

*~ Lagg ~*

*Listen.*

*Two places, twelve miles apart, on the edge of Morecambe Bay. A wood that floods on the spring tide. A pavement of bare stone, scarred by ten thousand years of rain and ice. Between them: an estuary, a long reach of sand, the pull of the moon.*

*Go down. Beneath the moss, the soil, the standing water. Down to the bed. Both places are seabeds, lifted and turned. Stone slowed almost to stillness; water not yet settled.*

*And everything above is borrowed from below. The wood grows the shape of the rock. The flower follows the fault. We are borrowed too, made of the same slow weathering. Even the harm: the gunpowder milled here, carried across the bay to other shores and other suffering, began as charcoal, sulphur and stone.*

*This is the part we cannot see. Not because it is far, but because it is deep, and slow, and underfoot. Sometimes, the hardest thing to see is what is really there.*

*And the trouble we fear is not only ahead of us. Some of it is already here, in the upturned ground. Here, and here. These are small, quiet places, and they ask little of us but attention. Yet stay in them long enough and the scale of things shifts – what matters, what lasts, what comes next.*

*Listen. The ground is speaking. It has been, all along.*

## *~ Roudsea Wood ~*

### **Slate**

Roudsea, red sea, rot. Greywackes and slates. A closed ocean in frozen motion: the solid formed from silt. Around 427 million years old. A sea of trilobites and brachiopods, conodonts and early fish. Currents along the geological grain; beds tilted, folded, cleaved, sheared. Sediment became slate.

A stone's flow from the woodland edge. Jam tart lichens like slowly-shifting islands; their edges named zones of antagonism. White on yellow on black on grey. The bladderwrack snaps.

The slate hollows the wood; the gunpowder huts and bark-peelers' shielings raised from the stone below. Faded images of emptied space: a sill, a lintel stone. These voids shelter warmth and humidity; havens for the epiphytes which creep upward from the bedrock's cracks. Moss on stone on moss on stone: the endless working of upturned ground.

Slate, shale, siltstone, sandstone, shakestone. Bent out of true, twisted from plumb, cleaved and cleaved again. Can we read the distant future in the deep past?

### **Limestone**

It's here we lose 70 million years, or so. Time held, then overflowed by a tropical sea, now slowed again, as limestone. An unconformity, a broken slope; a crack in the rhythm of this place. Trapped waves unfurl: a footstep leaps a million years. Shallow corals warmed in a tropical sea, settled around 358 million years ago. From the siltstone's acid to the limestone's alkali, a chemical border, a gap in time.

And the stone is an exposure: it gusts with light, between openness and enclosure. Beneath the canopy the scarp pools dappled sun. The shimmer floats without warning. The shadow is connected to the light as the echo is to the strike.

Peat and moss and water have settled on the limestone's face: a two-million-year cycle of damp and decay dissolving its edges. Black mirror pools like scrying glass into the deep past; the clouds reflected at glacial pace. Slow, then sudden. A line and a tick in the record; the ground quakes, suspended. Time slows and bends here; an archive in the silhouette of stone.

How long until this, too, is ocean again?

## **Water**

Water seeps through every pore of the wood. The forest floods on the highest of spring tides and the ground dissolves beneath your feet. In the bog's fluid breath a drowned meander reappears. Blue turns to silty grey; banks become blurred and the underwood darkens, heavy. The woodland awash, charged by the pull of the moon.

Stand on the foreshore and listen to the tide. The stone is etched through with currents, tide-ebbed, eddy-pitted. A constant sequence of drift. Millions of years ago the tides were huge, the days shorter. Everything turned, now as then.

And between wood and water sits a refuge for *Carex flava* – a yellow spiked sedge – where chalk-marked water flows off the scarp onto the acidic bog. A meeting point for rock, water and plant held in solution: the flow state of the edge, a place known as the lagg.

The sea level rose rapidly at the end of the last ice age. The oak and willow are still down there, stranded under the low tide line. And the sea is rising again: more than a centimetre a year by the end of the century.

Water has a residency time here: minutes, days, years, millennia. And as deep time turns, what's the future of this flooded wood?

## **Yew**

There's a whisper in the understory: a woodland so thick it dissolves horizons. The dips and hollows of the bedrock – its jointing, folding, quarrying – are softened by a drape of green. Mosses, liverworts, lichens. Trapped pockets of humidity fizzing with life. Temperate rainforests in miniature. Enclosure slips into weightlessness.

