ARE ANIMISTIC TEMPORAL ONTOLOGIES A SOLUTION TO THE CLIMATE CRISIS?[1]

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Abstract

The article examines whether "animistic" and so-called "indigenous ontologies" – particularly alternative conceptions of nature and time – can meaningfully contribute to addressing the climate crisis. It argues against treating animism or indigenous knowledge as coherent, ready-made ecological solutions opposed to modern science, showing instead that such approaches often rely on cultural essentialism and problematic binaries. Drawing on anthropology, philosophy of science, and environmental humanities, the article offers analysis of debates on nature and temporality, demonstrating that both scientific and non-scientific knowledge are socially embedded yet materially constrained. Focusing on anthropological theories of time, it critiques simplistic distinctions between different temporalities as systems and argues that time is produced through social practice and power relations. It is concluded that contemporary societies already inhabit multiple, overlapping temporal regimes which structure ecological action. Addressing climate change therefore requires a practice-centred rethinking of agency, nature, and time, rather than adopting "animistic ontologies" as ethical prescriptions.

Keywords: *animism, indigenous knowledge, climate crisis, nature, temporality.*

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CULTURE CROSSROADS

Introduction

Humanity faces an immediate and escalating danger, and time is rapidly running out. The natural sciences have clearly identified the problem, yet they operate within the political and social structures that systematically prevent effective solutions. With the rise of environmental and ecological awareness, and the realisation that industrial modernity lies at the heart of the crisis, many have called in recent decades for alternative ways of knowing. Societies that supposedly understand and relate to nature differently – often identified as "animistic societies"[2] – are increasingly presented as offering answers to this predicament. However, rejecting science entirely and placing sole hope in so-called "indigenous knowledge" is not, in my view, a viable response, not least because indigenous knowledge systems were not developed to address a crisis produced by global capitalism. Moreover, indigenous knowledge is not something people possess simply by virtue of being non-European or living outside the global North; these so-called indigenous communities also exist within the capitalist world-system, and their perspectives are shaped by their positions within it – mostly, of course, as its victims.

I propose that the solution is not to replace one epistemology with another, nor to treat alternative "ontologies" as ready-made answers to the crisis. Rather, engaging seriously with different ways of knowing is essential for expanding our understanding of existence as a whole, encompassing the natural world and our political and social structures that define it. However, this kind of engagement across conceptual paradigms is far easier to articulate than to realise. There is a risk of quickly falling into the trap of essentialising so-called "alternative ontologies", construing them negatively in opposition to a perceived objectivist and positivist conception of "scientific knowledge".

I do not yet have a satisfactory method or conceptual framework capable of bringing about this shift in perspective while avoiding the pitfalls identified above. For now, I can only provide a critical assessment of the approaches currently available. In this paper, I discuss the concepts of "nature" and "time" as examples of how alternative "ontologies" do not lend themselves to easy essentialisation. I argue that we should resist essentialising distinct "temporal ontologies" and attributing specific forms of action to communities supposedly governed by them. So-called "animistic societies", as well as those of us living in the global North at the core of consumerist and highly polluting societies, already inhabit multiple temporalities simultaneously.

[2] In the Introduction and at their first occurrence thereafter, certain terms and concepts are placed in quotation marks to indicate their tentative use and to signal that they may be epistemologically problematic and require reconceptualisation within a broader paradigmatic shift. To avoid excessive use of quotation marks, these are omitted in subsequent references.

In our everyday practices of consumption and disposal, we behave as if time were an endlessly recurring cycle, while in climate discourse we invoke time as a linear arrow, along which we may already have passed a point of no return and are rapidly running out of time to act.

Indigenous knowledge and nature

Postmodernism successfully exposed blind spots in scientific notions of objectivity by emphasising the social construction of knowledge. The fact that knowledge is indeed socially constructed should not really be objectionable. No human knowledge comes to us unmediated; all knowledge is appropriated through the medium of language and social practice [Wood 1997: 5]. However, as Wood rightly cautions, postmodernist epistemology seems to have gone too far in its relativisation by claiming that science (often problematically termed "Western science"), founded on the conviction that nature is governed by certain universal, immutable, mathematical laws, is merely an expression of the imperialistic and oppressive principles on which Western society is based. This has led postmodernists to conflate forms of knowledge with their objects, resulting in an epistemological position that holds not only that science is a historical construct, but that ultimately the laws of nature themselves are culturally constructed and historically contingent [Wood 1997: 5].

Adopting such a relativist epistemological position would mean assuming that human knowledge is confined to specific languages, cultures and interests. Consequently, science could not hope to apprehend a common external reality [Wood 1997: 6]. However, it is not necessary to abandon entirely any standard of scientific "truth" inherent in the natural world to think beyond the paradigm of modern science towards possible alternative ways of "knowing".

