Lull - Transcript

The piece is narrated by bright and warm, calm and reassuring female voice. They speak slowly and clearly, pausing after each sentence and paragraph. The pace picks up on occasion to add emphasis, and the narrators tone shifts to enquiry when addressing direct questions that invite the walker to contemplate what they are sensing from their bodies and the environment. The story slowly unfolds over 43 minutes.

Hello. Welcome to Lull, a winter walk for Kings Lynn.

The walk will begin shortly.

We ask you to start outside the main entrance of the Lynn Museum, go through the Vancouver shopping centre and then gently meander the streets, parks and waterfront of the town.

The map in the box shows some areas you may want to pass through, but you don't need to be in a particular place at a particular time.

Press 'pause' if you need to and please be aware of other pedestrians, traffic and uneven surfaces.

Adjust the volume of my voice to a comfortable level, then put your phone away.

Lull will begin in a few moments.

(10 second pause)

It's winter.

As you step on the hard pavement, you feel a chill on your face.

A few people are waiting for their journeys to begin, bundled up against the cold.

Wintering gulls glide above the town.

(5 second pause)

Shorter days and colder weather have halted the growth of trees and other plants.

And cleared the air of insects.

Underfoot, dormant seeds and spores have been swept into the gaps between paving slabs, by footsteps and street cleaners.

Beneath the slabs in the sand and dirt, ants have built up their fat reserves and insulated their nests with shreds of leaf, feather and dandelion seeds.

They've moved deeper into the central chambers, keeping their bodies close together for extra warmth.

The reduced daylight and lack of food have emptied the sky of certain birds.

The black caps are in southern Spain. Nightingales and Chiff-chaffs have gone to tropical West Africa. Common Terns are wintering along the Namibian coast. Swallows are moving down to South Africa.

Some insects have migrated away too. Painted Lady Butterflies are laying eggs near the fringes of the northern Sahara.

(5 second pause)

Our clothes insulate us against the cold. Most animals that remain here have fattened up, and found a hideaway from the worst of the weather.

Modern buildings, with their vertical walls of concrete and brick, steel and glass, are dry and inhospitable. But even here, creatures can find shelter.

Take the spider egg sacs tucked under the window frames. Each sac is made of woven silk and inside hundreds of little baby spiderlings are protected from harsh conditions.

Night is twice as long as day and daytime temperatures are below average for the time of year.

(6 second pause)

Evergreen trees and shrubs have adapted their leaves, to protect them from drying out and freezing.

The deciduous trees lining the streets have shed their leaves, drawn their energy back inside, and become COLD-hardy.

Hidden from your view, latent growth buds have formed inside the branches. The trees are expending energy underground, growing roots, searching out water, oxygen and nutrients from the soil in their pit.

In the Planters that you see around the precinct, masses of tiny creatures are overwintering at various stages of their lives.

Beetles have laid eggs in the leaf litter.

Black Vine Weevil grubs rest dormant amongst the root balls of the Ivy.

In the soil, mites, earthworms and the tiny maggots of Fungus Gnats, are feeding on dead organic matter.

(5 second pause)

Across the town and beyond, billions of seeds lie dormant on the top soil of gardens, waste areas and open spaces.

Deeper down, plant bulbs are slowly extending their root systems.

The seeds and the bulbs each have internal clocks, counting towards their own required number of 'Chilling Hours' that must be gone through before they can break dormancy.

Here, on this walk, every step is a minute or an hour or a day passing. Every step is a step towards Spring.

(6 second pause)

Winter modifies the rhythms of our lives and we retreat indoors. Around town, doors and windows are firmly shut. And mice, spiders and other small creatures seek shelter in our homes.

In a roof space nearby, thousands of adult Cluster Flies huddle together, barely moving. Changing body chemistry and turning COLD-hardy – their metabolic rates stay just high enough to survive. By partially dehydrating their bodies and producing natural 'anti-freeze', they can resist sub-zero temperatures. Many insects go through this process, entering 'diapause' – pausing growth, development and activity.

