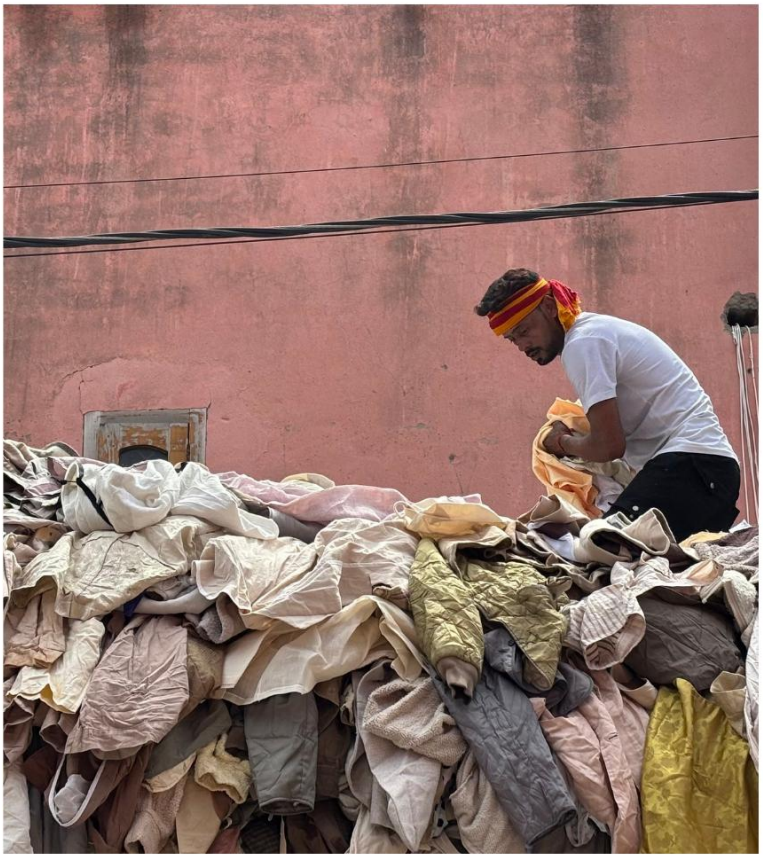
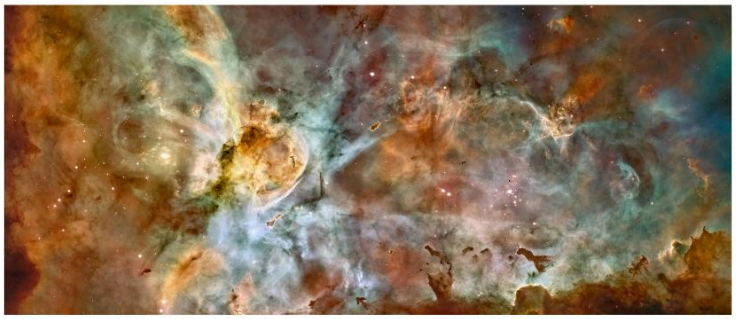
SPRINGS

THE RACHEL CARSON CENTER REVIEW

Issue #9 | 2026

February





Springs

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Note from the Editors

How does environmental change impact language? Who handles our old phones, our discarded clothes? And is anthropocentrism really at the root of the environmental crisis? The newest installment of *Springs: The Rachel Carson Center Review* offers a dialogue on human nature and the origins of environmental degradation, taking inspiration from tradition and Indigenous practices.

In "The Inhuman Condition," environmental humanist Jonatan Palmblad questions whether anthropocentrism is truly driving the ecological crisis, proposing that socioecological justice can only be achieved by embracing human nature. Through an ecological anthropocentrism, which begins but does not end with the human self, Jonatan argues that genuinely caring for humanity implies a care for the ecological conditions on which all organisms depend.

Literary scholar Jake Goetz' poem "Der Bartgeier" is an homage to the bone-eating Alpine bird, who was hunted to extinction in the early twentieth century and reintroduced to the Alps in the 1980s. Atmospheric in its reach, the poem shifts across vast spatial and temporal scales while also ruminating on the reparative potential and limitations of language, ultimately seeking to return a sense of agency to the largest bird in the Alps.

In "Recycling Cultures in India," science-policy scholar Anwesha Borthakur takes us to various "castoff capitals" across the country to study electronic and textile waste, and finds that traditional methods of handling recyclables largely persist, aligning with a circular economy system. If social injustices at informal recycling sites were addressed, she writes, India could serve as "a model for sustainable waste management in the Global North."

With serious laughs, literary scholar Rowan Deer's "How We Got Here" narrates a brief history of the universe from the Big Bang to the Anthropocene, as related by someone older and wiser than all of it. A fable for clever beasts. A bedtime story for a species. A commentary on the stories we inhabit.

In a thought-provoking interview, anthropologists Jan David Hauck and Pooja Nayak discuss how "Growing Up amid Environmental Change" shapes conceptions of morality and human well-being. Drawing on Jan's decades-long research with a small hunter-gatherer community in Paraguay, the conversation shows how these experiences shed light on ways to "creatively find alternatives" when established subsistence practices are no longer viable.

When invited to prepare a traditional dessert from the Channel Islands, geographer Rory Hill journeys through the environmental and cultural history of apple cultivation in Jersey, blending it with childhood memories. "Making *Bourdélots* and Tasting Terroir" reflects on how the distinctive character of Jersey's apple products might continue to resonate even after most of the orchards have disappeared from the island and its economic life has drastically changed.

Beyond these exciting additions, *Springs* continues its efforts to assemble writing from other open-access RCC publications. Our *Springs* archive curates articles from the online and print journal *RCC Perspectives* (2010–2020), the peer-reviewed online journal *Arcadia: Explorations in Environmental History*, and publications from RCC's multigenre ecopedia, *Seeing the Woods*.

Munich,
17 February 2025

THE INHUMAN CONDITION: RETHINKING ANTHROPOCENTRISM

Jonatan Palmblad

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Jonatan Palmblad

> We're in the world, not against it. It doesn't work to try to stand outside things and run them. . . . It just doesn't work, it goes against life. There is a way but you have to follow it. The world is, no matter how we think it ought to be. You have to be with it. You have to let it be.
>
> **Ursula K. Le Guin, *The Lathe of Heaven* (1971)**

"That's easy," said the physician with a friendly smile, "remove all humans, take them away, and there will be no more pollution, erosion, or climate change." Pondering the ecological problems of Santa Catarina, Brazil, he had concluded that earth's only salvation lies in human annihilation. This was not the first time I had encountered such misanthropy, but I had not expected it from a person who has dedicated his life to aiding his fellow human beings. Indeed, this doctor had just helped me regain my hearing—and yet, I could not make sense of his words.

The destruction caused by the Israeli air and ground offensive in Jabalia, 16 February 2025. No longer a human environment, much of Gaza has been both dehumanized and depopulated. © picture alliance / ASSOCIATED PRESS | Mohammad Abu Samra. All rights reserved.

One might "lose faith" in our species when looking at the ecological consequences of industrial society, but I think there is something deeply awry in the rejection of humanity and humanism at a time also characterized by intense dehumanization. While a selfish *Homo sapiens* makes for a compelling narrative, a brief look around the globe tells a different story: Human beings subject each other to maiming, murder, torture, and starvation, and the world we have built to ourselves has also brought about unprecedented evils, like abject poverty, overdose epidemics, and widespread mental illness.

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What is more, the environmental sacrifices made in the name of humanity do not benefit us humans as a species. Ecological destruction is ostensibly justified by human development, but waste and pollution return as microplastics, heavy metals, "forever chemicals," and other toxic substances permeating and poisoning our natural bodies. Rather than conquering nature, is it not more accurate to say that modernity, its many benefits notwithstanding, is turning the human condition into an increasingly inhuman one? And so I ask: If we actually and truly cared for humanity in all its diversity—if we cared for the welfare of *all* human beings, present and future—would we then not have to care also for the planet on which we all depend?

Toward an Ecological Anthropocentrism

The universe has no center: not the sun, not earth, and especially not ourselves. And yet, this universe is ours in the sense that it *environs us*; you, a human organism, are by definition at the center of your own environment. We have much to gain from trying to think objectively or to imagine the world from the viewpoints of deep time and nonhuman animals, but in the end the locus of our detached thought is the environed human organism we constitute. By thinking *through* the human self rather than beyond it, I suggest that we gain a better understanding of the ecological crisis, and that we will be better equipped to convince our fellow human animals why this crisis concerns us all. I therefore have a modest proposal: We must rethink one of the pillars of environmental ethics—the critique of anthropocentrism.[1] Put differently, I argue for an *ecological anthropocentrism*, by which I mean a stance that centers on our species morally and that embraces what it truly means to be human, which means to care also for the nonhuman world without which we would not exist.

> *Humanity is central not because of superiority or divine will, but because our common outlook is always rooted in a human body, its perceiving senses, and its conceiving brain.*

Instead of pitting the anthropocentric against the bio- or ecocentric, then, I propose a "concentric" approach, beginning but *not ending* with ourselves.[2] Like ripples on the water or the planets around the sun, its inner and outer circles have the same center. Humanity is central not because of superiority or divine will, but because our common outlook—regardless of culture—is always rooted in a human body, its perceiving senses, and its conceiving brain. Beginning with the human animal, ecological anthropocentrism therefore does not close upon itself but instead situates the human in relation to its environment. This is quite different from the idea of "Earth first, humanity second," as radical environmentalist Dave Foreman put it,[3] but it is not its reversal. If the human outlook acknowledges that we, too, are organisms, we can acknowledge that we depend on the ecological relations of our environment without bracketing or renouncing our humanity. The idea is not to say that anthropocentrism is good rather than bad, but that it can be good and even necessary if the "anthropos" is ecologically understood.