By discussing science as a form of knowledge inseparable from its specific socio-historical context it is necessary to clarify what this cultural context or culturally constructed understanding of science entails. The point is that scientific facts are produced, and exist, within a historical and social matrix of *meaning* [Marks 2009: 13]. We don't need science to *know* we will die falling off a tall building, we do not have to discover "falling", but there are various ways in which we can *think* about falling [Marks 2009: 13], one of them being scientific explanation of the interaction, called gravity – the force of attraction between two bodies that have mass. Scientific facts are thus produced through practices – experiments, measurements, funding priorities, institutional norms, and accepted methods – that are shaped by a particular time and place.

What questions are asked, which phenomena are investigated, and which methods are considered legitimate depend on historical circumstances, cultural values, political interests, and available technologies. Once facts are established, they acquire

importance only through interpretation and use. A fact such as rising atmospheric CO_2 levels, for example, carries different meanings in different contexts: it may be framed as an economic challenge, a moral responsibility, a technological problem, or an existential threat. These interpretations are shaped by particular social structures, specific power relations, and accompanying worldviews. Saying that scientific facts are *socially constructed* does not imply that they are arbitrary or fictional in the sense of being disconnected from reality. Rather, it means that even objective knowledge about the natural world is mediated by human practices and embedded in social life. Scientific facts remain constrained by the world they describe, but their production, validation, and significance are inseparable from the historical and social conditions under which they arise.

It has long been established in anthropology that "nature" is a cultural construction and that different societies conceptualize it in distinct ways. Anthropological scholarship has consistently critiqued the "Western notion of nature", emphasizing, first, that nature as understood in the so-called "Western modernity" is not a universal category but a culturally specific one; and second, that many non-Western societies do not draw the rigid boundary between "nature" and "culture" that supposedly dominates the so-called "Western thought"[3].

Since the beginning of the twenty-first century, the term Anthropocene has been increasingly used in scientific and public discourse to designate a proposed geological epoch following the Holocene, one in which humanity has become a planetary force for change. In this context, reflections on nature have intensified, accompanied by growing recognition that the industrial revolution, grounded in modern scientific rationality, has been directly responsible for unprecedented levels of pollution, environmental degradation, and ecological imbalance. This realisation has stimulated a wave of critical scholarship examining the presumed dichotomy between "Western" and "indigenous" worldviews regarding nature, which supposedly differ on the ontological level of conceptualising our existence in the world.

But what are "indigenous ontologies"? Given the industrial world's failure to address environmental destruction, scholarly and broader attention has increasingly turned to alternative ways of relating to and interacting with the environment. As Lanzano [2013: 3] observes, the concept of "indigenous knowledge" was first adopted

[3] One of the most problematic notions in discussions of different modes of thought, or of cultural difference more broadly, is the essentialising idea of "the West" and its supposed opposite, "the East". In a complex and interconnected world, the assumption of a simple division into two spheres – often framed within the equally problematic concept of "modernity" – is difficult to sustain, and the continued unreflective use of these terms is hard to justify. Nevertheless, as "the West" functions as a working term in much of the literature discussed in this paper, I retain its use while asking the reader to understand it as implicitly placed in quotation marks throughout.

within cognitive anthropology and ethnoscience, which built on earlier reflections about other systems of knowledge and the challenges they pose to Western science. A group of anthropologists introduced this concept to establish a basis for recognising cultural difference and alternative forms of knowledge within development aid practices.

The expression then became popular among scholars interested in environmental issues and the relationship between culturally driven behaviour and ecological balance. For many authors, the concept served as a tool to critique Eurocentrism in the natural sciences and to recognise the value of non-Western technical knowledge [Lanzano 2013: 3]. However, removing it from its contextual grounding and repackaging it for ecological purposes risks oversimplifying and disconnecting indigenous knowledge from its cultural roots.

The most prominent example of such oversimplification is the assumption that indigenous knowledge is inherently "ecological" or oriented towards environmental conservation. What is often overlooked is how environmental care or conservation is itself understood. Conservation presupposes a particular concept of "nature" – a concept criticised as a Western, instrumentalist construct when applied to practices of sacralisation within the framework of indigenous knowledge. Critics of the so-called "cultural" or "religious turn" in conservation practices argue that there are no precise or universally applicable criteria to justify interpreting sacred sites as institutions explicitly oriented towards biodiversity preservation. They contend that the absence of intentionality necessarily undermines any comparison between sacralisation practices and modern, results-oriented forms of conservation [Lanzano 2013: 14].

