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Nigel Clark, Sasha Engelmann, Paolo Gruppuso, Tim Ingold, Franz Krause,  
Gavin Lucas, Germain Meulemans, Cristián Simonetti, Bronislaw Szerszynski,  
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# A Solid Fluids Lexicon

**Nigel Clark** 

University of Lancaster

**Sasha Engelmann** 

Royal Holloway, University of London

**Paolo Gruppuso**

University of Gastronomic Sciences at Pollenzo

**Tim Ingold** 

University of Aberdeen

**Franz Krause** 

University of Cologne

**Gavin Lucas** 

University of Iceland

**Germain Meulemans** 

Centre Alexander Koyré, Paris

**Cristián Simonetti** 

Pontificia Universidad Católica de Chile

**Bronislaw Szerszynski** 

University of Lancaster

**Laura Watts**

University of Edinburgh

## Abstract

In our discussions around the theme of solid fluids, we often resort to everyday words, many of them of ancient derivation and rich in association. We have decided to make a list of some of the words that come up most often – barring those that already figure as the principal characters of individual contributions – and to distribute among ourselves the task of writing a sort of mini-biography for each. The resulting lexicon with 19 entries, ranging from ‘cloud’ and ‘concrete’ to ‘wave’ and ‘wood’, serves as a conclusion to the collection as a whole.

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**Corresponding author:** Tim Ingold. Email: [tim.ingold@abdn.ac.uk](mailto:tim.ingold@abdn.ac.uk)

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Fabrication deals only with the solid; the rest escapes by its very fluidity. If, therefore, the tendency of the intellect is to fabricate, we may expect to find that whatever is fluid in the real will escape it in part, and whatever is life in the living will escape it altogether. (Bergson, 1911: 153)

The intellect, wrote Bergson, is never at ease, save when it is working upon solids. The concepts it grants us, and with which we think, divide living reality into rigid and externally bounded blocks, breaking the landscape of continuous variation into regions of stability, edged by the precipitous faults of change. But if the fluid in the real escapes the gridding of the intellect, what then becomes of language? We have long been taught that words stand for concepts. Does that make them servants of the intellect? Must words, too, fail us in the trials of life? In the course of our reflections on solid fluids, leading up to this collection, we were rarely stuck for words. Rather, we found ourselves abjuring terms of art, so prevalent in academia, in favour of words of everyday use – words that left, in their wake, a trail of etymological associations, stretching far into the past. We decided to compile a list of some of the words that came up most often in our discussions – barring those that already figured as the principal topics of individual contributions – and to distribute among ourselves the task of writing a sort of mini-biography for each.<sup>1</sup>

In this wordlist, or lexicon, words figure not as solid entities but as living things, animated in the breath or the gesture of their performance, whether in speech or on the page of writing. Like the characters of a play, every word has a history and a personality of its own, and a story to tell. These are stories in which solid matter ever gets the better of itself, in the very fluidity of its becoming. So, too, our words perpetually strain beyond the limits of their conceptual referents. Words, like worlds, are always in flux. In conversation, they carry on their lives together, as do matters in the world. They touch, and sometimes mix. Ideally, the entries in our lexicon would be read in parallel rather than sequentially. To counteract the constraints of the printed page, we have inserted occasional cross-references to indicate the locations at which, were a parallel reading possible, they might make contact. There is no higher order of relations, however, under which they are subsumed. That is why we have chosen to list our words alphabetically, by their first letters, in an order which, so far as their biographies are concerned, is wholly arbitrary.

## Cloud

On a day of sunshine and showers, we see a blue sky with scattered white clouds. Here and there the clouds darken to grey, and falling rain temporarily obscures the view. Are clouds, then, objects in the sky? Do they hang there, under a great dome that arches over our heads? Does rain fall from a cloud as from a leaky container? If you were a scenographer, tasked with creating a simulacrum of the weather within the interior space of the theatre, you might hang objects made to resemble clouds from a gantry. You might even rig up a hidden sprinkler system to deliver imitation rain on demand. But real clouds, and real rain, have no truck with the furniture of interior reconstruction. Their proper domain is the open, in which there are no objects as such. Objects are closed in on themselves; they have insides and outsides, mediated by surfaces. But in the world of the open, there are only vortices, swellings, folds and crumples. The sky is not empty but for clouds; it is full: one continuous mass of air wracked by forces of tension and compression induced by differential heating and cooling, and by friction with the spinning earth (see VAPOUR). This aerial turbulence is largely imperceptible to us, if not to the birds that ride its currents. But when the air is laden with moisture, which cools and condenses as it rises, these currents are revealed in the condensate's diffraction of solar rays. The clouds we see are the moisture-laden folds of a crumpled sky. (TI)