But why rethink the anthropocentric when so much scholarship builds upon rejecting it? While I agree with some of it, I suggest it is time for a critique of the critique. Firstly, because this criticism has not convinced people in general. Asking humans to decenter themselves and what matters to them is not realistic, and to ask them to care more for a natural world "out there" reinforces the idea that the human world is not a part of nature. As Jenny Price has argued in relation to mainstream US environmentalism, separating humans and "the environment" has generally left lower-income people from the US unconvinced and even instilled antagonism toward ecological questions. Despite suffering from environmental degradation, people across ethnic and political divides have come to loathe environmentalists for ignoring their plights.[4] So instead of talking about the environment as a foreign, fragile, nonhuman realm in need of saving from human interests, we have much to gain from communicating that ecological integrity *is* a human interest. Human ecology

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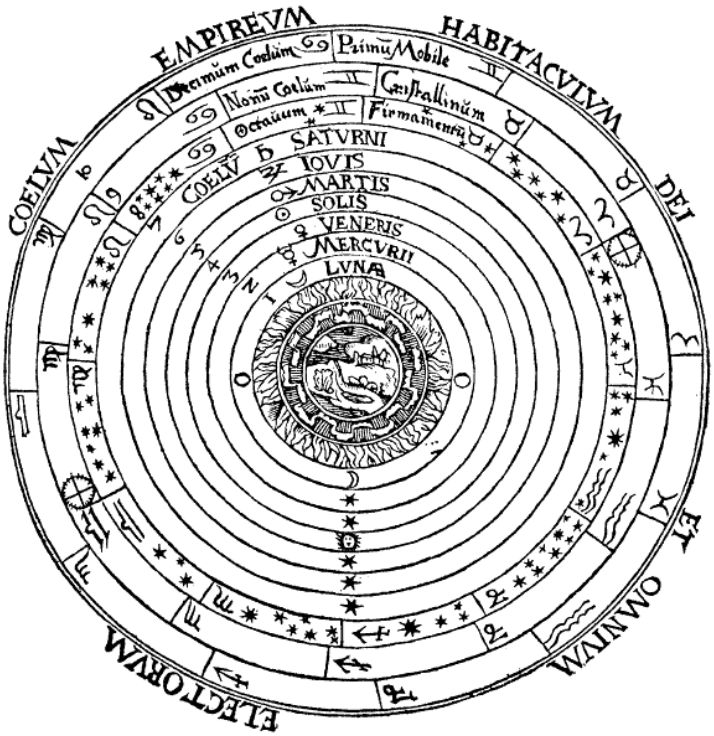
reminds us that people are a part of the environment, and that our care for earth cannot exclude the habitats of human beings.

A second reason to rethink the critique of anthropocentrism is that it risks obscuring that the ecological destruction is disproportionately destructive to the world's poor.[5] In his "third-world critique" of radical US environmentalism, Ramachandra Guha thus argues that "invoking the bogy of anthropocentrism is at best irrelevant and at worst a dangerous obfuscation." The concept can work as a reminder not to be hubristic, he admits, but the dichotomy of biocentrism and anthropocentrism fails to account for the social injustice integral to environmental destruction.[6] This is not a defense of "shallow" ecology but a call for an ecology that is radical, social, and human.

All critiques of anthropocentrism are not without merits, however, such as the recognition of human-specific biases. For example, the attempts to understand and combat yellow fever was long thwarted by what historian Gregg Mitman calls the anthropocentric assumption that it is a uniquely human disease.[7] In this case, however, the bias clearly did not benefit humanity, exemplifying how a genuine care for our species demands a mind open also to the spheres beyond the exclusively human.



Concentric circles around the earth in Peter Apian's *Cosmographia* (1539). While the geocentric worldview turned out to be false, it remains more true to our experience and everyday life than a heliocentric or relativist account: We still say that the sun goes up and down, just like it must appear to other organisms. By the same token, ecological anthropocentrism considers outer circles from the viewpoint of human experience. Wikimedia Commons. Public domain.

At the same time, human biases are part of what it means to be human. "We behold all things through the human head and cannot cut off this head," wrote Nietzsche when lamenting our inability to perceive the world beyond our senses, while also describing the remit of sense perception as a "prison"—an inescapable "concentric circle" drawn around us.[8] My point here is that we *can* escape this sensory confinement by considering the outer circles through abstraction, science, and imagination, but we must do so without fooling ourselves that we thereby escape the human outlook—from which we began and to which we must inevitably return. We may call this outlook biased, and we do well in trying to use our (human) brains to think through other perspectives, but the human condition dictates that our sensing, feeling, and thinking will always be expressions of our "all-too-human" organism. By the same token, dogs are cynocentric and horses hippocentric, in itself neither good nor bad but a recognition of what it means to be such an animal.[9]

But what about the normative dimension? In the bestseller *Eating Animals*, Jonathan Safran Foer defines anthropocentrism as "[t]he conviction that humans are the pinnacle, the appropriate yardstick by which to measure the lives of other animals, and the rightful owners of everything that lives."[10] While such supremacism literally could be called anthropocentric by virtue of placing us at the center of existence, my objection is that nothing in the word "centric" implies an imperialist attitude.[11] Otherwise "biocentric" would imply a ruthless favoring of life at the expense of abiotic nature, which would be just as self-defeating as an anthropocentrism undermining the very conditions of human life. We have simply come to conflate extreme egocentrism with

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anthropocentrism, but why should we accept Ayn Rand's view of humanity as inherently self-interested, rather than listen to Peter Kropotkin, who long ago demonstrated that collaboration is integral both to human and nonhuman evolution?[12]

> *We have simply come to conflate extreme egocentrism with anthropocentrism.*

While we humans are not superior in any objective sense, I believe that we nevertheless are justified in caring a bit more for individuals within our own species and those we find similar to ourselves. For example, mosquitos fill an important role in the ecosystem on which we depend, and as a species their existence can be anthropocentrically justified, but defending ourselves against individual mosquitos and their plasmodium parasites is in no way anti-ecological. We can and should debate our conduct toward other organisms, and this must be an ongoing discussion, but, unless we unsustainable "moderns" are to lecture Indigenous peoples about their sustainable lifestyles, we better start looking at what simultaneously causes harm to humans, nonhumans, and the planet: the increasing industrialization of human lives and habitats, their infrastructure, and their foodways for the sake of profit for the few.

Cities and their infrastructure provide shelter and opportunities for billions of people, but they are inhumane to those who for different reasons are excluded from their economy. Ecology means "the science of the home," and a human ecology can contribute to a world that can house all of us. Photo by Ev. Unsplash. Public domain.

In the end, the main problem of anti-anthropocentrism is that it lacks an established definition of that which is critiqued. As philosopher Laÿna Droz has shown in a multilingual study, most critics do not define the concept or do so in very different ways, but they nevertheless tend to consider it

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the cause behind the ecological crisis and ecological injustice. And so it rather serves as a scapegoat in lieu of a proper investigation of the causes.[13] Turning things around, I suggest that the ecological crisis stems from the negation of what is good for all human beings. Much of what is called anthropocentric is actually a veiled *Eurocentrism*: the explicit or implicit idea that humanity is epitomized by the white European man—or rather, the idealized idea thereof. Such false universalism makes for a false anthropocentrism, and it risks perpetuating the dangerous narrative that humanity as a species is wreaking havoc upon a nature to which it does not entirely belong.[14] Let us therefore be anthropocentric in a *true* sense by embracing human diversity and ecological dependence, so that we can care for the earth, its climate, and its biodiversity for the sake of all human organisms.

The Nature of the Ecological Crisis

If the narrative of humanity as a rogue species is incorrect and risks obscuring the socially unjust dynamics of the ecological crisis, how can we better understand humanity's role in this process? By recognizing its systemic nature. The majority of humans today depend on a global *economic* system, which in turn expands by siphoning energy and resources from the *ecological* system on which we ultimately depend. Any account of the crisis that fails to mention technological mediation therefore also fails to understand its dynamics, because science and technology literally supply us with the means and infrastructure by which this crisis unfolds.

> *Our everyday activities have increasingly come to have large-scale consequences—on Earth and on ourselves.*

For most of our existence, our relation to the earth and each other has remained remarkably stable, and the great changes often subsumed under the concept of the Anthropocene are perhaps better framed as a transformation of the *human condition*. In 1958, in the early days of the "Great Acceleration," Hannah Arendt thus argued that modernity has brought about new and destructive conditions for life. The fact that we live, grow old, and die is a universal and timeless aspect of the human condition, but, to Arendt, the changing form of our activities in relation to the earth also conditions us. Human action is not only earth-transforming, she argued, for we also act in order to survive and to be social, but our everyday activities have increasingly come to have large-scale consequences—on Earth *and* on ourselves.[15] As we change our environments and our interpretation of them, we also change the world in relation to which we act and react, thereby conditioning ourselves to different behaviors, activities, and patterns of action.

Rather than *in* the human and her volition, the problem therefore lies in her relation to the world environing her: that world in which she is the center. When we humans go about and live our everyday lives like any other organism, most (and increasingly more) of us do so in technologized, urban environments that demand energy and resources from far away. In short, humans today are being sustained by increasingly unsustainable environments—even when they actively diminish their personal impacts. It is as if ants were to find a way to grow their anthills exponentially larger at the detriment of their environs: No single ant would be to blame, but the colony as a whole—due to its new technique—would come to exceed the carrying capacity of the region, demanding further expansion to avoid collapse. Our individual choices matter, but their impact is void as long as we do not change the ways of human niche construction—of how our local habitats function in relation to the rest of the planet.

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Textile and plastic waste at Dandora dump site in Nairobi. Rather than being humanity's impact on the nonhuman world, this excretion of the global capitalist economy is detrimental to all organisms. © 2022 Kevin McElvaney. All rights reserved.