Lanzano himself notes in his research that the ritual practices and prohibitions associated with sacred sites are not primarily intended for biodiversity conservation. By using "conservation", defined by criteria rooted in modern scientific thought, as the standard for evaluating indigenous cultural practices, we risk encouraging the selective incorporation of elements of "other" knowledge into frameworks dominated by mainstream technoscience [Lanzano 2013: 14].

A similar observation is made by Aike Rots and Nhung Lu Rots [Rots and Rots 2023] in their analysis of whale worship in Vietnam. They argue that there is no evidence suggesting that this particular animistic belief system has led to environmentalist action, let alone generated systemic change. While they recognise that animistic ontologies undoubtedly possess ethical dimensions and may offer ways for communities to make sense of and cope with Anthropocene crises, this does not imply that they provide practical guidance for sustainable action [Rots and Rots 2023: 8]. As the authors pointedly ask: "Why do animists who worship deities residing in nature pollute the very environment that they – according to the academic theory, at least – should perceive as sacred?" [Rots and Rots 2023: 11].

In this sense, Lesley Green [2014] argues that, rather than asking whether indigenous knowledge is "valid" or how it compares to science, we should question the very terms of the debate, which are themselves flawed and confined within Western philosophical frameworks. She contends that controversies surrounding indigenous knowledge – particularly the polarised opposition between science and tradition – are rooted in the limitations of dominant modernist and postmodernist epistemologies. These frameworks tend to reduce indigenous knowledge either to a static cultural inheritance to be preserved or commercialised, or to an irrational belief system that must be judged and validated by science [Green 2014: 38–41].

Green therefore calls for a rethinking of the canon of knowledge itself. Rather than defending or rejecting indigenous knowledge within the dominant scientific paradigm, she urges scholars to engage in more open, responsible, and reflexive dialogues about how knowledge is produced, governed, valued, and lived. In her view, the aim should not be to replace science but to expand intellectual horizons and avoid repeating the mistakes of past "knowledge wars". This requires more than simply extracting ideas from "wise" indigenous people; it involves seeking different intellectual resources and engaging seriously with diverse ways of thinking in the world [Green 2014: 48].

Let us consider another example. Aikenhead and Ogawa address debates about indigenous knowledge and science by critically rejecting the binary that presents them as parallel, equivalent systems [Aikenhead and Ogawa 2007: 552]. Instead, they propose a pluralist, postcolonial framework that recognises multiple, culturally grounded ways of knowing and relating to nature. Within a Eurocentric worldview, they argue, knowledge is typically conceived as an abstract entity existing separately from the knower, detached from lived experience and social relations, whereas indigenous knowledge can be relational, overcoming the divide between the subject and external knowledge [Aikenhead and Ogawa 2007: 553].

I agree with this assessment and the critique of "objectivity", that is, the separation of *knowledge as object* from the *knowing subject*. I support the attempt to incorporate other possible ways of seeing into our culturally conditioned conceptualisation of the world by shifting the emphasis from comparison to relational understanding, thereby opening space for dialogue without assimilation or epistemic hierarchy. However, I ultimately contend that Aikenhead and Ogawa fail in this attempt. They are fully aware that what they understand as "non-Western" societies, such as Japan or much of the Islamic world, which exist under modern industrial conditions rather than as hunter-gatherer societies, cannot be meaningfully or accurately characterised as "animistic" or "indigenous". Thus, they introduce an idea of "neo-indigenous" ways of knowing nature to describe supposedly long-standing, non-Eurocentric mainstream cultures that have deep historical ties to place but were not colonized

to the same extent as indigenous peoples in settler-colonial contexts [Aikenhead and Ogawa 2007: 566]. As a result, although "neo-indigenous peoples" admittedly occupy relatively privileged political and epistemic positions, their ways of "knowing nature" nonetheless remain fundamentally non-Eurocentric [Aikenhead & Ogawa 2007: 566].

We are once again confronted with the ideological categories of an imagined "West", depicted as embodying an exploitative and mechanistic understanding of nature, opposed by its inverse, the imagined "East", with its ontologically different approach to nature. In this way, industrialised and heavily polluting nations such as Japan are assumed – by virtue of being non-European – to operate according to fundamentally distinct, non-Eurocentric systems of knowledge about nature. As the authors explicitly claim, "These non-Eurocentric knowledge systems are characterized by a long standing, intimate, ecological, knowledge of nature" [Aikenhead Ogawa 2007: 555]. Unlike indigenous peoples in settler-colonial contexts, Japan maintained cultural sovereignty, selectively incorporated Western science and technology, and adapted external forms of knowledge without undergoing full epistemic assimilation. One may accept as a working idea that people possess embodied forms of knowledge, or "a culture-dependent collective rational perceiving of reality" [Aikenhead and Ogawa 2007: 578]. However, this applies equally to all collectives and therefore cannot serve as a defining criterion for "indigenous knowledge".

