyway, too dry and slightly too cold for the toads, who like the humidity and the temperature to be within a very specific range. Driving home after a fruitless couple of hours, I spotted one large toad in the lane and stopped to place him on the verge. I'd be OK gloveless, I thought, so long as I washed my hands as soon as I got home.

I remembered to wash my hands, but I must have inadvertently touched my eyes or mouth on the way home because that night after falling asleep quickly I had an hours-long hallucination where I was slowly becoming

a toad myself. A bumpy, mustard-hued coating spread slowly up my arms to replace my skin; my legs bent as if I was going to be swimming breaststroke forever; and my vision seemed to change to be more peripheral, with a totally different sense of colour. It was sometimes euphoric and other times deeply frightening; but in any case, while thankful for the unusual experience, I vowed never to forget my gloves again.

Born into the human species, we're brought up to believe that we're the smartest species and the dominant one. Some of my school teachers – the few who ever touched on the subject of human responsibility - suggested that we were the care takers of the world.

When I was a teenager in the 1980s I started to question why we eat some animals. Why did people eat pigs but recoil at the thought of eating dogs? More often than not, the responses I got boiled down to the age-old, lazy *it's just the way it is*, and the dangerous advice hidden behind it: *don't question things.*

I've still got a lot of questions. Too many to mention here, so I'd better stick to the ones most pertinent to toads.

Why do humans – governments, construction companies, contractors – keep building new roads, when we can already get to everywhere we need to be? And why do councils approve unnecessary new roads when they line people's pockets but decimate natural habitat? And when new roads are green-lighted, how come only a few highly protected species get any consideration? Great-crested newts and their habitat have some weight in the human planning system, but common toads, whose populations have declined by some 68% nationally over the past three decades, have none. What does it take exactly for a species to become protected?

And in the rare cases of roads that *have* to be built, why can't the onus for meaningful wildlife mitigation such as amphibian tunnels be on the developer, and on all those who stand to profit from the road being built?

Otherwise, isn't what's being done to toads through road-building and construction just modern-day anthro-colonialism? *This is ours now, not yours. We want it so we'll take it.*

And I've not even touched on pesticides.

The Great Balance Sheet

In torrential rain one evening, it was so wet that it was hard to even see where we were walking. The toads were out in great numbers, and every footstep had to be taken only after checking painstakingly for toads with our torches. Realizing that many dozens of toads were on the move in a lane we hadn't patrolled until that night, at the end of the night I walked up the road with my strongest-beamed torch – and with real trepidation, because I'd seen a tractor pull into the lane only minutes before and I knew what that meant for the toads.

Sure enough, the lane was alive with migrating toads of all sizes, but also with many dead and some badly injured toads, victims of the tractor's huge tyres. One tractor can take out hundreds of toads on a busy migration night.

I cried hard as I was walking, repeating over and over again "no, no, no". Many of the injured, flailing toads were writhing on their backs with their pale bellies upwards, which upset me more than anything else. I felt so angry and helpless, and an initial lump in my throat hardened until it felt like a piece of rock. By the time I got back into my car an hour later, I felt like a defeated creature made entirely of tears and rain.

When humans take wild habitat and turn it into something else – an Amazon warehouse, a bypass, a high-speed railway line – there's zero meaningful accountability vis-à-vis the natural world. Toads don't have a

union or MPs or Ministers for Toads. They won't take revenge; their populations will dwindle, or perhaps they'll become locally extinct, disappearing from the face of the Earth without fanfare or farewell.

In the Great Balance Sheet that Doesn't Exist but Probably Should, a minor human road might cost £2,500,000 to build, creating 40 temporary contract jobs for humans but killing 2,500 toads that year (but with some sort of 'recurring' symbol to denote the generations of toads that now won't be born because the current generation was wiped out). Who does the maths here?

Where *is* the balance?

Crossing Over

In 2020, we were only a couple of weeks in to our toad crossing duties when new government restrictions around Covid-19 meant that we were no longer allowed to patrol.

I spent every rainy night under that first lockdown listening to the almost total absence of road traffic outside my house in the town and knowing that there would be almost no traffic at all on the country lanes where the toads were crossing. In a way, this is exactly what I'd always wished for the toads – a safe crossing with no vehicles. Unfortunately, it had only happened due to a global pandemic brought about in no small way through our disconnect with nature.

But even knowing that the toads were so much safer during what we're now calling the Anthropause, I missed them greatly. It wasn't enough for me to relish the idea of a toad population boom. I realized that I loved being with them because I was not only helping them to cross safely – they were also giving me something very precious. I missed the connection with them, the simple being with them, the visual and visceral knowledge that they were there, crossing and mating and living their toad lives.

I'm not sure how I connected with the toads, but I know we need more of these connections to make the world a better, and survivable, place.