Nestled in cracks in the eaves, the pupae of Solitary Wasps sit dormant inside their cocoons.

Chrysalises of Cabbage White butterflies hang below window ledges, suspended with a girdle of silk.

In garden woodpiles and hedges, new queen Hornets hibernate, cloaking their wings around their bodies.

In dark corners of garages and sheds, Peacock Butterflies close their wings and hibernate, huddled together. They mimic dead leaves and produce ultrasonic sounds to ward off predatory mice.

(7 second pause)

Where might creatures be overwintering in your home?

(10 second pause)

How does winter change the rhythms of your life?

(10 second pause)

As you walk towards the town's lanes and residential streets, the stone walls and brickwork are older.

Weathered fragments of stone and failing mortar drop from their faces, adding to soil deposits at their base.

Lichen and mosses cling onto the gritty surface of the stones.

Cracks in the mortar catch windblown spores and seeds.

Woodlice and millipedes remain active in the lower, damper recesses of the wall.

Further up where it's drier, hiding deep in crevices, you'll find overwintering flies.

(5 second pause)

Some solo Ladybirds have diapaused on dead daisy seed heads on the roadside verges. Other ladybirds diapause in colonies, clustered under the bark of old trees.

In ponds, dragonfly and mayfly nymphs are hunting in the slightly warmer water at the bottom. Fish lie low, metabolisms slowed. Frogs rest on the mud, absorbing enough oxygen through their skin to survive.

(3 second pause)

Rose Aphids have laid their eggs on the stems of roses, and on leaves that have dropped to the ground.

Aphids have evolved a mixed strategy to ensure survival.

Some overwinter as eggs, and others as adults, moving from their summer to their winter hosts.

This seasonal relocation is common across Aphids and often heard in their common names: The Plum Thistle Aphid, the Willow Carrot Aphid, the Damson Hop Aphid, the Blackberry Grass Aphid.

(6 second pause)

Take a breath.

(6 second pause)

What can you smell?

(10 second pause)

Look up. In the stratosphere, fungal spores blown up by winds, hang, barely moving. UV light has long since sterilised them and they've no potential for growth.

As you walk, you generate heat.

We, along with other mammals, and birds, are warm-blooded 'endotherms'.

A healthy average person maintains a core body temperature of between 36 and 38°C: a little lower if you're older, a little higher if you're male, a little lower in the morning, a little higher when you're active.

(7 second pause)

How did you sleep last night?

(7 second pause)

Do your sleep patterns change in winter?

(10 second pause)

You might want to walk to the churchyard or park, where pipistrelle bats and brown long-eared bats winter roost in the ancient stone buildings. They hang from the rafters, against the walls or nestle inside crevices; places that offer the cool, humid and stable conditions they need.

A brown long-eared bat would fit in the palm of your hand. With ears almost as long as their body, they are one of our biggest bats. A pipistrelle is about the size of your thumb.

Some small mammals control their body temperature and metabolism to conserve energy and enter a state of Torpor. And some, like bats and hedgehogs, are able to extend Torpor into hibernation.

Their heart rate drops by almost 99%. Blood flow is restricted to vital organs. Oxygen consumption, breathing rate, and metabolic rate fall as they reduce body temperature to within 1 degree Celsius of the air that surrounds them.

A licenced bat handler told me that when you take a hibernating bat in-hand, it feels cold and dead. Then, as you cover it and warm it up in your hands, it buzzes for a minute or so, its muscles shivering as it comes round.

(5 second pause)

When you're cold, your muscles shiver to warm you up.

Tens of thousands of Honeybees shiver their tiny wing muscles to raise the temperature in their hive and keep the Queen alive.

A new Queen Bumblebee in a nest in a hole in the ground, shivers her wings to warm her brood of eggs for several days until the white larvae hatch.

In the nights, winter moths emerge from pupae in the ground, shivering their wing muscles to stop fatal freezing.