This does not invalidate the author's broader argument: that understanding science and indigenous – or "neo-indigenous" – ways of engaging with nature requires attention not only to what is known, but also to how knowing itself is lived, sustained, and practiced. However, the explanation for why Japan was able to absorb Western science without undergoing full epistemic assimilation is unconvincing. The claim that Japan's resistance to epistemic colonisation stems from a verb-oriented language resistant to noun-based abstraction, a complex writing system combining *kanji*, *hiragana*, and *katakana* that marks foreign concepts as foreign, and a long-standing tradition of selective adaptation rather than wholesale replacement [Aikenhead and Ogawa 2007: 568], ultimately collapses into a form of *nihonjinron* 日本人論 – that is, essentialist theories of Japanese cultural uniqueness. While some of these factors may have influenced the localisation of scientific knowledge, they do not sufficiently account for the claim that Japan developed a fundamentally "Japanised" version of Eurocentric science without subordinating its epistemological foundations to it.

To describe this Japanese "ontology", authors propose the concept of *seigyō* 生業, often translated as subsistence, to synthesize their idea of "Japanese Ways of Knowing Nature" (JWKN). They define *seigyō* as living through mutual regulation between humans and their environment, emphasizing ethical restraint rather than exploitation. Knowledge, in this sense, is embedded in the daily practices of farming,

fishing, and community life [Aikenhead and Ogawa 2007: 574–578]. According to their argument, a connotative aspect of *seigyō* is that it does not distinguish between "nature" (*shizen* 自然) and "culture" (*bunka* 文化) [Aikenhead and Ogawa 2007: 575].

This essentialising contrast between "Western" and "Eastern" conceptions of nature – and the associated claim that the latter do not differentiate between culture and nature – has a long intellectual history. In the context of ecological discourse, one of the foundational texts is probably Lynn White Jr.'s [1967] essay, *The Historical Roots of Our Ecologic Crisis*, in which White traces the origins of the modern ecological crisis to medieval Christian thought. Drawing on the Genesis creation narrative, he argues that Judeo-Christian theology established a model of human dominion over nature, grounded in a sharp distinction between humanity, created in God's image, and the rest of creation, which was cast as soulless and therefore inferior. According to White this fostered an enduring indifference toward the natural world in the western thought [White 1967].

His thesis was quickly adopted by scholars, particularly those from non-Western backgrounds, who sought to challenge the cultural assumptions underlying Western conceptions of nature. In one case, in the same journal, *Science*, in the mid-1970s, Watanabe Masao [1974] published an article titled *The Conception of Nature in Japanese Culture*, which offered a typical response in this genre. He begins by illustrating how Japanese aesthetics – from *ikebana* 生花 (flower arrangement) and *chanoyu* 茶の湯 (tea ceremony) to *haiku* poetry and *bonsai* 盆栽, the hallmarks of Japanese cultural stereotypes – reflect a deeply ingrained love and reverence for nature. His argument, again, is that, for the Japanese, nature is not an object of exploitation or rational study, but a living context in which humans participate harmoniously [Watanabe 1974: 279].

Watanabe contrasted Western and Japanese worldviews of nature using historical, cultural, and philosophical examples, showing that in Japanese thought, nature is not regarded as an external object to be dominated but as a continuous field of relations in which humans participate. This argument became a staple of *nihonjinron* discussions about attitudes towards "nature" or *shizenkan* 自然観. Saitō Yuriko begins her paper with, "One of the characteristics of Japanese culture is often said to be the close and harmonious relationship between man and nature" [Saito 1985: 239]. She focuses on the aesthetic realm as evidence of this distinctive or unique attitude towards nature.

There are other similar examples. Masaki [1996: 97–98] also uses poetry, gardens, tea ceremonies, and cuisine to illustrate a harmonious aesthetic of coexistence, in contrast to Western tendencies towards control and order. According to this hypothesis, Japanese environmental degradation stems from adopting Western mechanistic ideology along with the new concept of nature (*shizen* 自然) introduced during the Meiji period.

Yoshida Kikuko [2011] writes in the aftermath of the 2011 Great East Japan Earthquake and Fukushima nuclear disaster, framing the catastrophe not merely as a technical or policy failure but as a fundamentally philosophical problem. She asks how modern scientific–technological civilisation shapes human relations with nature, and how this worldview differs from traditional Japanese conceptions of nature. According to her the Fukushima disaster exposed a fundamental difference between Western modern technological civilisation, which treats nature as controllable, exploitable resources, and traditional Japanese views of nature [Yoshida 2011: 162].