## Concrete

Concrete is the most abundant anthropic rock ever to have appeared on earth and a significant contributor to global warming. This composite of cement, sand, aggregate and water became key to the global dissemination of modern narratives of progress over the past century, grounded in the illusion that humans could mould the present on the monolithic foundations of everlasting artificial rock (see ROCK). Yet the fixity that, to modern eyes, concrete appears to grant, is in truth but transitory. Not only does concrete deform under pressure; it is also bound to melt back into the cycle of rock formation whence it originated. Furthermore, concrete's semi-fluid state defines its molecular structure. Counterintuitively, concrete's solidification results from hydration, a phenomenon well known to the Romans, who experimented with the material centuries before its modern rediscovery. In the earliest known formula, recorded by Vitruvius in his *Di Architectura*, cementitious materials issuing from volcanoes and furnaces – including ash (*pulvis*), tuff (*tofus*) and lime (*calx*) – craved water with which to mix and harden into rock. For Vitruvius, concrete's formation spoke of a correspondence between the elements in which *earth* – *fired* at high temperatures – called for *water*, only to release into the *air* the accumulated heat, a phenomenon also common to modern varieties of cement such as Portland (see

ELEMENTS). After all, as the etymology suggests, concrete is a ‘concrecence’, an unfinished gathering of forces and materials. Remarkably, ‘concrecence’ is the term that Alfred North Whitehead chose to reinstate flow into the punctuated view of change that, as Henri Bergson had shown, underpins modern physics. (CS)

## Deposit

Deposit – literally something laid or put down – is a term used by geologists and archaeologists to refer to any aggregate of sedimentary particles. From the perspective of soil scientists it has two salient properties (see SOIL). The first lies in its formation, which is largely considered to result from the movement of particles from one place to another – either chemically through precipitation or, more commonly, mechanically through weathering, gravity or biological agents (including humans). Second, this formation is conceived as a single event, though this does not mean it cannot incorporate particles from different sources or via multiple agents; it also does not mean it is of short duration – indeed the event can extend over very long time periods. Both of these properties have important implications. One is that if a deposit is characterized by the movement of particles from one place to another, while it involves addition at the site of deposition, it also entails subtraction at the source. A deposit always implies a withdrawal. These withdrawals are referred to in geology as unconformities, and in archaeology as cuts. On any site, there will always be cuts as well as deposits – what archaeologists call negative and positive features, respectively. Another implication is that if a deposit is considered the result of a singular event or process – no matter how protracted – the duration of this event often sets the temporal limits at which other events are perceptible. Thus, objects relating to shorter-term events caught up in these deposits will all appear contemporary, even if separated by hundreds or thousands of years. (GL)

## Duration

We might think of duration as an extended period of continuous time, by which we usually mean a period not marked by any significant break. It is the time which some event or process takes to unfold. It implies a kind of unity or coherence. Philosophically, this everyday sense of duration has been elevated into a metaphysics of time which privileges continuity and change over puncta and stasis, epitomized in Bergson’s concept of *durée* as flux. And yet the notion of duration as flux or a fluid time is ironically at odds with the etymology of the word. Duration, from the Latin verb ‘to harden’, would suggest stopping the flow – a congealed time, like a deposit (see DEPOSIT). What should we make of this inversion? Consider the classic example of a single musical note or tone, sustained over a period of time. As it hangs in the air, time itself seems congealed and

suspended, yet still it flows. Nothing else impedes this moment. This is thickened time – the world held fast and steady. Now think of a busier scene, people sitting around a table chatting, eating; a lot is happening, things are constantly changing and in flux – yet we still cannot say when one moment ends and another begins. The moments flow into each other. This is fluid time – things constantly on the move. In both cases, there is continuity and flow, but in one the world is still; in the other all is change. To misuse a philosophical distinction, in the one case, we might say things endure, in the other, that they perdure. (GL)