Today, I think we have reached a point that we could rightly call the *inhuman* condition: an altered state of human existence in which we are conditioned by a dehumanizing system and an environment that is increasingly unsuitable for life. We are compelled to take part in such a system—which others have called the "technosphere," the "megamachine," and the "Capitalocene"[16]—and though it rewards participation with convenience and safety, it also harms humans and their surroundings. It is hard to quantify the impact of the contemporary environment upon mental and physical health, but it is equally hard to deny that many of our social evils to different degrees result from the specific ways in which we are structuring our cities and economy. Suffering and sickness can be found even in the most "developed" of societies, while Gaza, the West Bank, Sudan, and Ukraine are extreme examples of how ecocide and environmental destruction do not preclude genocide and mass slaughter of children and civilians. As long as economic growth is not halted by it, an increasingly inhuman condition is not a failure of the global economy: Sponsored and made possible by multi-billion-dollar industries, socioecological harm is systemic and contributes to its expansion.

To grasp global and systemic problems, a planetary perspective is undeniably necessary, which explains the popularity of the *Blue Marble* photograph from 1972. Astronauts looking back at our only home sometimes experience the so-called "overview effect," and William Shatner, who played Captain Kirk in *Star Trek*, reflected on this after his first true space travel in 2021: "I played my part in popularising the idea that space was the final frontier. But I had to get to space to understand that Earth is, and will remain, our only home. And that we have been ravaging it, relentlessly, making it uninhabitable."[17] Shatner's awakening at age 90 is instructive, but we readers should question who "we" are in this last sentence, and whether we must leave Earth in order to recognize its importance. In the end, perhaps, it was actually a realization of how the frontier idea had blinded Shatner to how precious his human life on Earth really is.

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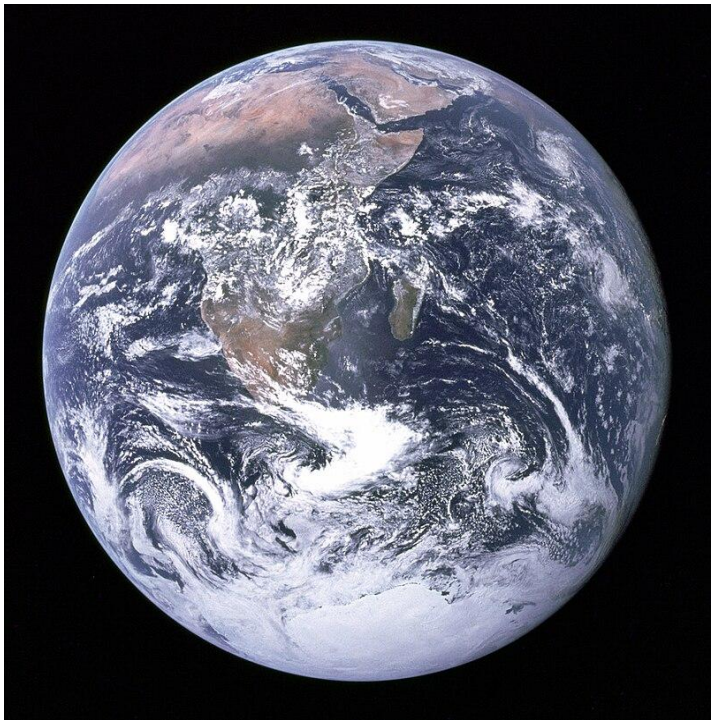

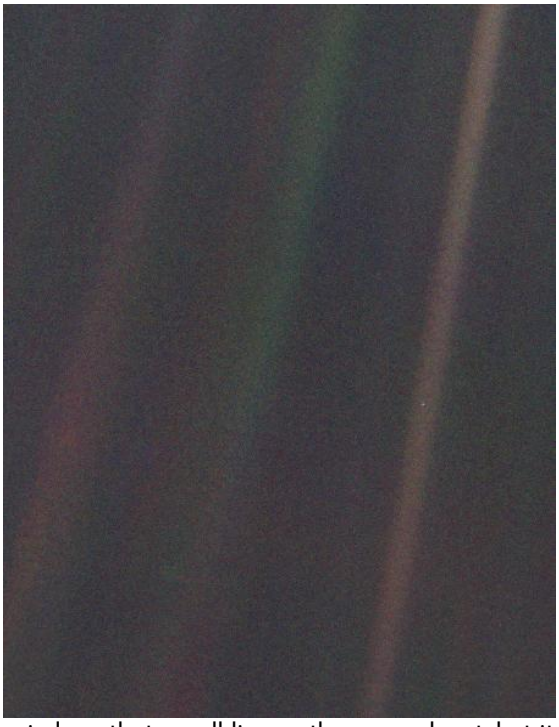

(Left) *The Blue Marble* (by Harrison Schmitt on 7 December 1972) reminds us that we all live on the same planet, but it also renders humans and other species invisible—and possibly insignificant. (Right) This is even more true in the *Pale Blue Dot* (by Carolyn Porco and Candy Hansen on 14 February 1990) photograph from *Voyager 1*, in which Earth itself is not even a full pixel in size. Public domain. Courtesy of NASA.

The astronomer Carl Sagan similarly argued that *The Pale Blue Dot* photograph, in which Earth is barely visible, is an even better challenge to what he called an anthropocentric "conceit."[18] If such a perspective is humbling, I nevertheless believe in the need for the humble perspective of ecological anthropocentrism. An overview perspective of our planet *can* be helpful, but it is clearly not enough. Whether witnessing or thinking it, we must nevertheless return to the actual Earth around us—the ground on which we stand.

Already before space travel, Arendt understood that the view of Earth from the outside was the Scientific Revolution's dream of attaining an Archimedean point, a God's-eye view, a view from nowhere rather than somewhere. Technological representation and detached, objective thinking are not the perspective of life or humanity, she realized, but the culmination of the scientific progress of occidental modernity. Science and technology should in no way be rejected, but it is important not to forget that, alongside goods, medicine, and conveniences, they have also given us evils such as pollution, intrusive surveillance, and weapons of mass destruction. The modern lifestyle and the crisis it generates cannot be sustained without technological means, which is why the increasingly dysfunctional human–environment relation can only be rectified by more humble and local techniques and knowledge.[19] At a time when billionaires argue that humanity's only future lies in using Promethean technologies to escape Earth, Arendt's grounded and ecologically humanistic philosophy instead prompts us to return to Earth in thought and action. She called our mental escape from humanity's terrestrial condition "world alienation" and believed that a physical escape was dangerous, dehumanizing, and ultimately impossible. When in 1963 asked whether the conquest of space would diminish the stature of humanity, Arendt therefore replied in the affirmative.[20]

Humanizing the Inhuman Condition

The escape from the human perspective has a dehumanizing effect, more so as humans are rendered as numbers and consumers and not persons, and a form of *humanization* is therefore

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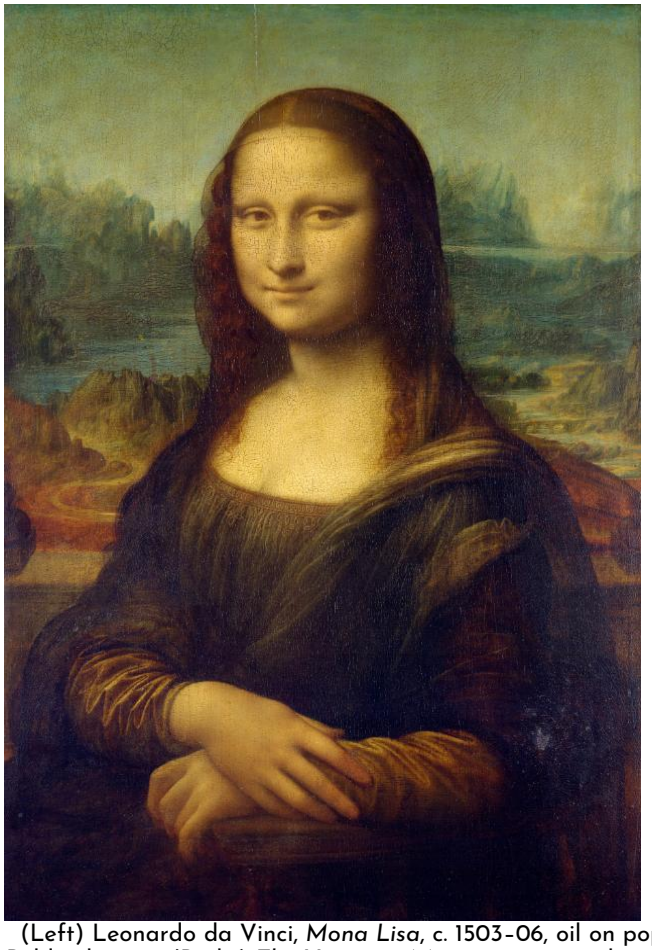
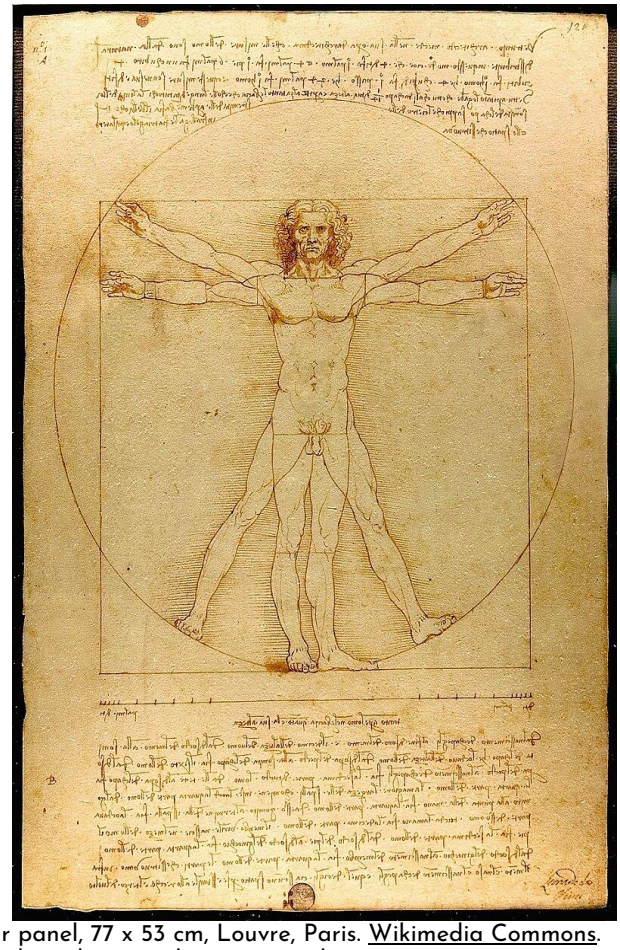
needed. What I call ecological anthropocentrism is such a humanization, because it constitutes a corrective to one of modernity's blind spots. In fact, the systemic critique of anthropocentrism has been integral to modernity since the Scientific Revolution. Francis Bacon (1561–1626), one of the key figures of early modernity, thus argued that humans must overcome anthropocentrism and other human "idols" or biases, a feat "from which must necessarily follow an improvement of their estate, and an increase of their power over nature." Only by overcoming the human outlook could one achieve that knowledge of material causes that Bacon famously equated with power.[21] He was not alone in rejecting the outlook of the human senses: Galileo Galilei (1564–1642) went so far as to consider it necessary to subject them to "violence" and even "rape" in order to refute the geocentric world picture, and René Descartes (1596–1650) separated not only mind and body but also self and world.[22] While human experience became foundational for the scientific method, the trailblazers of modernity also rendered it an obstacle to overcome through scientific inquiry. Since, contrary to Bacon's vision, humanity's estate or condition has become dehumanizing, it is now imperative to search for alternative, complementary, and truly anthropocentric perspectives beyond modernity.