The small males take to the air, lit by car headlights above frosty hedgerows. Flightless females crawl up trees and shrubs and emit a sex pheromone, attracting males who emerged nights before.

After mating, the males stop generating heat and soon die. Females lay clusters of up to 150 eggs on the twigs or buds before also falling to the ground.

(6 second pause)

Where have you got to?

(10 second pause)

Is all this walking making you hungry?

(10 second pause)

On the periphery of the town, thousands of swans gather on the Washes. Crowds of resident Mute Swans are joined by Bewick's Swans, returning from breeding grounds in Arctic Russia. Larger flocks of Whooper Swans have crossed the Atlantic from Iceland. They feed on fields of leftover sugar beet and potatoes.

The population of Starlings is still expanding, with tens of thousands arriving from northern Europe, foraging crane fly larvae and grain from grasslands and lawns. Combined with resident flocks, Starling numbers reach their peak.

It's a mild winter so far.

Blackbirds from Scandinavia and Continental Europe, swell the local population ten-fold. Returning to gardens, they tap the ground to lure up worms and pick-off hibernating snails.

Sparrows and robins are returning from the fields and hedgerows. Birdfeeders are noisy once again.

(7 second pause)

The Winter Solstice in the Northern Hemisphere is the moment – this year at 3.59pm on the afternoon of the twenty-first of December – when the North Pole reaches its maximum tilt away from the sun. Meteorological Winter began on the first of December, but Astronomical Winter begins now.

With sunrise at 8:08am and sunset at 3:44pm, this marks the shortest day and the longest night of the year.

At sunrise, the streets are empty.

The huge skies are clear, apart from aircraft contrails, high overhead.

The midday sun hangs at its lowest point of the year, casting long, shadows.

As you walk, you might see your breath vapour in the dim, pale light, as the moisture in your breath condenses in the colder air outside your body.

You might see the breath of a fox foraging around town, in the crisp winter air.

In the fields outside town, you might see the breath of a pheasant as it "crows".

(7 second pause)

Where is the sun in the sky right now?

(6 second pause)

Do you have a shadow?

(6 second pause)

On the other side of the river, starling flocks gather at sunset and perform an acrobatic display.

People call these gatherings Murmurations after the sound the enormous groupings make. It's thought they provide safety in numbers from predators and the birds

benefit from the warmth of thousands of bodies close together – raising the temperature of the surrounding air by a few degrees.

A series of warm days trigger Peacock Butterflies to fly, when you can see those beautiful eyespots on their wings. They're searching out nectar from winter flowers such as Hellebores and Clematis.

Someone said that the eyespots on butterfly wings, which look like the flash of light reflected on a dark pupil, evolved to mimic the eyes of larger predators, giving a degree of protection to these fragile creatures. But these eyespots developed long before the evolution of birds, and the eyes the butterflies' eyespots mimic are those of dinosaurs.

(7 second pause)

It's the coldest spell of the month of December. Nightime temperatures hover just above freezing.

Some species have evolved symbiotic relationships to survive winter.

In the grasslands on the riverbanks and in the cemetery, meadow ants gather around and protect the caterpillars of the Common Blue butterfly. In exchange, the caterpillars secrete honeydew for the ants to eat.

Birds rely on winter-berries for food. And plants rely on birds for seed dispersal.

Hawthorn, holly, yew, crab apple, blackthorn, buckthorn, cotoneaster and firethorn produce fruit that birds like Thrushes, Redwings and Fieldfares plunder in vast quantities.

At dusk, the birds return to their roosts and poo out the seeds, leaving each one in its own store of fertiliser.

Jays bury acorns to make a food store for the winter. A single Jay - a pink and blue bird - might hoard up to 5,000 acorns each year, sometimes buried several miles

from the parent oak. Jays remember most of their hiding places, but not all. The Jays' preferred burial site is on open ground, between tree cover, precisely where a forgotten acorn might grow best.