## Dust

Nothing is dust in itself: being dust is always relative to something else. By one definition, dust particles are of a size and mass that places them between settling immediately *through* and being suspended indefinitely *by* the enveloping medium. In the Earth's atmosphere, this puts dust particles at around 1–100 microns – but under weaker gravity, or in thicker or hotter atmospheres such as that of Venus, dust can be much bigger. On a planetary scale, humans could be regarded as self-motile dust spread across the Earth's surface. At the largest scale, stars are the dust of galaxies; as Isaac Asimov wrote, 'The stars, like dust, encircle me, in living mists of light'. Although individual dust particles are solid, dust *en masse* behaves in ways that overlap with other phases of matter. Michael Marder calls dust the 'prototype' of the elements, that imitates and elaborates on their respective properties. Nowhere is this truer than on the surface of Mars, where dust, manifesting as a 'fluid solid', takes the place of water: it flows, forms waves, runs down slopes and carves gullies, is lofted into the air in clouds (see CLOUD; WAVES). On Earth, dust is either of cosmic origin or made by the planet itself. The interplanetary dust that rains onto the Earth is a vestige of the formation of the solar system, but terrestrial dust is more like a harbinger of what the Earth is becoming: bacteria and skin cells; smoke, ash and cement (see CONCRETE); dry soil particles lifted from anthropogenically altered land. As intimated in *Genesis* 3:19, dust is our past and our future. (BS)

## Elements

Element, from the Latin *elementum* or rudiment, refers to matter in its most basic form. The elements are the substances that make up the universe. Over time, different forms of access to the elements have informed our knowledge of them. From the Chinese Wu Xing system of five elemental phases consisting of earth, air, fire, metal (see METAL) and wood (see WOOD), to the Empedoclean diagram of earth, air, fire and water, the ancients understood widely observable tropes to be the primary ingredients of landscapes, entities and living beings. They also apprehended the elements through rituals: bloody offerings to appease the

daughters of Chaos, heavy iron sickles hung on tree branches to calm winds. Yet the elements were always something else: media. The mediations of the elements took on a planetary dimension in the colonial era. Water mediated the passage of ships across the Atlantic. Air mediated the transmission of messages and signals. However, by the time messages were carried by the electromagnetic spectrum rather than by the air itself, the elements had morphed. In the late 19th century, the ‘building blocks’ of the universe became chemicals and were arranged into the Periodic Table. Arranged thus, the elements appear irreducible, but the discovery of subatomic particles has proven otherwise. From ritual to passage to chemistry: the elements transform based on our tools of access. Yet the ancient cosmograms are not obsolete. To apprehend the elements is to hold together matter and energy, substance and volume, particle and world. (SE)

## **Fold**

From the Proto-Indo European root *\*pel-*, ‘to fold’, and its derivative *\*plek-*, ‘to plait’, are derived a plethora of words in Eurasian languages. For speakers of these languages, the skilled hand gestures of nomadic steppe dwellers from over four millennia ago, as they discovered how to manipulate matter according to its capacities to take and hold form, have left a legacy in basic ideas about the constitution of the world. For example, ‘complex’ means ‘woven together’, whereas ‘to replicate’ means ‘to fold back’. Folding is a primordial feature of terrestrial existence: Earth, like all planets energetically open and materially closed, divides and recombines itself endlessly into new forms and new modes of existence. Water folds itself quickly into waves and eddies (see WAVES); rock slowly into strata and formations (see DEPOSIT); the ground and its structures – including we humans – comprise a great rumpling still in process. Across Earth history, time, too, is folded into the contorted topological surfaces of catastrophe diagrams (see DURATION). The trajectories across possibility spaces that are available to the Earth fold back on themselves, creating bifurcations or tipping points in which the planet jumps from one state to another and cannot find its way back. But in the fine structure of the Earth, folding also creates new possibilities, new forms of freedom that the Earth and its folds can explore. In life processes, the folding of the boundary of the cell creates a new relation between inside and outside, and protein folding enables life to escape chemical necessity for the endless creativity of biological evolution. Welcome (back) to the fold. (BS)