Can we change? As climate breakdown and extreme weather events and extinction and societal collapse become the new dark clouds on our collective horizon, are we really able to change our cultures, our societies and our economies?

Every tsunami, hurricane, wildfire, flood, defunct species, XR protest and IPCC report tells us, in words or in terrible pictures, that we have to change how we do things.

I don't know if we really can, to the extent that we need to. I'm no expert. I'm just a person who likes toads and who worries about this sort of thing.

But *I* changed. No-one told me to, or persuaded me to, or showed me how. Spending rainy evenings watching toads walking back to their birthplace, night after night, seeing their eager and incredibly varied faces in the moonlight, took me out of myself and into something bigger.

For humans to become more humane, we need to somehow become less *us*, less separatist, less elitist, less arrogant, less self-important. And while we're at it, we need to do less, and manufacture less, and buy less, and build less, and eat less, and travel less. If I was some sort of sage, I'd be advising the villagers to shed things (actual things) in order to acquire greater things (which are not really 'things'). 'All you need is less!'

My job, my status and my earnings won't help me move forwards. Not really. And I've lived five decades on the Earth, but that doesn't mean I'm any wiser than the next person.

If I could point to one thing that has helped me evolve my thinking, and therefore my being, then it would be spending time with the beautiful, vulnerable toads, understanding that they belong here as much as I do,

feeling even a tiny fraction of their commitment to the cycles of the seasons, of day and night, of the weather, of the temperature.

In watching them cross to their natal ponds, utterly focused on what comes naturally despite the terrible risks of injury and death largely due to human activity, I've learned something from the toads about existing on the Earth.

Existing itself is miraculous and profoundly mysterious; everything else is trivial in comparison.

If our starting point can be one of gratitude for existence itself, a state of humility and thanks for our own little life on the planet we call the Earth, this will bring us to a natural inclination for co-existence. And if we can aim to co-exist peacefully with the other species on a shared Earth, we're home.

We'll know we've crossed, back to the place where it all began.

Short-Listed: Anne Taylor, ‘I am but a worm … scorned by man’

It’s the wriggle factor I can’t cope with – a writhing mass of little red ‘S’ shapes underneath the flowerpot. Or those pale thick worms that slowly unknot themselves and snake away through the grass. My brother used to tease me, with cupped hands and a knowing smile, “Here take this.” I never did, in case it was a worm. He knew my weak spot.

They don’t stop me gardening, but I shudder, scoop them up on the end of my trowel and toss them out of sight. However, I’ve just been reading a few books that have made me think again. James Rebanks in *English Pastoral* tells how he and his father suddenly noticed no gulls followed their neighbour’s plough. There were no worms, no leatherjackets, no earwigs to be snapped up. They were shocked – how could farmland become so devoid of life?

In *The Running Hare* John Lewis-Stempel describes the moment he realises his rented land is effectively dead: ‘There are no molehills … a mole signals worms as reliably as a canary down a coal mine signals gas.’ Then he shows, with a nod to Charles Darwin, how important earthworms are for improving soil fertility.

Of course, Darwin is mostly remembered for his theories of evolution, of natural selection, but his final book, on *The Action of Worms*, was the result of more than 40 years studying their habits and corresponding with other naturalists in France, Germany and India. I remember hearing about the research when I was an archaeology student, because worms are major movers of earth.

There’s a whole chapter on worms and ancient buildings in Darwin’s book, although as a typical student I didn’t read it at the time. By burrowing through the soil and bringing fresh earth to the surface, earthworms can bury large stones, Roman mosaics and deserted medieval villages. Darwin wrote in great detail about the excavation of a Roman villa at Abinger Hall in Surrey. Hundreds of years of worm movement had covered a mosaic floor with earth, beyond the reach of the plough. At the same level as several 4th-century Roman coins there was an 18th-century halfpenny, the sort of anomaly we were warned about as students – worms move the soil around so effectively you can’t always be sure that everything in a particular layer belongs to the same time period.

When I read that Darwin kept pots of worms in earth in his study, I wondered what his wife Emma thought (or the servants for that matter), and looked at the family history for clues. In 1837 Darwin presented a paper on earthworms to the Geological Society. Was he keeping worms when he and Emma married, two years later? The basic premise of the 1837 paper, *On the Formation of Mould* – that worms were important – was suggested to Darwin by Emma’s father, Josiah Wedgwood. Charles and Emma were first cousins, the Darwin and Wedgwood families spent much time together and she would have been well acquainted with his ideas on coral reefs, finches – and worms.