While Renaissance humanism is partly to blame for the conceptual separation of "man" and "nature," late medieval humanists also provide us with a premodern example of how to conceive the world and humanity. Nicholas of Cusa (1401–64) conceived complementary ways of understanding the world, harmonizing the concrete and the abstract, while Erasmus of Rotterdam (c. 1466–1536) defended intuitive "folly" against the idea that scientific reason was the only right way to think.[23] This can also be understood visually: Think of Leonardo da Vinci (1452–1519) and his two most iconic depictions of humans from the threshold of modernity: the *Mona Lisa* (1503) and the *Vitruvian Man* (1490).





(Left) Leonardo da Vinci, *Mona Lisa*, c. 1503–06, oil on poplar panel, 77 x 53 cm, Louvre, Paris. Wikimedia Commons. Public domain. (Right) *The Vitruvian Man*, c. 1490, pen, brown ink, and watercolor over metalpoint on paper, 34.4. x 24.5 cm, Gallerie dell'Accademia, Venice. Wikimedia Commons.. Public domain.

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In *Mona Lisa* we see a particular human being with a name and face, portrayed as environed by a landscape like a real human being. What is more, the perspective implies an onlooker: you, the human being meeting her gaze. If *Mona Lisa* depicts an actual, ecologically interrelated human organism, the *Vitruvian Man* is the human in the abstract: a nameless, generic man without an environment, surrounded instead by abstract geometric figures and a description of the mathematical proportions of the human body. But both depictions stem from one and the same mind. Instead of severing science from art and life, like Bacon would later do, the humanist outlook exemplified by da Vinci lets the abstract and concrete modes of cognition coexist.

Similarly, to be ecologically anthropocentric does not mean to reject scientific classification, but to subordinate abstract thinking to life as it exists in concretely ecological human experience. The world of the senses is also the world of practical ethics, the world in which we act in relation to other beings. Hence the concrete outlook must remain foundational while the abstract must once again be made a tool for attaining a good life for all. To do so, we need to understand humanity in all its diversity, not in light of a Eurocentric ideal, and it is therefore essential to listen also to non-Western voices. Writing from the perspective of the colonized, Aimé Cesaire and Frantz Fanon criticized Western culture as "pseudo-humanist" while attacking the abstract, classifying mode of colonial thought, and from an Indigenous perspective, Brazilian intellectual Ailton Krenak of the Krenak People also rejects the current notion of "humanity" for being abstract and false; for uprooting people from local communities and ecologies.[24] The Indigenous scholar Célia Xakriabá of the Xacriabá People has likewise criticized this false humanity in the following words:

> What kind of human is this, who kills? What kind of civilization is this—anti-indigenous, anti-earth, anti-life? In truth, the only ones who know how to be human are the ones who know how to be jaguar, how to be water, how to be seed. Those who know how to be nature. Only those who know how to be beast know how to be human, how to be people.[25]

It is perfectly possible to embrace our humanity ecologically if we take seriously the insight that we, too, are organisms. Indigenous thought is often generalized as anti-anthropocentric, but I suggest that it rather tends to exemplify an ecologically anthropocentric outlook. It offers a "science of the concrete," as Claude Lévi-Strauss called it,[26] a knowledge system through which human societies have been maintained sustainably for time periods making that of industrial civilization pale in comparison. We cannot make our globalized cities function like local Indigenous societies, but we can and should learn from the manifold ways of thinking by which peoples around the world have sustained themselves for tens of thousands of years. These are distinctly human modes of thought, which though unique in their diversity offer non-modern outlooks rooted in the human organism, humbly extended into the spheres that environ them.

To be anthropocentric in a true and ecological sense means to understand the *anthropos* not as a universal idea, as "man" in the abstract, but as a human being in the flesh: embodied, embedded, environed, just like you who read these words are at this very moment. We are organisms that stand in relation to that which environs us—and, importantly, this environment is not a reversal of humanity but includes it. Of nature, we humans nevertheless *are* exceptional, which is attested not only by our societies' consequences upon the nonhuman world but also by their impact on the lives of human organisms. The extreme degree to which our contemporary societies dedicate energy to infighting, within and between themselves, illustrate the lack of a common purpose for human civilizations. Aristotle long ago conceived such a goal for human science and societies, naming it *eudaimonia*, best translated as human flourishing,[27] and this is not less realistic than the naïve pursuit of infinite growth and expansion. Universals are abstract, and as such they risk distorting reality, which is why we need a new and more diverse notion of humanity, its needs, and its wants. Rightly conceived, such human interests are not adverse to ecology, for it lies in our interest to protect the conditions of life in the Holocene if we truly care for ourselves and each other.[28]

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> *We need a new and more diverse notion of humanity, its needs, and its wants.*

To humanize the inhuman condition, however, I believe that we must begin, not with grand ideas and abstract theories, but with ourselves and our concrete human experience. Beginning with what we have in common as human animals, we will also be able to discuss the importance of ecology beyond divides of politics and class. As I left the clinic of the misanthropic physician, I remained silent for a long time. So baffled by his words that I had nothing to say, I instead delighted in having regained my hearing, enjoying the particular frequencies perceivable by my human ears. And so I invite you to experience the world around you, whether urban or "wild," not as a place beyond your humanity but as a world to cherish and care for through the outlook of the human organism. Whenever you do that and whatever you call it, you are taking the first step toward what I call ecological anthropocentrism.

. . .

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Notes

[1] On the centrality of this critique, see Andrew Light and Holmes Rolston III, "Ethics and Environmental Ethics," in *Environmental Ethics: An Anthology*, ed. Andrew Light and Holmes Rolston III (Blackwell Publishing, 2003), 8–9; Hava Tirosh-Samuelson, "Ethics," in *Keywords for Environmental Studies*, ed. Joni Adamson, William A. Gleason, and David N. Pellow (New York University Press, 2016).

[2] Although I derive this idea of concentrism from organicism and ecology, it has analogues in some Confucian philosophy. Tu Weiming calls this "anthropocosmic" instead of anthropocentric, but I prefer to retain the "centrism" to emphasize the origin in the human self. Tu Weiming, "Family, Nation, and the World: The Global Ethic as a Modern Confusian Quest," *Social Semiotics* 8, no. 2/3 (1988): 283–95, pp. 294–5. See also Justin Tiwald, "Confucian Cosmopolitanism: Relationships as a Basis for Obligations Toward Non-Citizens," *The Challenges of Globalization*, 18 November 2021, https://uschinadialogue.georgetown.edu/responses/confucian-cosmopolitanism-relationships-as-a-basis-for-obligations-toward-non-citizens/.

[3] Dave Foreman, Earth First Statement of Principles and Membership Brochure" (September 1980), Environment & Society Portal, Multimedia Library, http://www.environmentandsociety.org/node/6810.

[4] Jenny Price, *Stop Saving the Planet!: An Environmentalist Manifesto* (W. W. Norton & Company, 2021), 9–29, 55–61.

[5] E.g., Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Princeton University Press, 2011).

[6] Ramachandra Guha, "Radical American Environmentalism and Wilderness Preservation: A Third World Critique," *Environmental Ethics* 11, no. 1 (1989): 73–4, quote from p. 74. A similar point has been made from another perspective in Tim Hayward, "Anthropocentrism: A Misunderstood Problem," *Environmental Values* 6, no. 1 (1997): 49–63, https://doi.org/10.3197/096327197776679185.

[7] Gregg Mitman, "A Virus in the Forest: Yellow Fever, West Africa, and the Remaking of Alliances Among Living Things, 1900–1950," in *Rural Disease Knowledge: Anthropological and Historical Perspectives*, ed. Matheus Alves Duarte Da Silva and Christos Lynteris (Routledge, 2025).

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[8] Friedrich Nietzsche, *Human, All Too Human*, trans. R. J. Hollingdale (Cambridge University Press, 1996), 15–16, quote from p. 15; Friedrich Nietzsche, *The Dawn of Day* (Dover Publications, 2007), 122–3 (aphorism 117), quote from p. 122.