The yews are the oldest trees here, crowning the limestone ridge, marking lost time. The stone shatters in slow-motion around their roots; a lime tree hangs in mid-air from the scarp. Everywhere, a glacial dance between isostatic lift and rooted ground. Aspen ripple in the breeze; the salmon-pink flash of wild service. The small-leaf limes – remnants of warmer climes – now beginning to blossom again.

This was once a worked wood. Beneath the dapple of light and shadow, you can still see the cope stones, the charcoal kilns, the bark-peelers' shieling huts, the explosion of thin coppiced limbs. These industries had a seasonal rhythm – the winter wood cutting, the summer bark peeling, the autumn charcoal burning – the woodland always in motion; everything for a season.

And its sound flows in waves: the canopy ebbs in the wind, insects fizz and pylons crackle, planes and trains rumble down through the gaps in the trees. The woodpecker's clack an echo of worked timber. Stand still and it returns the listening. Its disorientation is the gift.

In each direction the margin is soft and pliable: canopy, understory, silt, bog.

## **Pollen**

This is a place still recovering from the glaciers' etch. When the ice finally melted, vast rivers flowed. Ancient rocks were exposed, estuary muds seeped. As the rain came down, sedges and trees began to grow. In this thick, damp place, the dead and rotting vegetation refused to disappear, held instead in stasis, as archive: peat, moss, mud.

And it's here, now, growing: in some places between eight and twelve metres deep. Still, in hope, deepening. Three metres sounds 6,000 years, down to the pollen layer of pre-clearance woodland. Lime, yew, field maple, wild service, bird cherry, spindle, buckthorn, dogwood. A half-life glimpsed through midge heads and diatoms.

The mosses have long been drained, and their peat cut. Rushes to improve, to steward, to shape. But things always turn – however slowly. Gradually, the bog breathes. Its condition: recovering.

It's at these transitions where this place folds, where the echoes of the submerged and the subterranean ripple out into the world. Together, edges move. So – how does time travel here? What is its latency? What is its lag?

## **Gunpowder**

The ground tremors from this wood ripple out across the ocean. A gunpowder factory was founded here in 1798, combining charcoal from the woodland with sulphur from mines in Sicily, and saltpetre sourced from India. These materials were crushed under crinoidal limestone runners to create a volatile black powder: the woodland edge absorbing the concussions of accidental blasts.

So this forest carries the weight of the world in its grain. From the factory to the shore, drawn by sparkless copper-shod horses, gunpowder barrels were loaded onto boats which navigated the shifting silt channels of Morecambe Bay, arriving months later in Africa to be exchanged for enslaved people.

This black powder had a coarse grain suited to the archaic weapons used across Africa to keep colonial order. The eight years before the abolition of slavery were hugely profitable to local owners; one of the Low Wood company's founders had himself captained the ships. This quiet inland island was meshed

in a global network of extraction and violence. After abolition, gunpowder production shifted to blasting the local quarries; the nearby hollows in the land where stone, lead and copper were unearthed, all Roudsea powder-blown.

This is a woodland of transformations: of bloom, seep and explosion. But Roudsea is no outlier: every place is many places at once. The wood is the pattern of the stone in the shape of the hand. A future imagined in the deep past. Something subtle, glimpsed in the trace of the lagg.

***~ Interlude ~***

*Somewhere beneath both, the same bed.*

*We have gone from one seafloor to another without ever leaving the shore. And the story doesn't finish; it turns over, the way ground turns, or the way a core is read from the bottom up.*

*So begin at the beginning: the landscape's character. Go twelve miles east, and the story reforms.*

*There is no last word here. Only the next layer down, the lives it cradles, and the attention we owe it in return.*

~ *Gait Barrows* ~

## **Limestone**

The limestone here speaks other languages. Wrinkled ridges and hollows: shorn and softened, flowing with the understory. Kamenitzas, rinnenkarren, rundkarren, kluftkarren, hillenkarren. The scarp and the slack. The dip and the fault.

This is Carboniferous limestone: sedimentary bedrock formed between 337 and 330 million years ago. A warm, tropical ocean; beneath the pavement, the seabed. Corals, crinoids, bryozoans and shelled creatures all caught in a deep-time dream; something fluid, locked in rock.

And the stone is a projection bed, a place to read change. Its axes lean gently towards the south, drawn by the dip of the original seabed. Each cycle of erosion has left a stratigraphic signature in the rock: a diagram of sustain and release. The sensitivity of this surface to change is absolute. Does the wood define the stone, or the stone the wood?