Once they had moved from London to Down House in Kent there was even more space for studying worms, and the whole house and surrounding garden became a laboratory. There were experiments to see if worms are deaf. They are. The worms kept in pots totally ignored the piercing sound of a metal whistle. They were ‘indifferent to shouts’, and to the deep notes of his son’s bassoon playing. But when the pots were moved out of the study and into the drawing room, on top of the grand piano, there was an immediate reaction. Not from Emma – she was the pianist, playing C in the bass clef according to Darwin – but from the worms. As soon as the note was struck, the worms retreated into their burrows, sensitive to the vibrations coming directly through the piano’s sounding board.

Gradually, most members of Darwin's immediate and extended family were brought into the research, many going to extraordinary lengths to assist their father, father-in-law or uncle. Not just studying worms and worm casts but collecting plants too. Freezing conditions, mud or steep slopes did not deter them. 'It was so gastly [*sic*] cold I could not stay long', wrote his son William from Stonehenge on the last day of 1871. Armed with a trowel, skewer, tape measure and notebook he was hoping to discover if some of the fallen stones were sinking because of the action of earthworms. 'I found that this [stone] was sunk … 10 inches into the mould', and it was evidently worm mould because it was 'v. full of worms'. He planned to go out again, on an equally cold New Year's Day, to look at a field that had not been ploughed for 50 years.

The extensive network of family connections is not obvious when reading Darwin's book. He took great care to be scientific, giving precise measurements of the depth of worm burrows for example, citing the papers consulted and naming his sources, such as Dr King from the Botanic Garden in Calcutta. Dr King was not a relative, but many of the other sources were. Mr Farrer, for example, from Abinger Hall (and the Roman villa excavation) was married to one of Darwin's nieces. Darwin mentioned his sons when they assisted him, often by name, 'my son Horace examined the house' and 'my son dug holes in several places', but there were many other contributors to the research who are not named: the women.

Although Darwin mentions a 'lady on whose accuracy I can implicitly rely', he does not name her. That lady was another niece, Sophy Wedgwood, who offered to collect all the worm casts for a whole year for him from two separate small plots at her family home, near Dorking in Surrey. Her sister Lucy had as much affection for worms as Darwin had himself, and probed worm burrows with a blunt wire to determine the angle of slope. But Darwin did not acknowledge Lucy's contribution in the book at all. The paragraph about probing with wire is written as if he had carried out the measurements himself. He asked Amy Ruck, a future daughter-in-law, to count worm casts at her family home in Wales. She wrote: 'I am afraid I have nothing worth telling about worms. I have been rather in despair … a "worm casting" is quite a rare sight … even on our croquet ground where one might expect to see them.'

Why do the sources matter? Did Darwin think that if he acknowledged that some of his 'observers' and 'correspondents' were women then the value of the research would be reduced? The answer is almost certainly, 'yes', but discovering the intricate web of family connections, and that all the unnamed observers were women, has made my reading of Darwin much more enjoyable. The full extent of their contribution becomes apparent when I have the book on one side and the Darwin letters on the other. I feel like a detective, not only putting back into the text the women that Darwin had carefully removed, but uncovering extra details and nuances that are not obvious in Darwin's book. Thanks to the Darwin Correspondence Project, all the letters are available online. There are dozens of worm and plant letters from Lucy, signing herself 'Your affectionate niece and lieutenant'. Amy and her future husband kept a worm garden, and collected plants for Darwin while on their honeymoon in Switzerland, calling themselves, 'Your affectionate secretaries, Frank, Amy'.

The sources are also important because, with just one exception I think, all the reports are of actual observations. Darwin personally carried out as many experiments as he could, and then relied on trusted family members and other naturalists to supplement the research, men and women alike. The book is full of phrases such as 'I have observed …' and 'when I examined' – direct, personal evidence. And if not from Darwin himself then always from someone whose observations he valued, who was almost as passionate about the research as he was, and at only one remove from himself. 'Dr King informs me …' and 'Mr Farrer likewise observed …', for example. When Darwin wrote in his conclusion, 'it may be doubted whether there are many other animals which have played so important a part in the history of the world, as have these lowly organized creatures,' I think we are right to trust him.

What did Darwin actually say about the importance of worms? He used a wonderful word – 'levigated' – when discussing worm casts, and I had to turn to the dictionary for a definition: 'to grind into a smooth powder'. Earthworms are vital to the whole process of decomposition that produces the 'dark coloured,

rich humus' that is so important for plant nutrition. They aerate, move and mix different soils, they bury dead plants and animals, they eat earth and dead leaves and then excrete very fine nitrogen-rich particles – their levigated worm casts. Look at a field, says Darwin, isn't it wonderful to think that all the earth in that field 'has passed, and will again pass, every few years through the bodies of worms'.

