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WHALE FALL

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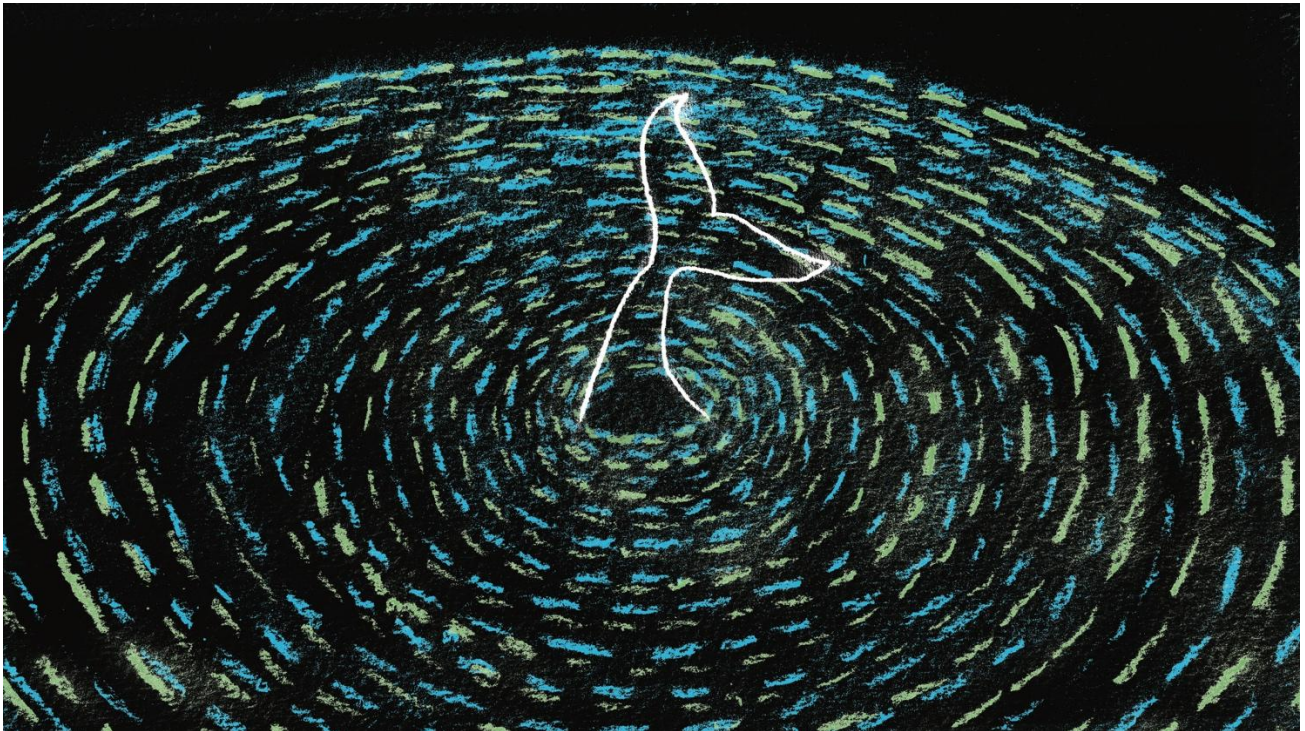


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When a whale dies, it starts a slow sink to the bottom of the sea. What arrives and remains is called a whale fall. Unlike the carcasses of most aquarian beasts, which lack rich lipids in their bones—or, lack bones in the first place, like sharks—a whale fall is full of life when it reaches its resting place. On its long trail down it becomes an ecosystem that nourishes mussels, clams, limpets, sea snails, bacteria, and other organisms. Hence, despite the darkness of this far-away sphere, biologists compare a whale fall to a sudden blooming of spring.

The abyssal zone at a depth of 2000 to 6000 meters is named after the Greek term *abyssos*, a bottomless, unfathomable place and the abode of the dead or rebellious spirits. In evolutionary terms, one has to be rebellious to make a living down here. Absolute darkness, intolerable pressure, numbing coldness, and a cacophony of sounds, crackles, and crimples convey an aching of deep Earth.

Anything beyond here is called the hadal zone. Here, V-shaped trenches terminate the bedrock of the sea, the deepest running around 11000 meters. Until a few years ago, only two manned dives reached this terra incognita, and most of it remains unmapped, a void, a mystery.

The namesake of this zone is Hades, the ruler of the underworld in Greek mythology. Hadal also refers to his realm, the unseen. They say there is no way back from here for the living, at least not in the way we think about coming back. Things transform on the long journey down. To sink here means to leave behind. To be undone. It is not a choice. Gravity pulls.