## **Hydraulics**

Hydraulics refers to the practical understanding of fluids and their behaviour. In 1977, the philosopher Michel Serres published *The Birth*

of *Physics*, in which he examined how ancient atomism, such as the physics of Lucretius, had been derived from hydraulics, and thereby strongly differed from the solid-inspired physics of the modern age. The hydraulic model of the physical world emphasized fluid processes of world-formation and assimilated reality to flow, turbulence, and equilibrium, rather than to solid objects. It was a science of dynamics rather than statics. Gilles Deleuze and Félix Guattari took up the example of the atomists' hydraulic model to define what they called the 'minor sciences', dedicated to following the dynamic, heterogeneous relations among materials and forces. They contrasted these to the 'major' or 'state sciences', that search for universal laws by extracting constants, concentrate on events rather than flows, and view the world as made up of stable relations of form-matter. The hydraulic model, then, is far removed from modern hydraulic science, which aims not to follow but to control the flux through pipes and embankments that prevent turbulence. Hydraulic science has been a key element in the state's control over people and the environment, through building centralized waterworks or large-scale reclamation of wetlands (see WETLAND). Yet, the minor and the major modalities of hydraulics often intertwine, as exemplified by the ambiguous role of the hydraulic engineer who, while serving state projects of rationalization, still has to rely on minor forms of knowledge, such as tinkering, to make water infrastructures work. (GM)

## Ice

Solid yet fluid, singular yet plural, inert yet animated, eternal yet ephemeral, ice is a substance that defies the categories of modern thought. Although it is known as the solid state of water, ice also behaves physically as a fluid, a living example of which are glaciers, entities that deform as they descend, a simultaneity often imperceptible to the naked eye. Similarly, while, from a chemical point of view, ice tends to be regarded as homogeneous, in reality, just as there are no equivalent measures of water, so no two blocks of ice are exactly the same. Moreover, as chemists have explored the properties of ice under extreme conditions of pressure and temperature – imagining its composition on other planets, such as the icy moons of Saturn – more types of ice have been discovered, currently numbering up to nine. In a biological sense, too, ice is heterogeneous. While traditionally regarded as an inert substance, held in cryogenic suspension, biologists have revealed that it is actually alive with microbes (compare SOIL). Finally, as glaciers continue to melt at unprecedented rates, due to global warming, the geological understanding of ice as a constant presence, bearing perennial witness to the record of human history, is under threat (see THAW). For once ice ceases to be seen as unequivocally solid, singular and aseptic, it can no



longer be understood as a fixed and permanent (as in *permafrost*) backdrop to the arrival and advance of civilization. (CS)

## Metal

‘You never know what worse luck your bad luck has saved you from’, intones a character in Cormac McCarthy’s novel *No Country for Old Men*. Early after its coalescence, the young Earth suffered exceedingly bad luck. According to the giant-impact hypothesis, a Mars-sized planet – now known as Theia – slammed into the protoEarth. Most of Theia and much of Earth’s crust and mantle would have turned into vapour (see VAPOUR), a significant proportion of which subsequently coalesced into the Moon. Dense metal from the cores of both planetary bodies cooled into liquid, then sank into the surviving planet, gifting Earth with a much bigger iron-nickel core than pre-impact. From a planetary perspective, such an exceptional mass of metal has its uses. The chemical structure of metals – negatively charged free electrons clouding around a lattice of positively charged atoms – is what makes them lustrous, malleable, and ductile (see NUCLEUS). Free electrons also endow metals with high electrical and thermal conductivity. In the case of the post-collision Earth, it has been argued, the way that extra iron layered itself into the core boosted our planet’s magnetic field. Whereas human-made dynamos use rotating wire coils to generate electromagnetic fields, inside a planet similar effects are produced by an iron-rich liquid outer core revolving around a solid inner core. With a much stronger, longer lasting ‘geodynamo’ than it would have had without Theia’s additional iron, Earth has an exceptionally powerful magnetosphere. This provides a degree of protection from bombarding solar wind and cosmic rays – without which terrestrial life may not have survived or even emerged. (NC)