A wonder indeed, and yet for years people have been intentionally, and unintentionally, killing worms. Gardeners aiming for a perfect lawn, and all groundsmen caring for golf courses, bowling greens and other sports fields have a problem with worms; their casts spoil the look of a lawn, make playing surfaces uneven and sometimes slippery, and clog up lawnmowers. I pick up a 1969 book by Percy Thrower, who was known as 'The Nation's Head Gardener' and a household name at the time. His only reference to worms is under the heading 'Pests and Diseases'. Although he admits that 'on the whole' they do more good than harm and suggests brushing away worm casts on small areas, he recommends using various vermicides when there are larger areas to deal with. Do you remember the letter from Amy Ruck, quoted above? No worm casts on the croquet lawn? I wonder if the gardeners swept the casts away, or dealt with the worms by other means and Amy had not thought to check.

This morning as I walked in the grounds of a National Trust property, I admired an avenue of lime trees, crunched the beech mast underfoot and collected conkers. Then I looked down and realised the lawns were full of worm casts, some flattened by our feet into flat, muddy patches, others still intact, little towering spirals of fine soil. Looking further across the lawn, towards the herbaceous border, I could see a row of mounds of fresh earth, molehills. This piece of land is obviously rich in worms, and I wondered if the Trust's garden policy has changed. In the past would the gardeners have been asked to remove the worm casts?

Worms are not cute and my own shuddering reaction to their squirming is not unique. I don't have a fear of spiders and for some unknown reason call the big ones 'Charlie'. They startle me a little, running out suddenly when I move the armchair. I might say 'Oh, hello Charlie; sorry to disturb you', and that is all. But a worm in the house? That is different – horror and disgust.

I have mugs picturing red squirrels and robins, even one that celebrates the Highland midge with a series of jokey names such as 'Gnat King Cole', but there are no mugs decorated with earthworms or slugs or woodlice. I'm not complaining about this, I really wouldn't want to drink my tea from such a mug, I'm just saying that the earthworm has an image problem.

However, there are worm 'charming' competitions. Originally, this was a way of collecting enough worms to use as bait for fishing, but now there are Annual Championships. Each contestant is given a three-metre square plot in the same field, and a time limit; the competition is to see how many worms can be brought to the surface, without digging. Stamping on the ground or twanging a garden fork, anything to set up enough vibrations to encourage worms to emerge. The record? 567 worms 'charmed' in 30 minutes.

Do some birds use this trick to entice worms out of the earth? Gulls stamping on the ground, for example? Apparently so. Darwin had not seen this himself, nor had his usual informants. This is the one instance where he reports the behaviour and is careful to say he cannot verify it. Nor is he sure of the theory that earthworms react to the vibrations because they believe a mole is coming. How does this tally with Darwin's findings on the drawing-room piano, where the worms retreated? I wonder what would have happened if a single note had been played repeatedly and gently?

My copy of Darwin's book is an edition published in 1945 with an introduction by Sir Albert Howard. Often regarded as the father of composting, Howard wrote: 'In following the ploughs … in the Spalding area, I always found that where heavy dressings of artificials were used every year, with or without organic

matter, earthworms were rare … on this artificially manured land the dense flocks of seabirds which so often follow the plough were seldom to be seen.'

That introduction was written over 75 years ago 'when war had made food production doubly topical'. The book, with the same introduction, was re-issued in 1966 because 'increased soil fertility [was] an urgent matter of survival for mankind'.

1966! Fifty-five years ago, for worm's sake – why does the message still need to be broadcast?

Darwin was surprised and delighted to find his book was so popular. The first print-run sold out, but who were the purchasers, who were the readers, and who took notice of the importance of worms? The gardeners of England perhaps, but not the farmers or major landowners. Albert Howard was an agricultural student only fifteen years after the book's publication, but neither Darwin nor the importance of worms was mentioned on his course. Instead he remembered being taught 'much about the virtues of artificial manures … and the efficacy of poison sprays.' Looking back to his university years, Howard thought this was because the man who had the greatest effect on 19th-century farming was not Darwin, but the chemist von Liebig.

In those days, agricultural science was a branch of chemistry, and the new artificial fertilisers seemed to be just as effective as farmyard manure, with the extra benefit of being cleaner and easier to apply. Added to this, after World War One and during World War Two, the owners of many explosives-making factories were encouraged and given subsidies to turn to making fertilisers. Howard wrote: 'their use was laid on the farmer almost as a moral duty.'

This is not an essay on the failings of artificial fertiliser; it is a panegyric to the humble earthworm, but I feel I should point out that chemical fertilisers are made from fossil fuels, a resource that is now in short supply, and when too much is applied to the soil, the run-off into our river systems causes serious water pollution. And they destroy many all-important soil organisms, from mycorrhizal fungi to earthworms. Think back to the fields James Rebanks noticed, fields that successfully produced crops, but were empty of any other life. For how much longer will those fields continue to be productive? Agricultural science today needs to consider biology as well as chemistry, and the wider environment too.