[9] For a now classic philosophical argument behind this statement, see Thomas Nagel, "What Is It Like to Be a Bat?," *The Philosophical Review* 83, no. 4 (1974): 435–50, https://doi.org/10.2307/2183914.

[10] Jonathan Safran Foer, *Eating Animals* (Back Bay Books, 2009), 46.

[11] As Tim Hayward has argued, anthropocentrism is often conflated with speciesism and human chauvinism, but it implies neither by necessity. Tim Hayward, "Anthropocentrism: A Misunderstood Problem," *Environmental Values* 6, no. 1 (1997): 49–63, https://doi.org/10.3197/096327197776679185.

[12] For Ayn Rand's view on human nature, see "The Objectivist Ethics," in *The Virtue of Selfishness: A New Concept of Egoism* (Signet, 1964). For Kropotkin, who expanded on Darwin's framework by naturalizing collaboration in both humans and animals, see his *Mutual Aid: A Factor of Evolution* (Dover Publications, 2021).

[13] Laÿna Droz, "Anthropocentrism as the Scapegoat of the Environmental Crisis: A Review." *Ethics in Science and Environmental Politics* 22 (2022): 25–49, https://doi.org/10.3354/esep00200.

[14] On the ecological and social danger of this monolithic conception of humanity, see Malcom Ferdinand, *Decolonial Ecology: Thinking from the Caribbean World* (Polity Press, 2022): 3–8; Andreas Malm and Alf Hornborg, "The Geology of Mankind? A Critique of the Anthropocene Narrative," *The Anthropocene Review* 1, no. 1 (2014), https://doi.org/10.1177/2053019613516291.

[15] Hannah Arendt, *The Human Condition*, 2nd ed. (The University of Chicago Press, 2018). On Arendt's relevance for the Anthropocene discussion, see Oliver Belcher and Jeremy J. Schmidt, "Being Earthbound: Arendt, Process and Alienation in the Anthropocene," *Environment and Planning D: Society and Space* 39, no. 1, 103–20, https://doi.org/10.1177/0263775820953855.

[16] E.g., Peter Haff, "Humans and Technology in the Anthropocene: Six Rules," *The Anthropocene Review* 1, no. 2 (2014): 126–36; Lewis Mumford, *The Myth of the Machine*, vol. 2, *The Pentagon of Power* (Harcourt, Brace Jovanovich, 1970); Jason Moore, introduction to *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*, edited by Jason Moore (PM Press, 2016).

[17] William Shatner, "My Trip to Space Made me Realise We Have Only One Earth—It Must Live Long and Prosper," *The Guardian*, 7 December 2022, https://www.theguardian.com/environment/2022/dec/07/william-shatner-earth-must-live-long-and-prosper-aoe.

[18] Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space* (Ballantine Books, 1997), 18.

[19] For similar arguments, see Lewis Mumford, *The Myth of the Machine*, vol. 2, *The Pentagon of Power* (Harcourt, Brace and World, 1970); E. F. Schumacher, *Small Is Beautiful: A Study of Economics as if People Mattered* (Vintage, 2011); Adrián Almazán, "Técnicas humildes para el Siglo de la Gran Prueba," in *Humanidades ecológicas: Hacia un humanismo bioesférico*, ed. J. Albelda, F. Arribas-Herguedas, and C. Madorrán (Tirant Lo Blanch, 2023).

[20] Hannah Arendt, "Has Man's Conquest of Space Increased or Diminished His Stature?," in *The Great Ideas Today* (William Benton, 1963); Hannah Arendt, *The Condition of Man*, 1–6. For her emphasis on the concrete perspective of the human body as primary, see her *The Life of the Mind* (Harcourt Inc., 1978).

[21] Francis Bacon, *Novum Organum*, ed. by Joseph Devey, vol. 1, *Science* (P. F. Collier and Son, 1901): 5–9, 20–21, 289–90, quote from p. 290. While all four biases can be considered human, it is the "idol of the tribe" that critiques the human way of experiencing the world.

[22] Galileo Galilei, *Dialogue on the Great World Systems*, the Salusbury translation, rev. Giorgio de Santillana (University of Chicago Press, 1957), 340–41, quotes from p. 341; René Descartes, *Meditations of First Philosophy / Meditationes de prima philosophia*, ed. and trans. George Heffernan (University of Notre Dame Press, 1990), e.g., paragraph 12 in the first meditation and 2–3 in the second. Descartes was not a solipsist, and, after questioning everything but his rational thinking, he sought to build a more rational understanding of the world beyond mind—but the reality of this world remained questionable from the premise that existence begins in thought. On Descartes, see also Maurice Merleau-Ponty, "The Primacy of Perception and Its Philosophical Consequences," trans. James M. Edie, in *The Primacy of Perception and Other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics* (Northwestern University Press, 1964): 22–5. Cf. Hartmut Rosa, *Resonance: A Sociology of Our Relationship to the World* (Polity Press, 2019), 38.

[23] For Nicholas of Cusa's distinction, see Jonna Bornemark, *Det omätbaras renässans: En uppgörelse med pedanternas herravälde* (Volante, 2018): 34–51; and Nicholas of Cusa, *On Surmises*, in *Complete*

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Philosophical and Theological Treatises of Nicholas of Cusa, trans. Jasper Hopkins, vol. 1 (The Arthur J. Banning Press, 2001), 177–80. For Erasmus of Rotterdam, see *Praise of Folly*, trans. Betty Radice (Penguin, 1993), 53. A work of satire, Erasmus's defense of "folly" is nevertheless earnest and should be understood in relation to St. Paul's words in 1 Cor, 1:17–25. See also Anthony Levi's foreword to *Praise of Folly*.

[24] Aimé Cesaire, *Discourse on Colonialism*, trans. Joan Pinkham (Monthly Review Press, 1972); Frantz Fanon, *The Wretched of the Earth*, trans. Constance Farrington (Penguin Books); Ailton Krenak, *Life Is Not Useful*, trans. Jamille Pinheiro Dias and Alex Brostoff (Polity, 2023); Ailton Krenak, *Ideias para adiar o fim do mundo* (Companhia das Letras, 2019).

[25] Célia Xacriabá, "Só sabe ser humano quem sabe ser natureza," in *Oboré: Quando a terra fala*, edited by Martha Batista de Lima (Tumiak Produções, Instituto Arapoty, 2022), 25. My translation. The original reads: "Que ser humano é esse, que mate? Que civilização é essa, anti-indígena, antiterra, antivida? Na verdade, para ser humano, só sabe ser humano aquele que sabe ser onça, ser água, saber ser semente. Aquele/aquela que sabe ser natureza. Somente sabe ser humano, somente sabe ser gente, aquele que sabe ser bicho."

[26] Claude Lévi-Strauss, *Wild Thought*, trans. Jeffrey Mehlman and John Leavitt (The University of Chicago Press, 2021): 1–40.

[27] Aristotle, *The Nicomachean Ethics*, with a translation by H. Rackham (Harvard University Press, 1961), chapters 1 and 2. While Aristotle wrote about Athenian society and its free men, we must think of our global society and all human beings.

[28] For a suggestion on how to connect human self-actualization with ecology, see Jonatan Palmblad, "Instrumentalidad y personalidad ecológica: ¿Con qué finalidad?," *Papeles de Relaciones Ecosociales y Cambio Global* 171 (2025): 111–22.

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DER BARTGEIER

Jake Goetz

Springs
The Rachel Carson Center Review

9 • 2026

Jake Goetz

Wolfgang Bauer, *rot, schwarz, weiss*, 2011, pigments, Japanese paper, grinded mineral, acryl on Bristol paper, 290 x 194 mm. © Wolfgang Bauer. All rights reserved.

1 Early Summer

From Munich we take four regional trains
southeast, watch spruce and fir and limestone
erupt in the distance, like a jagged outcrop of
mushrooms sent up by the mycorrhizal collision
of the Eurasian and African plates. Their hard grey flesh
remnants of Tethys: a primeval ocean that found itself
sky bound thirty million years ago, and which, in today's
warmth, produces in us a feeling of the coastal. An ocean that
inadvertently led to the early industrialisation of this place. The first
recorded mine in the region opening in 1517. The first taste of
capital buried in rich salt deposits. And somewhere between tourists
glued to glass and a group of young girls getting pissed on beer, i imagine
two Bartgeier above the tree line, perched on a rocky ledge—orange beards
like lion manes aflame in the July heat—looking through a light haze
to shadows sharpened by peaks. How they'd stand and stretch their wings,
lift bodies into the thermals, and swim out across this jagged amphitheatre,

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tracing ridgelines, rivers, ravines. Or tracing the way one Geier pivots, circles, looks to its partner. Then together, turning and circling to lock into a descent. Lock onto the collapsed architecture of a carcass wedged between some crevasse. And somewhere between Berchtesgaden and Königssee, i tell you of the way they prefer bone to meat, can swallow bones the size of a human arm, or, if too large, fly up and shatter them over rocks. A technique for which they've been dubbed the "Knochenbrecher" (bone breaker). Their 0.7-pH stomach acid as severe as a battery, making their digestion the most corrosive of any animal, allowing them to decompose bone to a white chalk that a tour guide—a few valleys over and a few days later—might use to write on the wall of an old hardwood hut, listening to the playful high-pitched disgust of school children squealing with joy. And beyond that familiar noise, we don't need to imagine the snow speaking fast. The way snow melts to a human tongue that carves out the land like an ice cream, to find the clear waters of Königssee, where we sit with pretzels, Obazda, and an Augustiner, watching tourists ferried across the lake in small wooden boats. Ducks at the shore waiting for lunch. The Bartgeier somewhere back above, resting amid the fossilised remnants of ancient crustaceans, watching the light river between peaks. All the angles we see and can't see.