Like Masaki and White, Yoshida reiterates familiar themes: Western modernity, developing from Plato through Christianity to Descartes and Francis Bacon, has tended to place human beings above nature and to justify the control and exploitation of the natural world. In contrast, Japanese traditions have understood nature as *living* (自然は生きており), *generative* (自然自体のもつ生命力によって生成する) and *sacred* (霊峰富士), not as something subordinate to human purposes. Despite modernization, this sensibility has persisted in Japan, as seen in enduring forms of reverence for mountains, forests, and the rhythms of seasonal change [Yoshida 2011: 152–147]. With the Meiji Restoration, Japan rapidly adopted Western science and technology, along with a dualistic, anthropocentric worldview. Nature came to be seen as an object of domination rather than reverence, used to serve industrial, economic, and technological goals. Yoshida critiques this shift as a loss of ontological and ethical depth, resulting in environmental degradation and spiritual nihilism [Yoshida 2011].

In his short paper, Kano Kei [2025] also examines the integration of the Japanese view of nature with Western science and explores their similarities and differences. He reviews the history of adopting Western technologies such as firearms, anatomy, telegraphs, and steamships or steam locomotives, referencing the well-known Meiji period slogan "Japanese spirit, Western skills" (*wakon yōsai* 和魂洋才) [Kano 2025]. He identifies certain similarities between the Japanese view of nature and Western science, including their foundations in experience and observation, pattern recognition, inference, prediction, and verification. The differences include the Japanese tendency to perceive things holistically, to view humans and nature harmoniously, to blur the distinction between subject and object, to see the boundary between artificial and natural as ambiguous, and to perceive nature as impermanent [Kano 2025: 98]. He maintains that the integration of the Japanese view of nature with Western science is expected to lead to new discoveries and, therefore, in science education, it is necessary to consider how to incorporate the Japanese view of nature into the curriculum [Kano 2025: 98].

Returning to White's framework, what is often presented as the Japanese view of nature – whether described as *seigyō*, a "Japanese way of knowing nature", or through

similar formulations – is typically contrasted with a Eurocentric, "Judeo-Christian" conception of nature and instead aligned with *shintō* 神道, which is characterised as a Japanese form of animism. Conventionally, this Japanese sense of nature is depicted as both unique and internally homogeneous: it is portrayed as holistic and fundamentally different from the "Western" concept of nature [Martinez 2005: 185].

Within this narrative, Shinto – also framed as the indigenous religion of Japan – is frequently identified as the cultural foundation enabling a mode of coexistence with nature rather than an impulse to dominate it. However, despite claims that certain people in various parts of the world are able to live "closer" to nature while others are alienated from it, the fact remains that whatever the natural world is, it is always experienced by human beings as part of the social [Martinez 2005: 187]. Martinez emphasises that attitudes towards nature in Japan have changed over time and vary by class, region, and historical context [Martinez 2005: 186]. Therefore, what is often presented as timeless or inherent is actually contingent and variable.

The essentialist cultural theories discussed so far risk reiterating politically charged dogmas rooted in nationalist ideology, particularly claims about supposedly unique cultural attitudes towards nature. One reason why an ideological discourse of "love of nature" can be sustained, despite clearly environmentally destructive practices, is the lack of any fixed meaning attached to the idea of "nature", which functions as a floating signifier. Its semantic vagueness allows it to be mobilised across various ideological contexts. As Kawasaki [1990] argues in his discussion of the concept of *shizen* 自然 – translated as "nature" – the term carries multiple, often overlapping meanings within Japanese science education. On this basis, he argues that science education must explicitly address epistemology as a tool to reflect on how knowledge is constructed, enabling students to distinguish between nature understood as an objective entity and nature as a lived, culturally embedded experience. Kawasaki assigns to epistemology a mediating role between scientific universality and culturally embedded conceptions of nature [Kawasaki 1990: 77]. The question then is: does that imply that there are two coexisting attitudes and practices regarding nature in Japanese society – one scientific and one animistic?

What about animism?

In her *Animism in the Anthropocene*, Arianne Conty [2022] argues that reviving an animistic worldview – one that attributes personhood, relationality, and agency to all beings – can provide a crucial paradigm shift for addressing the ecological crises of the Anthropocene. Conty, like many others discussed previously, contends that modern Western dualisms separating nature and culture, subject and object, and human and non-human have contributed to ecological destruction and moral alienation.

> *Although today anthropologists speak of 'indigenous modernities' to reflect the fact that indigenous communities have adapted to modern tools, nation state sovereignty and capitalist economies in multifaceted ways, they continue to reject modern capitalist resource extraction and the placing of profit over shared kinship values intrinsic to animism.* [Conty 2022: 131]

From this perspective, "animism" – long dismissed as a "primitive" form of religion – is rearticulated as a philosophically viable ontology capable of repairing the fractured relationship between humans and the more-than-human world in a way she defines as "machinic animism" [Conty 2022: 138]. Conty presents this "machinic animism" as a necessary philosophy for the future: a means of "re-becoming indigenous" to the Earth and dissolving the anthropocentric hierarchies that underpin ecological collapse. She suggests that embracing such an animistic relational ontology, which privileges solidarity over technological manipulation through the practice of ontological boundary crossing, would enable the development of a post-anthropocentric ethics adequate for life in the Anthropocene [Conty 2022: 147].