For me, writing an essay is a means of personal exploration. The books by Rebanks and Lewis-Stempel were the catalysts. They made me aware of the importance of worms and forced me to question my attitude; the link to Darwin then opened up a whole new world. The world of Albert Howard, Eve Balfour, Aldo Leopold and Rachel Carson, to name just a few of the many other writers with the same message. For James Rebanks the real eye-opener was Rachel Carson's book *Silent Spring*. His observation of the lack of gulls following the plough echoes, almost word for word, Howard's comments from the 1940s. Leopold contributes the wonderful image of a 'land pyramid' – the bottom layer is the soil, followed by a plant layer, an insect layer and so on. 'Each successive layer depends on those below it for food and often for other services'. The bottom layer has to be truly stable and well-maintained, otherwise the whole pyramid will come tumbling down. Howard, Leopold and Carson were writing for their time, James Rebanks for ours.

One morning this summer I listened, as usual, to an early morning farming programme, half-asleep, waiting for the weather forecast. Then I was startled awake. Did I hear that correctly? A 'no-till' farmer? Not only practising 'no-till' but making a profit? 'No-till' has become fashionable for many gardeners and allotment holders. They understand that rotavating, digging and hoeing all destroy the complex webs of bacteria, fungi and animals that make a healthy soil. But a farmer? That was welcome news.

I searched my local library for other relevant books, finding and devouring *Ploughing a New Furrow* by Malcolm Smith. Did you know that the *2016 State of Nature Report* did not mention wildlife within the soil? I checked the *2019 Report*. There are a few references to soil, to the importance of soil health, but not a mention of the earthworm, the all-important 'ecosystem engineer'. However, there are occasional glimpses of change, of hope. Smith has a whole chapter on soil, tellingly titled 'Retaining the foundations'. He includes the names of other 'no-till' farmers, farmers who sow the next crop into the stubble of the previous crop, letting the earthworms do the ploughing, farmers who are spreading the message through actions as well as words.

What a twisting,
wriggling,
meandering course,
from Darwin
to no-till farming.

Am I getting to like worms? To be honest, the answer is still 'no', but I do now respect them. I go into my garden, a town garden set alongside my old stone house, occupied in the 19th century by three families who shared the privy, coal shed and ash pit. Perhaps the contents of the privy were mixed with ash and spread over the garden? In the spring of 2020, I dug out a strip of lawn to make a vegetable bed, and found the remnants of past activity – fragments of white clay pipes, a few animal teeth, broken pottery and the Bakelite remains of an old radio, but very few worms. I've never had a worm cast or a molehill; the soil is too tired, stony and compacted.

Darwin estimated 53,000 worms to the acre on good farmland. My plot is tiny but there should still be a few hundred worms, as well as millipedes, centipedes, woodlice, caterpillars and beetles. Where are they?

I think back to a pair of blackbirds nesting in my ivy hedge, successfully rearing two broods, and realise they didn't spend much time in **my** garden. They flew elsewhere to forage. I would hear the young calling for food, and see one of the parent birds land on the wall, head cocked listening for danger, a beak full of insects and worms to off-load at the nest, then fly away to someone else's garden for more.

Can I do better for my blackbirds next year? And improve the soil at the same time? The answer to both questions seems to be, 'encourage the worms'. I now have a compost heap, and leave the leaf litter on the lawn for the worms to deal with. I search the internet and discover worms can be bought online. Maybe I can persuade friends with wormy gardens to bring me a few. "Come for lunch – don't bring wine or chocolates, just bring me a bag of your worm-rich soil."

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Short-Listed: Ian Wyatt, '***Future Places***'

Introduction

Writing on the narrative use of landscape in the literature of revolutionary America, Robert Lawson-Peebles observed that:

> If there is no such thing as an artless language, it follows that descriptions of the environment are never merely empirical. They are strategies which encode the interests and concerns of the writer as well as the physical nature of the terrain, the climate, and so on.[2]

Narratives about the natural world encompass the whole gamut of styles from, for example, the data driven environmental report for the construction of a motorway to the lyricism of Tennyson's *The Dying Swan* or the imagined, and changing, Martian landscapes of Kim Stanley Robinson's *Red Mars*, and the emoji commentary of an Instagram post of a red rose, a cloud inversion or Scafell Pike. I will be suggesting not so much a new type of writing but a conscious bringing together of differing textual traditions in order to generate a perceptual experience in the reader from texts that are not traditionally considered as literary artefacts. The report, poem and novel written forms may be regarded as signs, of the sort explored by Roland Barthes,[3] in which each signifies a chain, an index, of ideas and expectations. For example, an environmental report might signify: data/truth/objectivity/habitat/planning/construction. Whereas *Red Mars* could signify: fiction/exploration/art/habitat/entertainment/human impact/personal stories.