## Nucleus

Nucleus comes from the Latin *nucleus*, diminutive of *nux* (‘nut’), meaning a kernel, like that inside a watery type of fruit such as a plum or a peach. The term applies to many kinds of entity: from the small, dense region consisting of protons and neutrons at the centre of an atom, to the organelle containing genetic material in most cells, to the grey matter found in the central nervous system, to the solid part of a comet’s head. Yet the duplicity of the term is perhaps most evident at the atomic level. Indeed, the story of the atomic nucleus emerged from solid fluidity: it was first postulated in 1911 by Ernest Rutherford in response to J.J. Thomson’s reigning ‘plum pudding’ model of the atom, which suggested that negatively charged electrons or ‘plums’ were embedded in a positively charged ‘pudding’. Rutherford’s experiments proved that, unlike plum pudding (and a lot more like plums), atoms behave as if they have dense, solid ‘kernels’ at their core, and so the term nucleus stuck.

Yet neither pudding nor plum approximates the nature of the nucleus. In Rutherford's wake, others proved that a nucleus is more like a rotating liquid drop, a cloud, or a 'halo'. The 'kernel' of 'nucleus' is further complicated by quantum mechanics. Many nuclear properties can only be described statistically by applying the rules of particles in addition to the behaviour of waves (see WAVES). Neither plum, nor pudding, nor kernel, nor drop: the nucleus is all of these things simultaneously. (SE)

## Rock

Rock is viscous and vicious. It is seething, creeping, crushing stuff that living creatures touch at their peril. Or at least that's the case with most of the rock on this planet. In basic terms, rock is any aggregate of minerals. Close to 99 per cent of terran rock is found in the mantle, the layer between core and crust that comprises the bulk of the Earth. Geoscientists define mantle rock as mostly solid, though over geological time it behaves like very thick liquid, slowly churning in vast convection currents driven largely by heat emanating from the Earth's core. With temperatures ranging from 1000°C at its upper reaches to an estimated 3700°C closer to the core, mantle rock far exceeds even the 120°C tolerance levels of the hardest 'thermophilic' microorganisms yet discovered. But a tiny proportion of the Earth's rock, a little over 1 per cent, behaves very differently. The thin, brittle excrescence known as the crust might best be considered 'frozen' rock, and the fact that most human observers take this as the lithic norm is perhaps the starkest expression of our near-total surficial chauvinism. It is only with the stuff of these slender rafts of frozen rock that life can mingle and intermix. In return for this habitable platform, however, life gives back to crustal rock something of the mobility it lost upon cooling – with compound interest. For rock, as it is absorbed into the processes of life, gains degrees of motility and plasticity it could never have attained in the swirling cauldron of the mantle (see CONCRETE). (NC)

## Soil

Soil is often called the skin of the earth, but would be more accurately described as its intestine. As a material, it grows and persists in the turbulent meeting zone between the force fields of biology, meteorology and geology; between sky and earth, life and death. Yet, in the Western world, the soil is often viewed as the epitome of what sits in place, as something that embodies a place and gives it its identity. During the 20th century, government-sponsored soil surveys probed, measured, and mapped the soils of many territories, especially in the colonies and territories to be 'developed'. The resulting agronomical data have mostly addressed soil in its physical and chemical dimensions, neglecting the countless tiny organisms that populate the soil and digest, mix, and

bind its mineral and organic components. This neglect has allowed soil to be treated as a static component of the environment, a mere substrate that stores useful nutrients for cultivated plants. For many farmers and inhabitants of the land, however, soil is not an object that can be located somewhere on a farm or in the landscape. Instead, it emerges in the interaction between the life cycles of plants and animals, the rain that moistens it or washes it away, the stones deposited by long-gone rivers and glaciers (see ICE), and the hard work of humans. All of these, in correspondence with the forces of sky and earth, respectively meteorological and geological, gather to form this multiple, changing and deeply relational material. (GM)