Whale Fall

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I was 41 when I experienced my own whale fall. I was still breastfeeding my third child when I felt a lump in my right breast tissue, this soft and tender flesh that thrills under the coarse hands of a lover and billows when fondled by the tiny hands of my children, their dear fingers stroking for milk to flow.

The process of a whale fall begins in an orgy of violence. Scavenging sharks and hagfish pull the whale's flesh away and apart, dig holes, creep in, devour. Orcas go for the tongue first. Then the blubber. Muscles, tendons, organs. Mounds of flesh to be nipped and tucked.

The decision to amputate my breast was an easy one. Cutting the cancer out would leave the rest of the body intact. I remember walking into the first diagnosis when it still seemed something that was not happening to me but to someone else, whom I was enacting for the day. "So, now you will turn me into an Amazon," I joked after the first mammography, thinking about the ancient Greek heroines who are said to have cut off their right breast to become more competent archers. The doctor looked up from the scans, straight into my eyes: "We might just have to do that."

Stage one of a whale fall is characterized by the removal of soft tissue at the rate of 40 to 60 kilograms a day. It can take up to two years for a big whale to be fleshed out. The carcass of the whale sinks and sinks. Downward and inward.

There were decisions to be made. Right after the diagnosis, when it was still unclear whether I would live through this, everything was about the flat landscape my breast would leave behind. Would I have fat and muscles from my thighs and lower belly removed and put there to replace the void? How about, as the cherry on the cake, a new nipple, shaped by rolling the skin cut from a not-yet-sagging eyelid? These procedures would leave me handicapped for at least six months from many kinds of physical exercises and with butcher-like scars not only on my chest, but across my belly, the inside of my thigh—and, on the positive side, a lifted eye. But breastfeeding had left me with little excess meat to sculpt with. The doctors suggested a silicone implant, a placeholder that would keep options open for later. They objected leaving me an Amazon. I was a woman, and women are defined by two breasts. One would not do. Others would need the harmony of two to stand the sight of me. Even the female doctors opinionated this. Meanwhile, I bought terry-cloth pajamas for the hospital stay. The lymph nodes hadn't been checked yet.

Whales do not cry in the way we do. They have no lacrimal gland. Their eyes are the color of a midnight sky, the color of the ocean.

I started noticing people's eyes. How rare, how precious, that spark within them. Faced with the possibility of death, the improbability of every encounter became a beacon amidst the vast sea of eternity.

Stage two in a whale fall is for the opportunists. Snails, bristle worms, and hooded shrimp will claim whatever is left on the carcass.

My stage two began with chemotherapy. First the hair, then the eyebrows. The eyelashes fell off

last.

I lost some friends, too. When I looked up from below to the water's surface, I saw their feet kicking strongly, swimming back to shore. Not everyone has stamina to watch someone dear through this. Others held their breath for as long as they could. But this journey is not one of return.

. . .

There is something calming about sinking. Of letting go. Even if the bottom of the sea is located at a distance that I could not fathom, still there is the assurance that it has to be there. Somewhere. A seabed to lie upon and to rest. To sleep, for a while or forever. To regenerate, I dared to think.

The difference between hope and trust lies in the direction toward which aspirations are oriented. Trust is a rooting, a grounding, into someone, an idea. Hope on the other hand is a fickle escape. A mercury trail of smoke rising up and dispersing into ever thinner air. We look up into the night and hope. Yet, isn't starlight but an echo of an eruption long gone?

Hope can unlock the portal for disappointment. Was I disappointed with life for establishing the cancer in my body? I was surprised and the shock wave that came with the tectonic shift of the diagnosis burst the ground open beneath my feet. While all my life I had been striving to reach up and high and higher even—this time, for the first time, the direction was downward.

. . .

"Down, down, down. There was nothing else to do." When Alice falls to Wonderland, she accepts her fate. All around her familiar things emerge on the sides of the rabbit hole but appear strange, meaningless, and devoid of context. "She took down a jar from one of the shelves as she passed; it was labelled 'ORANGE MARMALADE,' but to her great disappointment it was empty: She did not like to drop the jar for fear of killing somebody, so managed to put it into one of the cupboards as she fell past it."

When one tumbles into the unknown, new elements and entities one did not think possible drift by. The world is full of wonders beyond the wildest imagination. Take the Portuguese man o' war. A shimmering nacre-amphor-filigree-sort-of-porcelain-glass-bowl creature with medusa-like tentacles trailing under its thick kidney-shaped body. A life form made of colonies of organisms, asymmetrically shaped like me now. Stranger than strange, alien and bizarre, the man o' war teaches me new ways of living and being. Some parts of this siphonophore take care of reproduction; others are in charge of feeding. Things can be thought and lived differently, I realized, after encountering this colonial creature and others. A body can live life alone, or with others. It can remain distant or become intimate. It might even achieve symbiosis as many merge to become one. Who makes up the context of who we are? What are the energies that make us feel alive? How many invisible threads are drifting through our world every day, ready to be captured and woven into new beginnings? And when all is gone, who is left? What am I? A will-o'-the-wisp kind of thought trailing off into the ever-darkening waters. One question stands out: What remains?