It is my contention that when writing about the environment, biodiversity, climate change and so on, differing narrative approaches could be combined to directly engage the reader's lived experiences and emotions. The goal being to produce factual narratives that employ literary techniques to engender a perceptual experience in the reader. This future place being a text that generates a shared sensory-emotional response leading to cooperative understanding and action.

Words Touching the Environment

> *The Seafarer*
> Stormas þår stanclifu beotan, þår him stearn oncwåð
> isigfeþra; ful oft þåt earn bigeal,
> urigfeþra[4]
>
> *There storms would pound the rocky cliffs whilst the tern, icy-winged, answered them; very often the sea-eagle would screech, wings dappled with spray*.[5]

This scene of a wind blown sea, crashing waves and screeching, whirling birds is as recognisable and sensually engaging today as it was more than a thousand years ago when the anonymous Anglo-Saxon poet committed it to words. The same, of course, may also be said of very many other representations of

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[2] Lawson-Peebles, Robert. 1988. *Landscape and Written Expression in Revolutionary America: the world turned upside down.* Cambridge: Cambridge University Press. p.6.
[3] Barthes, Roland. 1972. *Mythologies* (trans. Annette Lavers). London: Vintage.
[4] Gordon, I.L. (ed.). 1975. *The Seafarer*. London: Methuen's Old English Library. pp.35-36.
[5] Bradley, S.A.J. (ed. and trans.). 1982. *Anglo-Saxon Poetry.* London: Dent. p.332.

the natural world throughout history. Indeed, the natural world has been written about or encoded in oral traditions for as long as we have been able to communicate our observations, thoughts and feelings. However, a complete survey of references to the environment in English literature would take many volumes to consider, and to then incorporate the literature and oral traditions of the rest of the world immeasurably more words would be required. We can see that humankind has always felt the need to capture our environment in words: expressions not simply of meaning but of love of the natural world. Though it must be said that sometimes the 'love' expressed through, for example, treaties and deeds could be viewed as narratives of acquisition and greed; desire rather than a benevolent love, but nevertheless recording our place in the world has been and continues to be a need we are driven to fulfil. So, it is worth recalling that, despite the destructive environmental impact of the Anthropocene it is clear that humankind loves its home, its planet.

At some point around the year 900 CE the Anglo-Saxon poet observed a stormy sea. Of course it may not have been exactly as written, the poet may have assembled the elements from separate observations to create a fictional storm that remains recognisably real. Whether or not the poem represents a storm exactly as observed, the poet created a syncretic truth of storm reality that the audience would recognise from their own experiences of sea beaten cliffs.[6] Through the words one can feel the wind and spray, whilst watching and listening to the birds. Just as we can still do so today. However, this poet will not have been the first person to stand in awe at the power of a storm and want to try to capture the sights and feelings. Indeed, if we wind the clock back some 50,000 years, it seems likely that, along with modern humans, Neanderthals and Denisovans will also have occasionally taken time just to feel the wind, or the sea spray breaking over a cliff; listen to birdsong, or pause to watch the sunset. For most of human history we have lived within our environment in a state of some equilibrium.

Humans have been managing the land, their environment, for millennia. The earliest evidence of cultivation has been found in the Levant dating to *c*.9500 BCE.[7] According to James Lovelock, Thomas Newcomen's (*b*.1663 - *d*. 1729) invention of the coal powered water pump, 'did nothing less than unleash the Industrial Revolution'.[8] For many, including Lovelock, this technological development marks the beginning of the Anthropocene. A point that also marks the ever accelerating dislocation of humankind from the environment, and a near geometric increase in disequilibrium generated by humans. So, for more than eleven millennia we have lived within and managed the environment in a broadly sustainably way. But Newcomen's engine irrevocably changed this balance in ways utterly unimaginable to the eighteenth century inventor. And yet, feeling the 'pull' to epiphanic moments in the natural world remains. From today's instagram-tiktok-whatsapper back through the years, decades, centuries and millennia, we have all taken moments to smell the damp earth, feel the breeze, listen to the birds; taste a freshly picked berry; had a moment of wonder at our presence in this verdant world.