### Temperature

Temperature has come to mean relative heat, which is measured in degrees. What range of degrees counts as hot or cold is situational: 12°C in a European summer is cold; in winter it is warm; and in an Arctic winter, it is hot. Even after weather forecasts started to add ‘feels like’ temperature to measured temperature, by factoring in wind chill, humidity, and other considerations, they cannot anticipate whether actual conditions will be perceived as warm or cold. Temperature is widely used as a metaphor. Some divide humanity into cold and hot societies; we distinguish heated conflicts from Cold War, and cold-blooded calculations from warm wishes. The word ‘temperature’ is related to ‘temperament’, both derived from the Latin verb *temperare*, which means to mix in due proportion. Therefore, hot and cold, metaphorically and literally, are commentaries on deviations from what is perceived as a proper mix. It is less clear whether temperature is also related etymologically to tempo. In a physical sense, this connection seems obvious: heat manifests as faster movement of particles, cold as slower. Conversely, speedy movement creates heat through friction. The meanings of temperature thus extend to relative velocity as well as mixture. Rumour has it, for example, that the town of Inuvik in the Canadian Northwest Territories once put out a nationwide advertisement for burials in its cemetery, claiming that its permafrost graves would be guaranteed to slow the bodily decomposition (see THAW). Temperature – as relative heat, temperament and, perhaps, tempo – speaks, then, of how preferences and expectations relate to experience. (FK)

### Thaw

Thaw is unsettling. Everyone whose freezer has ever been off during a power outage or similar disruption knows that. The solidity that promised certainty, the dryness that suggested hygiene, the cold that pledged longevity, give way to a shapeshifting, wet mass without orderly use or

safe best-before date. Thaw also sets up a confrontation with various pasts. It forces us to sift through long-forgotten leftovers, stashes and dinner plans. And thaw, for people with or without freezers at home, has become the epitome of global climatic change. Here, too, it is extremely unsettling, with disappearing glaciers and collapsing permafrost landscapes. Once again, it confronts us with different pasts, releasing archaeological artefacts, lethal pathogens and plentiful organic matter prone to produce unfathomable volumes of greenhouse gases. In most places of higher altitude and latitude, thaw is not only a drama that defines the current era. It is also a seasonal phenomenon that occurs every year. While cold winter temperatures freeze the surface of water and land to varying degrees, spring and summer sunlight thaw them again (see TEMPERATURE). The more the cold can penetrate into the ground, the deeper it freezes; the more sunlight and other warmth the ground is exposed to, the further it thaws. In these areas, the world gradually solidifies each autumn, and liquefies again each spring. Each spring, this is unsettling and confrontational. Only in an abstract sense are freeze and thaw ever in equilibrium. In concrete terms, springs have been outweighing winters for many years. (FK)

## Vapour

Plants and animals, water and soil, share the same breath: they are one single, fluid, and ephemeral breathing body that takes multiple, discernible, and solid forms. Here the air is a mysterious mixture in which our bodies are still indistinguishable and of indeterminate shape, before coalescing into material, stable, and recognizable forms. Think of a landscape on a clear day; it could be urban or rural: what you see are different forms and bodies that constitute a scene. You see movements and recognize shapes and colours. Now think of the same landscape on a misty day. If you are far enough away, you would see a low-lying cloud that blocks your view. But if you are within the cloud your perception would be different and, depending on the thickness of mist, you would see shapes, movements, and colours in different grades of sharpness (see CLOUD). In both situations, however, what you cannot see is both fog *and* the landscape, because they are one and the same: solid bodies that under particular conditions reveal their fluid and entangled nature. Here the solidity of material bodies, such as water and soil, plants and animals, is indistinguishable from the volatility of the vapours they give off. Can you tell flowers apart from stalks? Can you tell your body from its breath, and your breath from the air? Vapour is a state of matter: it flows from material bodies and it reminds us of their breathing presence, as a gift, a constant exchange of energy and life. (PG)