. . .

"Our roots are in the dark; the earth is our country. Why did we look up for blessing—instead of around, and down? What hope we have lies there . . . Not in the light that blinds, but in the dark that nourishes, where human beings grow human souls," voices the late American writer Ursula K. Le Guin in her commencement address at Mills College in 1983. In it she deconstructs the hegemony of the human-made world, its culture for success, the competitiveness that makes heroes of those who rise above and leave behind those who raised them up in the first place. Women, animals, nature. Le Guin's speech is about making a proud living in darkness, of finding a role in the negative space: to inhabit where our rationalizing culture of success and competitiveness denies.

Had I not fallen, I would have never found such a place.

Stage three in a whale fall lasts 50 to 100 years. During this time, sulfophilic bacteria anaerobically break down the lipids embedded in the bones. So-called zombie worms with no mouths, digestive systems, or anuses will slowly disintegrate whatever remains. Due to the toxicity of hydrogen sulfide, only resistant chemosynthetic bacteria can survive.

The chemo entered my body like no medicine ever did before. I felt it seep into my veins, into the arteries, and then into my very cells. It found its way; I felt it act.

They say it takes five years to live a normal life again, to not constantly think of the cancer, to not define oneself through the trauma of it, to feel one's body whole again. By the end I had lived at the bottom of the sea for a while. What was left of the me I was before? When did I realize that an invincible me was forever gone? I am vulnerable, very vulnerable. But so is the world and its ecosystems, all life on Earth. When we understand that things can change and not come back the way they were, how do we keep on living? First we might lie scared, unable to move, with utter darkness all around. We might try to listen. Are there voices down here, murmurs, songs of solace? Eventually we may reach out. Seek connections. Hold on. One must be rebellious to forge a living in the hadal zone. From where life as we know it does not return.

Whale falls are islands of biodiversity, not unlike monasteries of secluded life. Every five kilometers or so a whale fall lies on the bottom of the sea. At this moment, roughly 700,000 are scattered along the migrating routes of the giant mammals. Transformation is always happening in the depths, out of sight. What once was a dead whale and inert matter changes into teeming life, filling the oceans. And in and around whale falls adaptation and radiation take place. Creatures mix with one another to become new species, sparking new beginnings.

"She fell like a maple seed, pirouetting on an autumn breeze. A column of light streamed from a hole in the Skyworld, marking her path where only darkness had been before. It took her a long time to fall." In *Braiding Sweetgrass* US botanist Robin Wall Kimmerer evokes the Native People's story of Skywoman, who fell from the sky and shaped our relationship with the world. Wall Kimmerer asks whether "the Skywoman story endures because we too are always falling . . . Despite our fears of falling, the gifts of the world stand by to catch us."

After all these years I came to define myself not by my missing breast, but by something else. Something new. Something old.

Once, the ancestors of whales lived onshore. No one knows exactly what made them turn their backs on the land and return to the sea. They must have endured something along the evolutionary spiral that made them choose this place over the other. One, under the sun and the stars and the moon, the fresh breeze in the riffling leaves and the fragrant soil. The other, a world with no edges, no limits, where up and down are traversed by fluid movements. It must not have been an easy process. They had to adapt, change in almost every possible way, every habit and habitat.

When beaked whales dive, part of their lungs collapses, and their heartbeat goes down from forty to four beats per minute. For three and a half hours they dive down to a place so deep, so alien to us, that the pressure would crush almost any human-made vessel. Then they come up to the sun, the weather, the air, as visitors, before returning to their realm. They no longer belong to the surface;

they have become creatures of the world below.

Today we know that whales are phenomena much grander than their size. Scientists believe that they might play an essential role in tackling the climate crisis. During its life an average whale will store 33 tons of carbon dioxide. When it dies and sinks, the whale will release carbon not into the atmosphere but into the bodies of all the entities that fed on it. Even more impressive are the giant dung clouds living whales leave behind near the surface, spurring the growth of phytoplankton, which produces oxygen and absorbs carbon dioxide. In this way, the same amount of CO₂ is sequestered as by 1.7 trillion trees—four times the Amazon jungle.

I wonder what that number would be without the systematic slaughter of whales by humans.

They say there might possibly be a fourth stage to a whale fall, the “reef stage.” When the organic compounds have been exhausted and only minerals remain within the bones, what once was whale, too, becomes foundation.