Under leaf litter, delicate fungal mycelia, invisible to the naked eye, stretch out, feeding on and breaking down plant remains, releasing their nutrients back into the soil.

Wood Woolyfoot, Blushers and Deceiver mushrooms push up through leaf litter spreading their gills and ejecting millions of spores into the air.

Velvet Shank mushrooms feed on the deadwood, and clusters of their golden-orange capped fruit sprout up.

On old oak, lime and beech tree trunks, Southern Bracket fungi look tatty, but they'll stay fixed to the trunk throughout winter. Hoof Fungus, Turkey-tail, Hairy Curtain-crust can also be seen on trees and logs.

(7 second pause)

How does the ground feel under your feet?

(10 second pause)

Are you leaving footprints?

(10 second pause)

As recently as 10,000 years ago, when the last ice age thawed, retreating glaciers had scraped the trees from the land you now walk on. As humans returned to these lands, trees also began slowly repopulating. Windblown seeds and animal dispersal brought silver birch and oak across the land bridge that connected us to mainland Europe.

(7 second pause)

Every step you take is a step to when the first snowdrops appear.

Every few days or weeks, bats can rouse themselves to eat, drink and mate, burning stored body fat to raise their heart rate and body temperature. They drink water droplets formed on their fur, and feed on hibernating butterflies and moths. Before sinking back into hibernation they'll copulate, with females storing the sperm in their reproductive tracts.

Far away along Africa's fertile Mediterranean coast, the first generation of Painted Lady butterflies have hatched and are beginning their migration north.

(6 second pause)

Days are short and bleak.

A prolonged cold spell takes temperatures below freezing.

Pigeons congregate on snow-covered branches.

Insects overwintering on exposed sites are a few degrees colder than those in more protected sites under tree bark or in roof spaces. This temperature difference is crucial to survival.

With zero degree minimum temperatures for a couple of days, Ladybirds, butterflies and bumblebees out in the open are killed off. Larvae freeze. Many spiders and spider egg sacs do not survive.

Wrens and other small birds lose heat from their bodies quickly, so need to eat all the time, but they can't.

The snow and ice has cut off the food supply for various species.

Berries, insects, fish and other prey are all inaccesible.

Blackbirds and starlings can't find food in the frozen ground.

Barn owls are found dead, as the supply of voles and mice runs out.

Bird feeders are a life-line for garden birds.

Pigeons and gulls take what they can – descending on fast-food restaurants, bins and fighting over bread, thrown down for them in parks.

In the drains and sewers underfoot, warm water flows from people's homes, keeping the sewer rats from freezing.

There is still less than 8 hours of daylight each day.

(7 second pause)

Are your lips drying out?

(5 second pause)

Can you feel the skin on your face getting colder?

(5 second pause)

In the middle ages, when winter was more perilous, Anglo-Saxons counted years in winters so it would be said "My daughter is 10 winters, my son is three winters".

Nowadays, human life expectancy in Norfolk is 80 winters if you're male, and around 84 winters if you're female.

Peacock Butterflies have one winter.

Mice have two winters.

Brown long-eared bats have four to five winters, but can live as long as 22.

Grey Squirrels usually have 2-5 winters.

Badgers can live for 14 winters, though few survive so long in the wild.

Black ant queens have up to 15 winters, while the males and workers have much less than one.

(7 second pause)

As you walk, can you feel your heart working harder?

(7 second pause)

Tree branches flex in biting winds.

Grey Squirrels wait out the harshest weather in their dreys, built in forks of branches where the tree is strong. An Adder hibernates in the roots.

Air pockets in tree bark, insulates them against freezing and cracking.

Trees have changed the molecular structure of the cells in their outer annual growth rings, squeezing water out and concentrating sugars. They allow this hardened, glass-like layer to freeze, protecting the living cells in the centre of each twig and branch, the trunk, and even the seeds.

In the cold ground, seeds and bulbs have accumulated over 1,000 chilling hours.

(5 second pause)

I heard two reasons why we get a runny nose out in the cold.