## Waves

Toes feel the cool edge of the long wave, coming in from where geoforces give it shape. We slip our skin into the wave and alter its form, and its future. The tumble of seaweed and spume is, as we say, made otherwise. The wave becomes a discrete object, cut by words into ‘a wave’. Is there any possibility to model this toe-altered wave, complete, through computation? More pressing, is there any possibility to hold this wave in qualitative research through writing? A wave can only be drawn as a whole experience, over the toes, in the whitespace, in the poetics between empirical description and our imagination, where our own toes can wiggle and complete with sensory memory. A good wave, falling hard, sand shifting under the heel, is a well-crafted, well-authored sentence. To capture it whole requires editorial and careful description, a different method but no less time consuming than writing an algorithm. Concrete and visual poets might reduce and sublimate to:

waves toes  
w a v t o e s

Each time you read this, you can feel a new wave come up and over your feet. A sequence of letters now holds not just a wave, but every wave you imagine (see FOLD). Still, you have to do the imaginative work. The letters and whitespace do not give you all the waves, in all the worlds. This wave remains anchored in embodied experience, holds still and empirical – for you, for me as an ethnographer. Other researchers wade in. Write the waves. (LW)

## Wetland








I am often slightly wet, but I can also be pretty dry. I have had so many names, such as marsh, swamp, bog and quagmire, and I am as old as life on Earth when it comes to myths and tales. I have hosted monsters and beasts as much as outlaws, hermits, and scientists. Indeed, the study of life itself began amongst my quiet brims, where Aristotle would come to explore the enigma of living things. Despite this long-lasting history, I have been told that I am a worthless misfit, beyond the edges of solid land yet before the waters’ opening. For this reason, I have been sacrificed to make room for cities and fields (see HYDRAULICS). But the winds now appear to have changed, and I am no longer blamed for wasting land. Water scarcity and pollution, as much as flooding and global warming, threaten metropolises and farmlands. Humans have made their decisions and have reinvented me as a ‘wetland’. No more hunters or rainbow snakes, neither gripped by the chase nor shrouded in mystery, I am now a provider of ecosystem services for accountants and

bureaucrats! They don't know that I am the birds who come and nest amongst reeds and rush, they don't get that I am the fisherman who harvests mullets, eels, and clams. They take measurements and make projections: how to make the wetland solid for the future to come. I have become an asset, a park, a sanctuary, a reservoir. My fluid totality has been replaced by a solid identity. (PG)

## Wood

Take a solid wooden beam, freshly cut. Its lines are straight, its cross-section perfectly rectangular. Running the length of its surfaces, however, are a series of lines more fluid than straight. Periodically, they are drawn into dense whirls of darker hue. Other lines, deflected from the obstruction, flow around them. What we recognize as the grain of the wood, and its knots, are actually the vestiges of the tree from which, after felling, the beam was cut. In its grain it holds the record of its annual growth, in height and girth, responding to the cycle of the seasons. In its knots it retains the history of its branching. Inside every beam lies a once living tree. The carpenters of Ancient Rome likened the way the branch would issue from within the parent trunk to a mother giving birth. That's why they used the word *mater* to refer to the inner hardwood of the tree, whence the term was extended to building material in general. But if wood's material origins lie in the parturition of the living tree, so in its expiration it gives up to light. Having spent its life straining towards the sun, putting out its leaves to catch its rays, the tree is finally consumed by fire (see ELEMENTS). Today, 'beam' can mean either a ray of light or straight-cut timber. But in Anglo-Saxon times, the beam meant the flame of the fire, or the trunk of the living tree, twisting and turning as it rises in response to atmospheric conditions. (TI)

## ORCID iDs

Nigel Clark  <https://orcid.org/0000-0002-6666-1739>  
Sasha Engelmann  <https://orcid.org/0000-0003-1827-2525>  
Tim Ingold  <https://orcid.org/0000-0001-6703-6137>  
Franz Krause  <https://orcid.org/0000-0003-0914-7060>  
Gavin Lucas <https://orcid.org/0000-0003-1619-7955>  
Germain Meulemans  <https://orcid.org/0000-0002-6953-7231>  
Cristián Simonetti  <https://orcid.org/0000-0002-0755-3332>  
Bronislaw Szerszynski  <https://orcid.org/0000-0002-6546-1479>

## Note

1. The authorship of each entry is indicated by the parenthesized initials at the end.

**Reference**

Bergson, Henri (1911) *Creative Evolution*. New York: Henry Holt. Ebook.  
Available at: <https://www.gutenberg.org/files/26163/26163-h/26163-h.htm>  
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