The pavement shines in woodland openings from mottled green to albedo grey: pewter and silver in the unveiling sun. Microhabitats of organic accumulation; mosses and miniature ferns. Within each gap, a universe.

## **Water**

I tell the time through meteoric flights of water. Stories. At the core of it, this place was once elsewhere. The lake is young; the rock it rests on is not. Its deep-time traces help us know shifting weathers out across continents and oceans. A proxy place unearthed from traces of carbon and oxygen and pollen in the peat. The climate oscillates; the vegetation lags. The subsurface is isotope-signed.

The lake has risen and fallen, like a chest breathing. The last time it rose, people arrived – Mesolithic communities driven inland by rising sea levels from the coast. Its waters used to be a metre higher than now. Standing on its banks, it would ring your waist.

About 5,000 years ago, the lake level fell dramatically again. Its banks became peat, became fen. People tried to shape Hawes Water, to enforce their will on its form. In the 19th century, its water flows were controlled in an effort to improve the surrounding land into arable fields. And now it flips again: the lake's margins are being encouraged to grow.

Water is ice, wind, rain, glacier, river, frost, breath, spring.

## **Yew**

The scale of this forest has little to do with its age. Exposure slows time here; the wood warps any sense of scale. Once scoured by ice and water, birch trees began to find root holds in the landscape, alongside mugworts and sunroses. Hazel began to compete with the birch, followed by oak, with pine, elm, ash and lime all loping into the wood.

Nothing stays still. Trees recolonised from the south, from coastal lowlands. Soils slowly formed. The woods were cut and coppiced. The pavement receded – a floor of root and fractured limestone, the quiet hum of hornets' nests and wood ant mounds, the canopy dissolving into the air.

## **Gunpowder**

This place is fractured: by the weathering of water and ice, and by the blast of dynamite.

Hidden from any zone of theoretical visibility by thick woodland, Gait Barrows was quarried and blasted for walls and rockery stones from the 1960s. Loads of quarried limestone were hidden on lorries under tarpaulins and driven out at dawn and dusk. A series of caravan bays were blasted out of the limestone to begin a holiday park. Ancient rocks became dust in seconds. These pavements will not form again.

Limestone was long burnt in kilns here to produce lime to neutralise the acid soil in farmers' fields. This place is now littered with the blasted forms of abandoned quarry stone. It is difficult to disentangle what has been weathered by glaciers and rain, and what has been ruptured by dynamite. Stone abstracted.

## **Ostracod**

Ostracods spend their lives waiting for water. Constantly on the edge of life; dormant in every pavement hollow, now awake in puddles, pools and wetland peats. Ephemeral, everywhere. They can survive desiccation for decades, patiently anticipating water's return. These tiny animals can take flight and hop across a landscape: stuck to a bird's leg, or dormant in its digestive tract. And they've barely changed, for millions of years: a trace of the deep past in the everyday.

You can see them in the pools across the pavement; the dots flickering, busy on the edge of vision; the buzz of the temporary and overlooked. Ostracods are barometers of place; hugely sensitive to shifts in

salinity and water availability; shedding their shells multiple times across their lifespan. They are ancient navigators of the temporary.

Put your ear to the pavement and you can hear it hum. It seethes with life. Its rhythms an undersong: catching, calling, pausing, unfurling.

## **Moss**

It's still early days, geologically speaking. The time depth here exceeds our instruments. You can see the lines ice and water have drawn across the pavement: a mapping of movement, of etch and release. The exposures they've left behind are furnaces by noon, frost-zones by midnight. Moisture evaporates within minutes. Everything here lives in the gap between. Water doesn't hang around either – it slips and dips sub-cline towards the spring and moss. The pavement is a reflector and resonator, for light, water and sound.

One species of moss is a relic of this exposure. *Drepanocladus turgescens* – an easily overlooked creeping species – grows only here and on Ben Lawers in the Breadalbane Mountains: lonely and tough, remnants of a sub-Arctic montane landscape. As if the glaciers have only just retreated, and the first colonising plants are stretching out their limbs.

Other plants are living right on the edge of their tolerance: opportunists finding organic pockets for life in the cracks and gaps. Whitebeam, birch and rowan arc out of fractures in the pavement, their forms hunched, gnarled and ageless.

It won't wait. Can we – should we – ever hope to hold it back?