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2 Das Aussterben

In 1913 the last Bartgeier of middle Europe was shot in the Aosta Valley of Italy. A black-and-white photograph confirming its extinction. Three men in rugged sporting attire holding the largest bird of the Alps up to a camera. Its wing-span over two metres, stretching from edge to edge. The man in the centre holds up what would've been the bird's drooping head. The man on the right, a hint of lips through beard, smiles towards a future with a particular confidence. A future he couldn't have known or should have known but couldn't. Life not easy to comprehend for men raised on the routine death of animals for food, for currency, for sport. Who learnt young to view the nonhuman as if through a glass-bottom boat. As if a painting frozen, framed, and hung on the walls of a Munich museum. Who learnt through stories-turned-to-myths-turned-to-"facts" that the Bartgeier was in fact a "Lammergeier" (lamb vulture) and "Kindsräuber" (child thief), despite the bird never hunting fresh flesh. In Appenzell one was said to have carried off a child in front of his parents. In Urnerland a woman tells of how she was abducted by one as a little girl. On the Silberalp another swooped down on a shepherd boy, tearing him to pieces. But the animal not only made extinct from the Alps through language but human settlement. Its key prey—ibex, chamois, red deer—almost all driven to extinction here. And even when the Bartgeier was able to find a feed, they often died of the poison it had been laced with. And after our lunch, across the lake, in Gaststätte St. Bartholomä, we find a 400-year-old painting of two Bartgeier on a wall. A life-sized depiction of two adults who, according to the inscription, were shot above a nearby chapel on 9 and 10 March 1650. The central adult depicted with its wings extended, much like the 1913 photograph, but with the addition of a small lamb between its feet. The reason for its death illustrated by a text that traces the wingspan in old Fraktur script. On the left: "Because of the harm done by the bearded vulture, people also go after him." On the right: "The 127th one—Hans Dürner has killed it."

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3 Sostalgia: An Interlude

Through pine forest we trace the lake's edge, get
naked, and swim out into the cold burn of
clear reflections. Across the water a
flugelhorn traces the tectonic
texture of the valley, where
today Bartgeier live like
the first of their kind, and
where i think of what lies
at the centre of this desire
to restore the world to a
past that is as real as it is
imagined. To fix a point
on a specific time in place
and say: See here? That's
when things were in per-
fect motion. When we,
as humans, held a sense
of earthly unison. To say
it's like walking alongside
a friend or stranger and
noting how the footsteps
fall into sync with one
another. To say, now
imagine those feet fall-
ing back into sync with
the "other." But what of
the "others" we take on
this ark of conservation?
That path of re-creation
as much as recreation.
What do the others think
of our ambition to redis-
cover ourselves in their
image? To other ourselves
through a desire for attach-
ment. A desire to replicate
the idea that things never
change in a world that
never stops changing. To
replicate the way humans
think things should be . . .

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Solastalgia is a term that
describes homesickness
for a place irreversibly
damaged by human
activity. But what term
do we give to the re-
versal of such actions
in a world where such
reversals will become
just a poor man's re-
enactment? By the lake
we sit and feel the sun
shiver, disappear behind
peaks, raise the hairs on our arms
and legs, watch smooth grey stones recede
into the shallows, the shadows, this turning Earth.

Der Bartgeier
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4 Sprachlos

In 1986 the first Bartgeier were successfully reintroduced
to the Alps in Austria: a breeding program drawing on cousins
in Asia, Africa, and southern Europe. And yet today they are
still threatened by rogue hunters working through the re-
circulation of myths. By animal carcasses riddled
with lead ammunition, which kills them almost
instantly. The strange evolutionary blessing
of a 0.7-pH stomach acid also then a corrosive
curse. And for this reason lead ammunition banned
in some Alpine regions. For this reason, an EU-wide ban
currently being sought in 2025. And as we leave the lake, catch
a bus back to Berchtesgaden, board four trains back to Munich,
i tell you of their names: Bavaria, Wally, Nepomuk, Sisi, Dagmar,
Recka, Vinzenz, Wiggerl. How the colour red has always been more
than a colour. How we discover such ideas through encounters. The way
red can trigger an increase of blood to the cock. The way like this the colour
turns the birds on. Or so some say. And so whenever the Bartgeier can,
it bathes its body in pools of iron-rich oxide mud, sits and dries like a
Pacific cormorant in the sun. How some say it is an act of flirting, to turn
the other on. The way a teenage boy, before a party, will wax his hair,
shave uneven stubble, and spray his acne-covered face with an
aftershave an advertisement on TikTok told him was slay.
The birds known to couple all their lives, but also known
for their promiscuity. So too for their queering. Three males
in Tirol routinely mating only to find there's no eggs but still
mating again, for the thrill, the love, the fuck of it. As we arrive
back in Munich and i find a tape measure, show you how their
wingspan is the width of your bedroom. How i sit down to write
something that might capture a reason for why we do this.
Why we seek to give language to the sprachlos. The
speechless. Or how our language is a speech laden
with the loss of some mycorrhizal resonance.
How outside the window, on Bereiteranger street,
it's not hard to imagine the sound of wings
cutting through the warm evening of another
early summer. How, if you listen closely enough,
you might glimpse a Bartgeier down by the Isar
feasting on a greasy box of chicken bones.

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Der Bartgeier

1 Early Summer

Pizzo Manzoli, we take boat upward trains
southeast, watch spruce and fir and beech stand
erect in the distance, like a rugged contrap of
mechanoses sent up by the aforementioned collusion
of the Simonsen and Alonzo plates. Then hard grey flesh
terraces of Tridyn, a preserved ocean that formed much
like humid thirty million years ago, and which, in today's
warmth, produces an in a feeling of the coastal. An ocean that
unadventurously fed to the early archaeologists of the place. The last
recorded sighting in the region opening in 1911. The first tasks ad
ergial hancel in such soil deposits. And somewhere between tourists
gle ed to glass and a group of young gals getting poised on lens. a snapper
two Bartgeier above the tree line, perched on a rocky ledge—manage heads
like lion manes, silence in the July heat—looking through a light hazy
to shadows dispersed by pools. Here they'll stand and watch from wings,
lift bodies into the thermals, and swim out across the jagged amphitheatre,
tracing inflections, curves, corners. On tracing the way our Gran pivots, circles,
looks to its partner. Then together, turning and inclining to look into a descent.
Look into the collapsed architecture: it is cannon wedged between scree
carcasse. And somewhere between Berchtesgaden and Klausgrien, roll you
of the way they parks boat to assist, can swallow boats the size of a human sans,
or, if too large, fly up and shatter them over cache. A technique for which they've been
dubbed the "Knochenbrecher" (bone breaker). Then 0-14pH stomach acid as scrape
acts a battery, making then digestion the most corrosive in the animal, allowing thirty
to decompose bone to a white chalk that a tour guide—a few valleys over and a few
days later—might use to write on the wall of an old hardwood hut, listening to the playful
high-pitched dialect of school children squeaking with joy. And beyond that branches moose,
we don't need to imagine the more speaking her. The way more walks in a human
tongue that carves out the hard like an ice canun, to find the cleaa water of
Klausgrien, where we sit with pretzels, Obazda, and an Augustiner, watching
tourists travel across the lake in small wooden boats. Drifts at the shear
waiting in hands. The Bartgeier somewhere bank above, resting
amid the Swiskies' remnants of ancient controversy, watching
the light cross between peaks. All the angles we see and can't see.

2 Das Ausstreben

In 1913 the last Bartgeier of conflict Europe was shot
in the Aosta Valley of Italy. A black-and-white photograph
confirming its extinction. There sees an rugged sporting artist
holding the largest half of the Alps up to a camera. Its wing span
sets two metres, stretching from edge to edge. The man in
the center holds up what would've been the bird's decapitated head.
The man on the right, a hint of lips through beard, smiles towards a female
with a particular confidence. A female he couldn't have known is should
have known but couldn't. Life not easy to comprehend for man raised on
the motion death of animals for food, for economy, for sport. Who learnt
young to view the anthrama as if through a plain bottom boat. As if a painting
frozen, framed, and hung on the walls of a Munich museum. Who learnt through
visuals trained to spotter trained to "hirn" that the Bartgeier was as fast a "Lammgeier"
(lamb vulture) and "Kindermörder" (child thief), despite the bird never hunting
fresh flesh. In Ignoranz one was said to have carried off a child in front of his
parents. In Unwahrheit a woman tale of how she was abducted by case as a little girl.
On the infamously another stronged down on a shepherd boy, tossing him to parents.
But the animal not only made extinct from the Alps through language but
human settlement. Its key prey—deer, chamois, red deer—almost all driven
to extinction long. And even when the Bartgeier was able to find a dead,
they ocha died of the poison it had been laced with. And after one hatch,
across the lake, in Gastronomie St. Bartholomä, we find a 400-year-
old painting of two Bartgeier on a small, A life-sized depiction
of two adults who, according to the inscription, were shot
above a nearby chapel on 9 and 10 March 1859.
The central adult depicted with its wings extended, much
like the 1913 photograph, but with the addition of a small
lamb between its feet. The reason for its death illustrated
by a text that raises the Bartgeier in old Fraktur:
On the left "Because of the harm done by the
vulture, people also go after him." On the right
"The 1279 one—Hans Dinner has killed it."