Yet this raises a critical question: can animism function as a conceptual tool that genuinely helps to overcome a mechanistic understanding of nature as external and inert, and realign human sensibilities towards less harmful forms of environmental engagement? Wilkinson [2016] cautions against an uncritical embrace of this "new animism", arguing that its contemporary resurgence relates more to academic intellectual and moral preoccupations with the current environmental crisis than to genuine engagement with indigenous ontologies [Wilkinson 2016: 292]. In his view, the appeal of animism lies less in its descriptive accuracy of non-Western worldviews than in its value as an analytical metaphor for Western scholars to critique their own modernity [Wilkinson 2016: 289]. As Wilkinson states, "although much new animist scholarship claims to be an engagement with indigenous ontological frameworks, it is perhaps better seen as a selective commitment to indigeneity only insofar as it speaks to the twenty-first-century environmental crisis" [Wilkinson 297–298].

Reconsidering inherited epistemic foundations by challenging entrenched binaries such as nature/culture, subject/object, and belief/knowledge is a critical task within the humanities and social sciences. However, as Wilkinson argues, adopting conceptual categories such as animism is not a productive way forward:

> *For my part, however, to invoke animism seems a better beginning point for any analysis, rather than its conclusion. "Animism" does not help us understand indigenous practices; rather it illustrates how much we do not yet understand them, and thereby highlights where our work ought to begin.* [Wilkinson 2016: 307]

Nature, Time and Agency

So far, I have examined "nature" as the concept most commonly invoked to exemplify animist ontology *par excellence*. Another concept that has long featured prominently in anthropological thought since its early history is *time* – specifically, differing conceptions of temporality. One of the earliest anthropological examples to explicitly address indigenous conceptions of time is probably E. E. Evans-Pritchard's [1939] *Nuer Time-Reckoning*, in which he proposed that this pastoralist society in Sudan conceptualised time not through linear, abstract metrics such as clocks or calendars, but through social and ecological rhythms, including cattle cycles, seasons, and kinship events. Just as nature is supposedly not a fixed or universal category but is shaped by culturally specific ways of knowing, time is often understood in anthropology as a social and conceptual construction rather than an objective or neutral framework.

Meanwhile, similarly to nature, time can be considered from multiple disciplinary perspectives. In physics, it is treated as a real dimension analogous to space; in the theory of relativity, time is inseparably interwoven with space as spacetime, subject to dilation and variation depending on motion and gravity. In thermodynamics, time acquires directionality through the increase of entropy, giving rise to the notion of the "arrow of time". These scientific accounts underscore that even within ostensibly objective frameworks, time is neither simple nor uniform. Taken together, they allow for the recognition that temporal understandings – like conceptions of nature – are plural, contingent, and deeply entangled with epistemological and cultural assumptions.

Alfred Gell [1992] argues in *The Anthropology of Time* that, while humans perceive change, rhythm, and movement, "time" itself is not directly apprehended but is culturally conditioned through social practices, rituals, technologies, and shared expectations that structure our experience of it. He notes that we have no dedicated sense-organ for measuring elapsed time, as we do for sound or light [Gell 1992: 93]. For Gell, time is not a metaphysical essence but a practical achievement – a means by which people coordinate activities, distribute power, and manage obligations. This perspective is crucial because it challenges the persistent tendency in the humanities and social sciences to essentialise cultural "ontologies" of time by treating them as static or internally homogeneous. Gell cautions against assuming that some societies simply "live in cyclical time" while others inhabit "linear time", insisting instead that temporalities are embedded in the everyday *practices* through which social life is enacted.

Time, once again, emerges as a product of social practice. However, as Nancy Munn [1992: 93] observes, although time permeates social life, it has rarely been treated as a central analytic problem in anthropology and has instead remained

a "handmaiden" to other anthropological frameworks and issues: "When time is a focus, it may be subject to oversimplified, single-stranded descriptions or typifications, rather than to a theoretical examination of basic sociocultural processes through which temporality is constructed" [Munn 1992: 93]. Anthropological studies have tended to fragment temporality across domains such as political structures, descent, ritual, work, narrative, history, cosmology, and so on, without addressing how time itself is socially constituted [Munn 1992: 93].