Neolithic people recorded their imaginings with chalk, a mineral derived from the fall of countless oceanic microorganisms. Far back in the depths of time, it settled as sediment of the ocean floor, eventually rising again to break the surface, forming reefs, atolls, islands, cliffs. Chalk writing becomes readable only when rendered on a dark surface. While it might seem monochromatic, it’s full of shades and glow. It doesn’t flow like an ink brush; it etches and crumbles.

Stage four is different than I expected. The seabed isn’t as soft as I would have imagined. The floor rises only an inch every thousand years. It will take a very long time to become an island. But there is no need to hurry. I have accepted the place where I have landed. And so I continue to write about the land in the shadows, about vulnerability and loss, about the playfulness of all things alive.

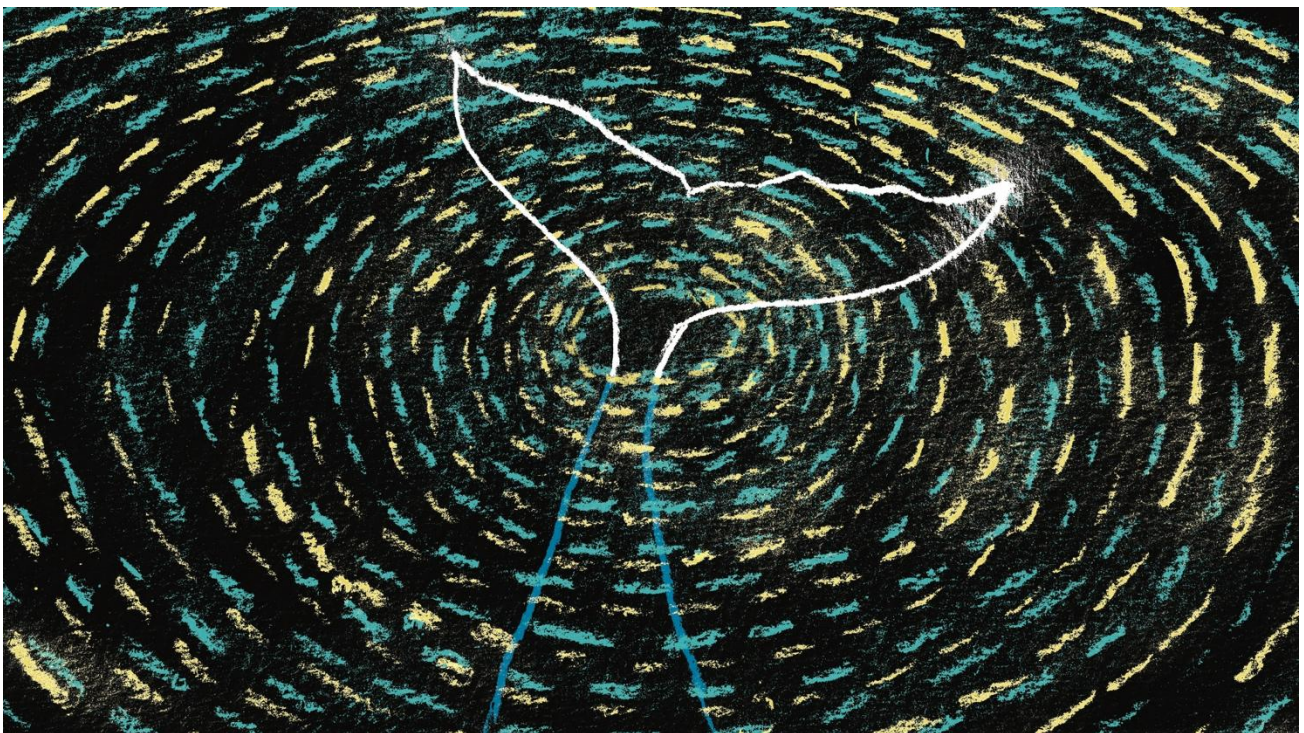
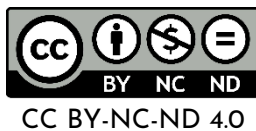


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Michaela Vieser is an award-winning author of 11 books, including the bestseller *Tee mit Buddha* and *Sound Atlas*, coauthored with Isaac Yuen. She explores liminal spaces through science, sensing, and sensemaking, playing with narrative, language, and research. Her work has been commissioned for librettos, poetic soundscapes, radio, and TV features. Michaela graduated in Japanese studies and Japanese history of art from SOAS, London and Tohoku University, Japan. She was nature writer-in-residence at the Michalski Foundation, Switzerland, in 2019 and Wave Writer for Okeanos from 2021 to 2023.

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