3 Solastalgia: An Interlude

Through pine flower we trace the lake's edge, get
naked, and cross out into the cold brun of
clear reflections. Across the water a
Bugelhorn tones the terrain
terrine of the valley, where
today Bartgeier live like
the first of their kind, and
where think of what lies
at the source of this desire
to pretend the world to a
past that is as real as it is
imagined. To fix a point
on a specific time in place
and say: See here! That's
when things were in per-
fect motion. When we,
as humans, hold a sense
of earthly nature. To say
it's like walking alongside
a friend or stranger and
seeing how the footsteps
fall into sync with one
another. To say, more
imagine them for falling
back into sync with
the "other." But what of
the "others" we take on
the ark of conservation?
That path of re-creation.

as much as recreation
What do the others think
of our ambition to ordai-
nover ourselves in their
image? To relice ourselves
through a desire for attach-
ment. A desire to implicate
the idea that things never
change as a world that
never stops changing. To
replicate the way humans
think things should be.
Solastalgia is a term that
describes homesickness
for a place irreversibly
damaged by human
actions. But what team
do we give to the re-
versal of such actions
as a world where such
criminals will become
just a point much we
remember? By the lake
we sit and feel the sun
shrink, disappear behind
peaks, trace the lines on our arms
and legs, watch around grey stones scrock
into the shallows, the shadows, this morning Earth.

4 Speechless

In 1986 the last Bartgeier were successfully reintroduced
to the Alps in Austria, a breeding program throughout Germany
in Asia, Africa, and southern Europe. And yet today they are
still threatened by angler hunters working through the ste
ganiation of myths. By animal carcasses infilled
with lead ammunition, which kills them almost
instantly. The strange evolutionary blessing
of a 0.7 pH stomach acid also then a corrosive
curse. And for this crisis lead ammunition banned
in some Alpine regions. For this reason, an Hi-Vizle hun
eventually hung-sought in 2020. And as we leave the lake, catch
a bus back to Berchtesgaden, board four trains back to Munich,
tell you of these issues: Bernau, Wolfg, Siegsdorfs, Isen, Dingolfing,
Kecks, Vilsmar, Wiggerl. How the online ord has always been minor
than a colonia. How we discover such ideas through connection. The way
ced can trigger an increase of blood to the cock. The way like this the colour
turns the bark on. Or to name say. And so witnesses the Bartgeier can,
at better, on body as pools of aran ash made sand, set and then like a
Parisian communard as the sun. How some say it is an act of flirting to turn
the ofeta on. The way a teenage boy, before a party, will wear his hair,
shave cuerea stubble, and spray his acne covered face with an
alternative an advertisement on TikTok told him you say:
The bards known to couple all their lives, but also known
for their procreation. So too for their grieving. There make
in Tirol eventually mating only to find there's no eggs but still
mating again for the thrill, the love, the lack of it. As we nature
back in Munich and I find a tape measure, show you how thin
wingspan is the width of your bedroom. How it sit down to write
something that might capture a sense for why we do this.
Why we seek to give language to the speechless. The
speechless. Or have our language is a speech laden
with the loss of some meaningful innocence.
How outside the windows, on Beatenmayer street,
it's not hard to imagine the sound of wings
cutting through the warm evening of another
early summer. How, if you listen closely enough,
you might glimpse a Bartgeier down by the Isar
bearing on a gassy box of clothes boxes.

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RECYCLING CULTURES IN INDIA: STUDYING ELECTRONIC AND TEXTILE WASTE

Anwesha Borthakur

Springs

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Anwesha Borthakur

At our home in Delhi's National Capital Region (NCR) in India, I often wake up in the morning to the calls of street vendors. Many of them are experts in fixing small household items—be it a pressure cooker that needs a quick repair or a kitchen knife that requires a swift sharpening. Their calls are one of the few things in Delhi that remind me of my childhood in Assam, a state in the foothills of the Indian Himalayas. The cries of the scrap dealers, locally known as *kawadiwalas*, in the mornings in an otherwise quiet neighbourhood of the small town of Tinsukia are still distinct in my memory: "Tina, loha, plastic," they were shouting, asking for recyclable waste such as old newspapers, plastic, or metals.

Clothes are sorted by colour before being spun into yarn, a step that makes the bleaching process easier, at a recycling factory in Panipat, India. © Anuj Behal. All rights reserved.

Today, I encounter these vendors and scrap dealers, who have been integral to India's urban and semiurban landscapes for decades, as a researcher interested in waste management while conducting fieldwork in India. Their cries now hold more extensive meaning to me. Reading up on them, I find that they have been playing a pivotal role in diverting large volumes of waste from the country's landfills. Reusing, repairing, recycling—both upcycling and downcycling—a wide range of products has been common practice in the country for ages, without being particularly informed about the local or global environmental state of affairs. What has been introduced as a way to combat environmental degradation elsewhere has simply been a way of life here. Having observed and experienced the socioeconomic changes in the country—a rising upper- and middle-class population with disposable incomes and an ever-growing consumer market—I have been assuming that such traditional waste management systems in India are gradually shifting or disappearing. But the places I have visited over the past few years as part of my research tell a different story: People in the country are largely still holding on to these practices, which are often not only financially viable but also environmentally sustainable.

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Assam. Photo by Anwesha Borthakur. CC BY-NC-ND 4.0.

Waste is widely considered "unsightly," and hence, there is always an attempt to hide the mountains of refuse humans produce.[1] This is particularly true in the Global North where extremely high waste generation often remains unnoticed as excesses are transported to neat little logistical units in the forms of boxes, containers, and bags, signifying modernism and cleanliness.[2] In most countries in the Global South, however, waste is omnipresent and fully visible—in open bins, clogged drains, landfills, and on roadsides. What you get to see is mostly municipal solid waste, such as food and kitchen waste or plastic and packaging waste. Yet there are voluminous streams of waste that remain out of sight even in places where waste is constantly visible. In India, e-waste and textile waste represent two major types of such hidden waste. They remain somewhat unnoticed and absent from public debate despite being inherently toxic, having detrimental impacts on human health and the environment.

Today, electronics and textiles represent two major industries globally. With more than a 44 percent share of total global e-commerce sales in 2023, existing statistics show both their immense size and unprecedented growth. Such surges are not unproblematic, however, due to the short life cycles of the products and their constant waste creation. According to the United Nations (UN), a record 62 million tonnes of e-waste were generated worldwide in 2022, expected to reach a minimum of 82 million tonnes by 2030.[3] This makes e-waste one of the fastest-growing domestic waste streams in the world. The same report postulates that only 22 percent of the e-waste generated in 2022 was collected and recycled, while the remaining 78 percent has remained entirely undocumented. The latter was likely landfilled, incinerated, or traded across countries—mostly from the Global North to the Global South.

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E-waste in Nayandahalli, Bangalore, 2015. © S. Shreyas. All rights reserved.

Likewise, the UN notes that 92 million tonnes of textile waste are produced worldwide every year.[4] In 2023 only 8 percent of textile fibres were made from recycled sources, and 11 percent of plastic waste essentially comes from clothing and textiles. Textile waste is expected to reach a 148 formidable million tonnes in 2030.[5] These figures show the intensity of the global e- and textile-waste crisis, as both constitute a significant portion of the formidable 2.1 billion tonnes of global solid waste generated in 2023, and the need for urgent policy action.[6]

My study region, India, the most populous country in the world, is a major producer, consumer, and exporter of electronics and textiles as well as a key contributor to the global e- and textile-waste crisis. In December 2024, the Union Ministry of Housing and Urban Affairs observed that India's e-waste generation has experienced a surge of 73 percent in only five years, since 2019–20.[7] Likewise, a report by the same ministry in 2021 concludes that textile amounts to a substantial 15 percent of the total dry waste generated from municipal sources in the country every day.[8]

The Global North–Global South trade of e- and textile waste further aggravates the situation in India. It is indisputable that significant volumes of disposed electronic and textile products are sent to India in the name of "donation" or "working equipment."[9] Unfortunately, there is no exact quantification of imported waste. The majority of waste ends up on informal recycling sites. Prominent think tanks like Toxic Links estimate that 70 percent of the e-waste processed on informal recycling sites in India is imported.[10] At these recycling sites labour is carried out by marginalised and economically weaker members of society, such as Dalits and Adivasis, as the global phenomenon of waste work considered dirty and inferior is ubiquitous in India.[11] Workers often operate in toxic environments without health and safety measures. Unlike the formal recycling sites, the informal ones are laden with major pollution concerns. The engagement of women and children

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in recycling activities additionally makes the existing management scenario both critical and alarming. Thus, e-waste and textile waste in India is not only contributing extensively to environmental pollution but also poses a pressing environmental justice issue.

Women in a village named Behta Hajipur, near New Delhi, India, are scraping the PVC off of copper wire. They are paid less than 2 US dollars a day for the labour. © Peter Essick on Alamy. All rights reserved. Courtesy of Cavan Images.

In a waste management sector valued at an estimated 14 billion US dollars in 2025, there are between 1.5 and 4 million informal waste pickers, or *kawadiwalas*, in India.[12] The country's overall waste management landscape is thus dominated by informal recycling, which is performed by these *kawadiwalas*—essential stakeholders of this sector. They often pick up recyclable waste from individual households or even bulk consumers through a system of door-to-door collection, gathering paper, plastic, glass, or metals—among them many e-waste and textile waste items. The *kawadiwalas* operate through an excellent local network, which covers almost every household in most major Indian cities and towns. Subsequently, they direct items to recyclers, who extract "value" from the collected "waste."

E-waste in the informal sector is often processed using effective yet rudimentary techniques including open burning or acid baths. While recycling sites are places of uncontrolled pollution—of the air, water, soil, or by noise—the activities as such remain a major source of income for the urban poor, including migrant labourers from rural India coming to the cities or towns in search of livelihood opportunities. From collection, transportation, sorting, segregation, and dismantling of waste, most activities involved in the recycling process are done manually, providing employment opportunities for a large number of people. Seelampur, for example, a locality in North East Delhi and arguably the largest e-waste dumping site in India, handles over thirty thousand tonnes of e-waste every day,[13] and employs fifty thousand men, women, and children.[14]

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Nehru Place in Delhi, India. Photo by Thousandways. Wikimedia Commons. CC BY-SA 2.5.