Munn reviews the discipline's inheritance from Émile Durkheim, Marcel Mauss, Bronisław Malinowski, E. E. Evans-Pritchard, and others, showing how their approaches generally render time as symbolic representation, formalised into a static category and thus detached from lived activity. In the case of Durkheim, she notes that time occupies an ambiguous position in his theory: although he conceptualises it as an abstract social category, he simultaneously tries to connect it to social practice. Durkheim argues that time is neither an individual nor a natural experience but a collective representation – a social category produced through group life [Munn 1992: 94–95]. Time in his theory is therefore qualitatively heterogeneous rather than a single, homogeneous continuum, comprising distinct modalities such as sacred and profane time, ritual cycles, and agricultural seasons [Munn 1992: 95]. Yet, even as Durkheim grounds time in collective life, linked to activity, he ultimately reifies it as a system of collective representations or "categories" (days, seasons, etc.) rather than analysing it as "becoming" or "motion" – that is, the dynamic social processes through which temporal experience is actively produced [Munn 1992: 95–96]. Although these collective concepts remain linked to activity and motion, suggesting time as lived rhythm rather than pure abstraction, Durkheim stops short of theorising temporality as an ongoing, emergent practice.

In Malinowskian functionalism, time concepts appear as forms of "time-reckoning", emphasising time as a measure of motion rather than as an existential or symbolic dimension of life. In his functionalist anthropology, Malinowski examined the Trobriand Islanders' temporal ideas primarily as a means of "coordinating activities", that is, their practical systems of measurement. In this framework, time functions as a tool for organising collective action rather than as a constitutive aspect of human experience. It represents the pragmatic side of culture, distinct from the qualitative temporality that Durkheim emphasised or, as Munn observes, "Time puts on mundane, empiricist clothing, instead of the 'qualitative', myth-ritual dress of Durkheimian representations" [Munn 1992: 96]. Malinowski thus grounded temporal experience in empirical activity but failed to recognise how such activity itself might create time as a symbolic and lived process.

In Munn's view, Evans-Pritchard, who introduced the concept of "oecological time", serves as a bridge between earlier Durkheimian sociology and later

functionalist-structuralist anthropology [Munn 1992: 96]. From Durkheim, Evans-Pritchard inherited the idea that time is socially constructed – arising from collective rhythms and categories – while from Malinowski's functionalism, he inherited an interest in how time is practically reckoned, through cycles of work, movement, or ritual. As Munn states, he "crystallizes the unresolvable ambiguities of the Functionalist and Durkheimian versions of the locus of time" [Munn 1992: 96]. For her, the ambiguity lies in this "locus", that is, in the question of "where" time resides: is it in social representations and concepts, or in the rhythmic unfolding of activity? She identifies two loci of time in Evans-Pritchard's theory: oecological time – derived from the daily and seasonal rhythms of pastoral life (cattle movements, rains, migrations, etc.) – and structural time, derived from social structures such as lineages and age sets. However, when he turned to the notion of "structural time", Evans-Pritchard's focus shifted decisively from lived activity to abstract conceptual relations – to "relations between groups of persons" conceived genealogically [Munn 1992: 96–97].

With the concept of "oecological time", Evans-Pritchard acknowledges that time emerges in practice – in the patterned repetition of activities embedded in the environment. However, he still treats "oecological time" as a representational system. He "takes time's passage to be 'perceived' [...] through a lens of cultural concepts referring to activities (i.e. via the time-reckoning 'system'), rather than experienced through immersion in the activities" [Munn 1992: 96]. In this model, temporality is understood as a geometric framework of kinship positions, generating only an "illusion of temporal movement". Time becomes spatialised and immobilised, detached from the concrete rhythms of lived experience. Munn calls this the anthropological "synoptic illusion" in Bourdieu's sense: the illusion of total vision that freezes life into a static, external system [Munn 1992: 97].

When considering temporality, rather than reducing time to local typologies (cyclical, linear, ritual, historical), or treating it merely as a background condition for other processes (ritual, kinship, myth), we should focus on how temporal experience is socially constructed through practice. Time is not simply perceived or measured; it is actively produced through practices such as work, exchange, waiting, planning, remembering, and strategising. Thus, control over time is also a medium of hierarchical power and governance [Munn 1992: 109].

If we take anything from Munn's analysis, it is the understanding that thinking about time should be approached through a practice-centred, spatiotemporal framework that conceptualises temporality as a symbolic, political, and experiential process generated through social action. Rather than asking how cultures "represent" time, anthropology should consider how people actively temporalise both the world and themselves through meaningful practice.