The dry winter air leads to more mucus production keeping our nostrils moist.

And water droplets inside our noses condense, forming heavy drops that drip out.

A mid-winter thaw sets in.

Birds and mammals can hunt for earthworms, larvae and fruits again. Replenishing what's been lost over the last week or two.

Newts venture out of their shelters in garden waste heaps to forage.

Snowdrops are the first winter flower to appear.

(5 second pause)

In their safe shelters, Cluster Flies' 'anti-freeze' protects their delicate membranes and structures from damage.

Bees continue eating the honey they laid down in warmer months.

Grass snakes hibernate in the warmth and humidity of compost heaps and rabbit warrens.

Common toads move around the mud and log piles, where they spent last winter.

Hedgehogs hibernate beneath centuries old boundary hedgerows, in nests lined with dead grass, leaves and wood.

Small mammals scavenge on dead winter moths.

Over in the parks, farmlands and wetlands, local populations of Canada Geese are thriving, insulated by their thick feathers and layers of fat.

Badgers are sheltering in their setts. The sows are pregnant, and the group members are living off fat reserves and huddled together for warmth.

In this town and elsewhere, as recently as 80 winters ago, people would sleep nine to a bed to keep warm.

Even today, in this wealthy country, if we are on low incomes, we may be forced to choose between heating and eating.

We may not have homes and have to shelter in doorways, stacking cardboard and newspapers to lie on, insulating our bodies from the cold ground. We may pitch tents under bridges to keep dry.

The Council's recent winter count of those rough sleeping or in danger of rough sleeping totalled 68 people, including 20 people in the town's night shelter. In the country as a whole, it's estimated that up to 5,000 people maybe sleeping rough.

For the first time since the first of December there are now more than 8 hours of daylight

(7 second pause)

Millions of Painted Lady Butterflies are navigating through Spain and Italy.

Their journey north is taken in steps, by up to six successive generations of butterflies.

These tiny creatures - weighing less than a gram - are born with innate abilities to travel epic distances and find habitats where they can reproduce and their caterpillars can feed.

Each generation needs to prepare to cross deserts, mountains or seas, requiring large volumes of food in a short time.

It's known that these migratory patterns have evolved over millennia. But the pace of man-made global warming is too quick for some species to adapt to and their population is at risk of decline or extinction.

Many birds are now breeding up to 31 days earlier than in the 1960s. Animals are entering hibernation later, and waking earlier.

In the North Sea, the number of Sand Eels surviving hibernation is thought to be dropping, because of warmer sea temperatures. Causing food shortages for those further up the food chain, like Grey Seals.

(7 second pause)

Has winter changed since you were younger?

(10 second pause)

Is it warmer or colder, wetter or dryer?

(10 second pause)

Here, towards the end of January, daytime temperatures climb above ten degrees for four days in a row, the warmest spell since the beginning of November.

Daytime temperatures reach a high of thirteen degrees.

Under tree bark, ladybirds feel the warmth. Their heart and breathing rates rise. They begin to stir and hundreds of beetles emerge into the sun. Out of sync with the aphids they feed on, which are several weeks from appearing. Forced to rely on stored energy, over a number of days, the Ladybird colony starves.

Night time temperatures drop steadily for a few days, leading to a night of frost.

There are now nearly 8 and a half hours of daylight every day.

(5 second pause)

At the end of January, heavy and persistent rain saturates the ground.

Night time temperatures hover just above zero.

On the coast, grey seals give birth to thousands of white pups.

On roofs and walls across the town, mosses respond to the wetter weather and rehydrate.

In damp basements, Cellar Cup fungus is flourishing, anchored into dust and dirt in the corners.

In homes with leaking roofs, Dry Rot spreads itself into sodden joists and plaster. It creeps across to other beams, warmed by the central heating below.

In unaired rooms, Black Mould dots the window frames, biting into the paintwork.

(6 second pause)

February begins with more than 9 hours of daylight. Day by day, the nights are getting shorter.