Evolution is a slow process, and despite how far the past two hundred years of the Anthropocene has taken us from a balanced engagement with nature, we have behind us at least 50,000 years of living closer to the world. Indeed, many of our modern leisure activities would suggest some level of atavistic desire to engage more harmoniously with the natural world. For example, all manner of outdoor activities such as

[6] On the use of syncretism see: M.I. Steblin-Kamenskij. 1973. *The Saga Mind* (trans. Kenneth H. Ober). Odense: Odense University Press.
[7] Zeder, Melinda. 2011. "The Origins of Agriculture in the Near East". *Current Anthropology*. 52 (S4): pp.221–235.
[8] Lovelock, James. 2020. *Novacene: The Coming Age of Hyperintelligence*. London: Penguin. p.34.

mountaineering, wild swimming, hill walking; eco-tourism watching whales and dolphins, planting wild flowers, bird watching and so on and so forth; insert your favoured activity here…

So, what is going on? Why do we feel the need to write and read about these things and not just do them? In the 1950s and 1960s the Russian sports psychologist Alexander Romen, working with their Olympic team, showed that:

> …through electromyograms, that mental imagery triggers electrical impulses in muscles. This suggested that the mental rehearsal and visualisation of physical skills triggered the same neural pathways as physical exercise…[9]
>
> The likely reason for the improvement [in athletic performance] is that vivid visualisation fires brain neurons specific to the physical activity with the same motor programs and neural pathways being activated.[10]

In other words, from a neurological perspective, there is no difference between carrying out a physical activity and vividly visualising the action. It may be possible that something similar is taking place with regard to how we experience written landscapes. But instead of the individual consciously visualising an activity to improve physical performance, a related process is operating almost in reverse: the text is triggering in the reader's memory neurons which in turn partially activate perceptual, sensory neural pathways. Thus, a related mechanism to that of improving sporting performance might explain how we feel the wind and spray, while we watch and listen to the tern and eagle of the Anglo-Saxon poet. The cliff scene in *The Seafarer* utilises fairly common elements that could have been experienced in different contexts and I would suggest that similar and related memory and sensory neural pathways are triggered which contribute to creating a new shared experience with the poet, separated by eleven hundred years. With very few words the poet has created a lively, animated scene that we can perceive sensually via the neural pathways of our own lived experiences.

However, this idea of neurological triggering can only work where there are related or shared frames of reference. Indeed, I would argue that a consideration of uncommon experiences could support this suggestion. For example, writers wishing to convey the profound depths of exhaustion felt whilst climbing at 8000 metres without supplemental oxygen, or reaching the half way point on a walk across Antarctica or the Gobi desert, will have to make use of an extensive descriptive framework for their experiences to be recognisable to a reader that has no shared frame of reference. The writer's descriptive tools will make excursions into simile and metaphor, and use common experiential digressions to bring the reader into their sensory world. Thus we can see through the brevity of the Anglo-Saxon poet, and many others since, that it is reliant on a shared frames of reference: recognisable elements ⇢ trigger neural pathways ⇢ shared experiences. I believe that we write and read about the natural world because we are drawn to re-experiencing a feeling-in-a-place in which we somehow intuit that we belong and have a sense of wonderment within, even though it may be a place we cannot name. Yet that feeling of awe, wonder, rightness, belonging seems physical: each of us is a witness to our world.

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[9] Hörst, Eric J. 2010. *Maximum Climbing: Mental Training for Peak Performance and Optimal Experience.* Montana: Falcon Guides. p.190.

[10] *Ibid.* p. 192.

Anthropocenic Environmental Illiteracy

If the Apollo moon programme is considered the apogee of the Anthropocene, then the Earth-rise photograph of Apollo 8 must be its greatest paradox. For the first time in the history of the planet, Earth was seen from beyond itself. This powerful image of a delicate blue orb hanging in the blackness of space has the power to evince great emotion. We know it is us, our home, our world, a lone place in the void, a fragile, shared, planet. It is hard to imagine any other image that is able to engage so directly with every single human regardless of language or culture. Yet despite having the power to move individuals, as well as being an icon of environmentalism and peace movements, the image has had very little political influence with regard to generating meaningful impact on geopolitical separations, the environment and inequality. At the very moment that human-kind's technological drive is able to hold a mirror up to the entire world, the outcome is that it is noted and filed rather than acted upon: an opportunity wasted.

Writing, and acting, about the environment is of necessity a complex interplay of elements. For example, one cannot consider climate change without thinking about changes in biodiversity, and human inequality and industrial capitalism. But our Anglo-Saxon poet did not write about oceanography, ornithology, weather and geology, rather they combined key elements for the purposes of the overall narrative and to make direct engagement with the sensor experiences of the audience. Breaking discussions about the environment into individual areas is necessary from the point of view of managing scientific, technical, financial and other factors but not for addressing the overall meaning at a personal and emotional level.