Conclusion

What, then, might animistic temporalities contribute to our understanding of the climate crisis? One crucial point of convergence between conceptions of nature and time lies in the question of agency. Michelle Bastian [2009] discusses time and human agency in the classic Western anthropological typology of time as "timeless", "cyclical" or "linear", where the difference between systems of time is not their differing understandings of how time "flows", but rather how change is thought to occur, that is, how the power of agency is distributed among possible human or non-human actors [Bastian 2009: 101]. Western understandings of agency are deeply shaped by a dominant conception of linear time and its basis in the modification of present moments, where an idealisation of "presence" underlies the idealisation of the individual and its capacity for rational decision making [Bastian 2009: 101–102]. This temporal framework, she suggests, frames "nature" as "timeless" and constrains our capacity to recognise nature as an active, creative agent, particularly in the context of ecological breakdown [Bastian 2009: 102–103].

This view of nature as timeless, passive, and mechanistic enables the denial of nature's agency and legitimises its exploitation. From this perspective, recognising nature's agency cannot be achieved simply by inserting "nature" into existing conceptual schemes; it requires rethinking temporality itself, moving away from linear, predictable, progress-driven models towards temporalities that allow for relationality and agency.

In conclusion, let me quote a longer paragraph by Barbara Adam [1998], from her book *Timescapes of Modernity*. She states:

> *... steeped in the thought traditions of the industrialised West, we learn about and relate knowledgeably to a multidimensional space, but our understanding of the temporal dimension of socio-environmental life is pretty much exhausted with knowledge about the time of calendars and clocks. Nature, the environment and sustainability, however, are not merely matters of space but fundamentally temporal realms, processes and concepts. Their temporality, furthermore, is far from simple and singular. It is multi-dimensional, a multiplex aspect of earthly existence. Without a deep knowledge of this temporal complexity, I suggest, environmental action and policy is bound to run aground, unable to lift itself from the spatial dead-end of its own making.* [Adam 1998: 8]

Adam introduces the notion of "timescapes", which she defines as the embodiment of practiced approaches to time [Adam 1998: 10]. Timescapes, in this sense, express how different societies and institutions live, structure, and materialise temporal relations. For instance, the linear perspective of clock time, historically

linked to Newtonian physics, assumes linear causality, reversibility, abstraction, rationalisation, and objectivity [Adam 1998: 8]. These temporal assumptions are not merely conceptual; they have material and ecological consequences that conflict with the contextual, irreversible temporalities of lived experience and the multiple, interwoven rhythms of the natural world [Adam 1998: 8]. According to Adam [1998: 8], this conflict operates on two levels. First, industrial time with its emphasis on control, standardisation, and acceleration is a central driver of environmental degradation and risk, while the same temporal framework is reapplied as a supposed solution, thereby deepening the crisis it seeks to resolve. As she writes:

> *Industrial time, in other words, is both part of the problem and applied as a solution. As long as time is taken for granted as the mere framework within which action takes place and is used in a preconscious, pre-theoretical way, I consequently argue, it will continue to form a central part of the deep structure of environmental damage wrought by the industrial way of life.* [Adam 1998: 8–9]

Environmental harm unfolds through temporal processes: it is cumulative, delayed, often invisible, and dispersed across generations. A genuine understanding of ecological risk therefore requires rethinking both nature and time. Understanding where agency and power lie, and expanding our perspectives beyond objective, scientific, static, measurable categories and systems, allows us to reflect on our conceptualisations of nature and time through our practices, and thus to understand those practices as well. We do not live solely in linear or cyclical time. In everyday life, our practices can be understood as structured by cyclical, ritual, or other forms of time. In our consumer practices of consumption and waste management, we operate within a framework I call contemporary "green rituals": recycling routines, carbon offset purchases, or the consumption of environmentally branded products. On one hand, such practices operate cyclically, symbolically cleansing consumption and restoring a sense of moral equilibrium reminiscent of purification rituals. On the other hand, they are embedded within a linear narrative of crisis mitigation, where each small action is framed as a step towards averting future catastrophe. Everyday ecological behaviour simultaneously draws on ritual cycles, capitalist consumption rhythms, and linear scientific futures.

From this perspective, time does not pre-exist social relations but emerges through them – through relations between consumers and commodities, humans and ecosystems, environmental policies and lived experience. Temporalities are not attributes that cultures "possess". The analytical question, then, is not whether particular cultures operate with cyclical or linear notions of time, but how specific temporal practices arise through the entanglement of ritual, ecology, capitalism, science and everyday life. This shifts the focus from ontological typologies regarding

nature or temporality to understanding that social structures are not merely external constraints but are continually reproduced and transformed through practice. Recognising that the reproduction of time systems occurs through the embodied, routinised practices of agents acting within historically specific fields, space opens for the possibility of our practices. Rather than treating these as incompatible ontologies, they can be understood as intertwined temporal practices that shape both how ecological futures are imagined and how action in the present becomes possible.

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