As you walk, the season progresses.

The first bursts of blackbird song can be heard, at dawn and at dusk, marking out territory in gardens and woodlands.

And other birds are calling for a mate.

As crocus bulbs reach their required number of Chilling Hours, hormonal changes prepare them for growth.

Whilst the clocks in other bulbs and seeds tick on.

Ducks are beginning courting in the parks. Squirrels are too, chasing through trees and across ground.

Mating calls of foxes are heard across the town at night – the dog fox makes short, sharp barks, answered by the eerie scream of the vixen when she is ready to mate.

(5 second pause)

Whereabouts are you in the town right now?

(8 second pause)

What can you hear?

(10 second pause)

With the spring equinox still several weeks away … each day, there are still five more hours of darkness than light.

(5 second pause)

You may notice you need a wee. Your body has responded to the cold by constricting blood vessels under your skin, which has increased your blood pressure. Your kidneys filter out excess fluid in the blood to reduce its volume and pressure. All this fluid has to go somewhere, and it's filling your bladder.

Some deciduous trees have been exposed to low temperatures for long enough. They've reached their quota of chilling hours.

Buds begin to break on their trunks and branches.

Below ground, in the crocus bulbs, leaves push out and upwards through the soil.

Female bats ovulate, and the sperm stored within their reproductive tracts earlier in the winter, fertilises the eggs.

Pregnant vixens, followed almost everywhere by their mate, are becoming increasingly secretive in the weeks before their young are due. They're clearing out potential den sites under sheds, re-opening old holes in banks and waste ground, before selecting one in which to give birth.

Some caterpillars begin metamorphosis inside their chrysalises, and will soon emerge as butterflies.

The winter moth eggs have shifted colour from green to red-orange, as they prepare to hatch.

Songbirds continue building their nests, preparing for their first brood of eggs.

Perched on the top of tall trees, Carrion Crows watch other birds' activities, memorising the locations of their nests.

In a few weeks, when the nests are full, the crows will remember where they are and return to steal eggs or chicks to feed their own young.

(6 second pause)

You've been walking for a while now.

Does your body feel warmer than it did when you started this walk?

(6 second pause)

It is late February and there are now more than ten hours of daylight each day.

As daylight hours increase, algae growth accelerates where rainwater settles and the build up on paving stones makes them slippery underfoot.

Orange-yellow, white and blue-violet crocus flowers spring up from open sunny ground.

Out of sight in trees and buildings, pigeon nests contain newly-hatched squabs, or older fledglings, loudly squeaking and wheezing.

Squirrels are raising their first litter, in their dreys.

A pregnant badger goes into labour and three cubs are born, safe and warm in their sett.

In ponds, rising water temperatures stir fish and frogs. The frogs mate overnight. In the morning, the margins of the ponds are billowing with frogspawn, with each female having laid up to 3,000 eggs.

(7 second pause)

The longer days and warmer weather stir some insects out of diapause. Shed windows and garage doors open. Peacock butterflies take flight, looking for crocus and early flowering cherries.

As you walk …

Dandelion seeds germinate in the little bits of soil between walls and pavements.

Small roots poke out through cracks in the seed cases and extend down into the ground.

Shoots from bluebells and snowbells appear up through the soil.

Fungal spores germinate in the warm patches of sunlight.

Painted Lady butterflies are on their way through France.

(5 second pause)

Can you feel the warmth of the sun on your face?

(10 second pause)

My Dad had a saying, when someone died in winter: 'They didn't make it up February Hill'. Each Spring, he'd say 'I climbed February Hill, I'll be alright for another year'.

At the end of February, each day has almost 11 hours of daylight.

(5 second pause)

In this town and across the northern hemisphere, it's coming to the end of winter, and you are coming to the end of your walk.

Some say Orange Tip butterflies are the harbingers of Spring. When they hatch from their chrysalises, you know that Spring is on its way.

But when the butter-coloured Brimstone butterfly appears, Spring is here.

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