In the 1970s astronomers postulated that life was possible on Earth because is sits within a so-called Goldilocks zone, not too close to the sun like Venus or too far away like Mars and thus explaining why these planets are barren, devoid of all life, whilst the Earth is filled with life.[11] Then following the discovery of microbic life forms that can live in extreme environments, such as deep sea volcanic vents or nuclear reactors, the size of the habitable planetary zone was expanded to accommodate the new facts. But Lovelock has challenged the Goldilocks idea, turning it on its head, by arguing that the reason Earth is not like Mars has nothing to do with a Goldilocks zone but is because Earth has abundant life; that 'a planet bearing life will tend to modify its environment and climate in a way that favours the life upon it'.[12] Implying that if an outcome of the Anthropocene were, for example, to be the eradication of vegetation then the Earth would become like Mars. So, Lovelock expanded the scientific narrative to include the impact on the feedback loop of the inter-relationships of biodiversity on planetary life, and implicates humankind in a potential negative outcome. Lovelock moved the discussion from one of raw data and random chance to one which considers the data but also includes the implications of human actions on the interrelationships of a whole planetary system.[13]

It has been estimated that in 2019 nine countries spent $72.9 billion on nuclear weapons. The Campaign for Nuclear Disarmament estimates that the cost of replacing the Trident missile system will cost the UK £205 billion over the course of its anticipated lifespan (approximately twenty years).[14] As you read these figures you may, or may not, be shocked, surprised, horrified at the sums of money; you may even think something along the lines of 'wow, what else could you do with that much money?' But these are numbers which, for most of us, have meaning but cannot be conceptualised: there is no shared frame of reference,

[11] <https://www.nasa.gov/vision/earth/livingthings/microbes_goldilocks.html> Accessed on 11/09/2021
[12] Lovelock, James. 2020. *Novacene: The Coming Age of Hyperintelligence*. London: Penguin. p.11.
[13] See also: Lovelock, James. 1979. *Gaia: A New Look at Life on Earth*. Oxford: Oxford University Press.
[14] <https://cnduk.org/resources/205-billion-cost-trident/> Accessed on 10/09/2021

sensory or emotional context, no descriptive framework with which to trigger individual engagement through a perceptual neural pathway. And so the numbers, whilst useful, are mentally filed under 'unimaginable'. Therefore, the reader engagement is with a text book, a maths primer which does not contain text that could trigger a personal sensory or emotional engagement. However, if the texts that lead to high level governmental decisions were written with some level of contextualisation that is meaningful to an individual, what might the outcome be? For example, if a report on nuclear weapons in addition to the data on speed, size, yield (destructive power), cost and so on also had personal experiences from Hiroshima and Nagasaki woven into the text using all the descriptive tools to provide access to those of us with no shared frame of reference, could different decisions be reached?

Future Place - A New Environmental Text

It could be argued that I am advocating an approach to landscape and environmental writing that is emotionally manipulative. Advocating narratives that employ sensory engagement through shared frames of reference could indeed be coercive, but what I am suggesting is that texts written to engage the reader at a sensory and emotional level could lead to fuller considerations. As already noted by Lawson-Peebles,[15] all writing is the result of authorial choices, even the driest, technical reports, are assembled to demonstrate a particular point; even here there are linguistic choices that can steer the reader's attention and direct towards supporting the conclusion presented.

The great weight of current public expression about the environment uses just these experiential techniques, consider for example the films of Sir David Attenborough or the direct actions of Extinction Rebellion both of which rely on physical, sensory and emotional responses to situations. Which suggests that to date there has been a failure of leadership to explore the intricate and interrelated environmental problems that must be addressed with global cooperation and individual action. To have an impact on the reader, environmental writing must be about more than numbers and warnings, or the sad stories of far-off folk in an unrecognisable land. Perhaps we should learn the lessons of *The Seafarer* and the Russian sports psychologist by creating texts that can inform and trigger the perceptual and sensory neurological pathways of emotional recognition: words that create feeling as well as provide information. Like the eponymous seafarer, we should be travelling towards a discovery of grace, in our case cooperative environmental action. Those of us that write about the natural world can contribute to a new narrative form, a written future place, by bringing the lived and shared experiences to the narratives that report on data, creating texts that engage readers emotionally and intellectually, generating fuller discussions about interrelationships, actions and decisions.

The necessity of interrelationships goes beyond the mutual bio-chemical dependencies of organisms in our biodiverse world, it also reaches into the very building blocks of matter. Interrelatedness is central to Carol Rovelli's theory of quantum mechanics.

> We think of the world in terms of objects, things, entities (in physical we call them 'physical systems'): a photon, a cat, a stone, a clock, a tree, a boy, a village, a rainbow, a planet, a cluster of galaxies… These do not exist in splendid isolation. On the contrary, they do nothing but

[15] See note 2.

> continuously act upon each other. To understand nature, we must focus on these interactions rather than on isolated objects.[16]

I believe that future places are the texts that not only record the observable, scientific, interrelations of the environment and the impact of humankind, but that will also generate a perceptual experience in the reader.

[16] Rovelli, Carlo. 2021. *Helgoland*. London: Allen Lane. pp.67-68