But Seelampur is only one of the many informal e-waste recycling sites in India. In Greater Delhi I encountered larger and smaller sites. Small recycling shops located between other shops engage in activities such as dismantling e-waste to recover precious or valuable metals. Nehru Place in the country's capital, New Delhi, considered one of Asia's largest electronics markets, boasts both high-end electronics shops and a large number of repair stores that are also selling locally made nonbrand electronic products. The fact that the two types of stores exist next to each other shows the significance of India's urban repair and recycling culture. When I went to Nehru Place to buy a new charger for my laptop, the shopkeeper insisted that I purchase their "local" product because, as he argued, while being remarkably cheaper, it is as good as its "branded" counterpart. My money, as he reasoned, "should not be wasted unnecessarily buying an expensive yet functionally equivalent product."[15] He also enquired about my broken charger and asked if I brought it along as he could fix it, which could pay off financially. People like this shopkeeper are contributing to an environmentally responsible culture of reuse—without active consideration of the environment in everyday life. Nonetheless, with an attractive consumer market fuelled by the emergence of e-commerce, the waste-generation and -management scenario in India is at risk of evolving towards a throwaway culture, and acknowledging the role of sites like Nehru Place thus becomes increasingly important.

The case of textile waste is similar in many ways. During my visit to the city of Ludhiana, a prominent textile hub in the country often called the heart of India's garment industry, I was once again reminded of the irrefutable role the informal recycling sector plays. Ludhiana has a textile industry worth a billion dollars and accounts for substantial production of apparel for the Indian and foreign markets. I took a tour of Ludhiana's cloth markets, which are spectacles in themselves with unending lanes lined by apparel stores. Many of the shop owners have their own factories for producing garments. It was, however, interesting to learn that they do not have a good sense of the fate of the textile waste produced in their factories. When asked about preconsumer textile waste, all of them said that they sell the scrap clothes to the *kawadiwalas* for a small price.[16]

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(Left) Tailoring shops at Tinsukia. Photo by Anwesha Borthakur. CC BY-NC-ND 4.0. (Right) Clothing markets in Ludhiana. Photo by Anwesha Borthakur. CC BY-NC-ND 4.0.

Similar tendencies surfaced when I visited the tailoring shops in my hometown, Tinsukia, in another corner of India. Unlike Ludhiana, Tinsukia hardly has any textile factories except for some small-scale traditional handloom establishments, and its cloth markets source their products mostly from outside. But you can find an impressive tailoring market to cater to the needs of local residents as is common in many small Indian towns. I interviewed a few tailors to find out where the waste produced from their activities goes. As was the case in Ludhiana, the generators of preconsumer textile waste in Tinsukia replied that stakeholders in the informal waste sector are equipped enough to deal with the textile waste produced in their facilities.

The excellent rapport the informal waste workers have built with their customers, both pre- and postconsumer textile waste generators, over the years result in highly localised (and efficient) waste-collection and -management mechanisms in India. The sector is constantly expanding and creates massive competition with the formal waste sector as the latter has limitations, especially in terms of its capacities and efficacy in collecting waste.

India's waste management system has always been centred around the informal sector. Echoing its importance, an expert I interviewed during my research said, "Formalisation of the informal sector is not required. Instead, the informal sector should remain 'informal.' Converting it into a formal setup will reduce its efficiency."[17] It is nonetheless crucial to ensure an environment where workers are safe and pollution is minimal. There should be awareness creation efforts to convey the role of the informal workers in managing India's waste so that their work is not stigmatised. Here lies the significance of an active role of the government at three major levels—national, state, and local. Mandatory health- and liability-insurance coverage for informal waste workers needs to be introduced. Regulations need to be initiated by the national or state governments, and local governments should help implement them.

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Discarded clothes at a recycling factory in Panipat, India. © Anuj Behal. All rights reserved.

Further tracking textile waste led me to Panipat. This small district in northern India is known as the world's "castoff capital." Although in Ludhiana I was told that Panipat is indeed one of the prime destinations of their waste textiles, it is evident that the bulk of the textile waste in this small town essentially comes from abroad. The port of Kandla on India's western coast is the hub of imported postconsumer textile waste, where containers full of textiles from the Global North arrive.[18] Travelling over one thousand kilometres, these items find their way to Panipat. The NGO Closed Loop Fashion calculates that Panipat receives 250 tonnes of textile waste every day.[19] This volume arrives in addition to the textile waste directed to Panipat locally. In Panipat's recycling centres, the first task is to remove the zippers, buttons, and labels from the clothes, followed by sorting them by colour. They are subsequently broken down into yarn before they are rewoven again to make blankets and woollens, for which a huge market exists in Africa, while some of these products are also sold at local Indian markets. Similar activities can be observed on smaller scales in many small Indian towns and villages.

The trade of waste, as I found, is convenient due to some major lacunas in the existing policies. The lack of a uniform definition of "textile waste" or "e-waste" worldwide makes its transboundary movement favourable. For instance, different interpretations and usage of the term across different countries contribute to a system where one country's e-waste may not be categorised as "waste" in another country. In India, until very recently, the definition of e-waste was rather narrow. Only 21 types of electrical and electronic equipment used to come under the purview of India's e-waste rules. In 2022, new e-waste rules were introduced. They include a wide range of electrical and electronic equipment, hopefully resulting in better management practices and policy interventions.

While prevailing management challenges such as the massive volume, pollution burden, and unhealthy working environment in the informal recycling sector remain incontestable, there is an opportunity to learn from India's traditional waste management practices, which are in alignment with a circular economy system—a "buzzword" in current waste-related policymaking.[20] Eager to take my research beyond urban India, I travelled to a small Himalayan town called Bhaderwah in Jammu and Kashmir, situated 1,700 metres above the mean sea level. This mountain settlement situated approximately 800 kilometres north of New Delhi exemplifies textile circularity. Throughout the year, the inhabitants in and around Bhaderwah store their worn-out clothes and wait for the

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"mattress makers" to arrive in spring. These mattress makers convert garments—be it woollens, cottons, or any other material—back to yarn, often using a basic yet effective diesel-operated machine, a frugal grassroots innovation. They make new mattresses, cushions, and pillows using the newly made yarn or refill old ones. They usually move from one village to another carrying their machines, staying at each place for a couple of days until they run out of work. Without any acknowledgement, commendation, and perhaps without realising its significance, the populace of this area sets examples for responsible and sustainable textile waste management. Unfortunately, textile waste management policies hardly acknowledge such practices or take initiatives to promote them in emerging economies like India. Similar to the items they work with, these recyclers remain "invisible" in India's waste management scenario.

Mattress makers in Bhaderwah. Still from a video by Anwesha Borthakur. CC BY-NC-ND 4.0.

In the context of both e-waste and textile waste, policies in India take inspiration from the Global North. However, we must acknowledge that India has very different socioeconomic and cultural-environmental conditions. A policy that is successful in one country may not be effective in another. Waste management initiatives and policies should therefore be "location specific." For that, we must take hints from India's traditional waste management practices. Similar to the textile management interventions in a remote Himalayan village, out-of-use clothes often find other applications in households—they are downcycled as dusters, cleaning cloths, floor mats, or upcycled as tote bags or quilts, as young adults I interviewed in New Delhi report.

To date, as I saw in the various places I visited across the country, India is reasonably holding onto its traditional recyclable waste management practices. And yet, the question remains: For how long in the foreseeable future will these practices remain relevant and gainful while India is experiencing major socioeconomic change? Will they cease to exist in the aftermath of a competitive and promising consumer market that discourages those household recycling practices? As put forth by India Brand Equity Foundation under India's Department of Commerce, Ministry of Commerce and Industry, "India's consumer market is set to grow by 46 % by 2030, driven by rising incomes, a young workforce, and rapid urbanization. Projections indicate that consumer spending will reach Rs. 3,72,33,700 crore (US$ 4.3 trillion) by 2030, up from Rs. 2,07,81,600 crore (US$ 2.4 trillion) in 2024."[21] This will make India the second-largest consumer market in the world. The same report highlights a

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shift from "unorganized to organized retail" and "unbranded to branded products" in the country.[22] All of this will challenge the traditional waste recycling practices that centre around informality and a brand-agnostic psyche.

My fieldtrips to India have left me with mixed feelings. Waking up to the cries of the *kawadiwalas* or the sound of the vendors repairing small equipment in the morning makes me happy. It ascertains that they still have "customers" in a rapidly emerging economy with an aspiring populace. Living in a relatively well-off neighbourhood in Delhi NCR, I can confirm that many of their clients do not necessarily "need" to opt for their services as they are affluent enough to purchase a replacement product in no time. The fact that they still seek support from the vendors is reassuring. But then again, the stigmatisation and working conditions of the informal waste workers are disturbing. I'm torn, realising that if issues of social injustice were addressed, people like the mattress makers in the small Himalayan settlement could act as a model for sustainable waste management in the Global North.

Notes

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HOW WE GOT HERE

Rowan Deer

Springs
The Rachel Carson Center Review

9 • 2026

Rowan Deer

Perhaps all I'm good for, at my age, is telling stories. I've told many in my time, long and textured and short and cryptic, some that tuck themselves gently around you like a blanket, some that rip at your insides, some that meander like deep, old rivers, and some that get straight to the point, quick as a poison dart. I began telling stories before there was anyone to listen, and I will go on telling stories long after there's no one left to hear. Some ask whether it makes me sad—to be bound to go on speaking into the endless dark. But there's no sadness in the light of stars that shine unseen, no lament in the sound of a lonely tree's fall. There is no melancholy on the dark side of the moon, no grief beyond the grave. Yet those old bones hold their stories—just in case.

Carina Nebula. Photo by NASA Hubble Space Telescope. Unsplash.

Now this is the story of some clever beasts who forgot where they came from, or at least it seemed they did not remember to remember it. But how on earth did they get into such a pickle? Let us begin at the beginning.

In the time before time, there was nothing, and then everything changed, and there was something. This was the first thing and the first inexplicable thing. There was suddenly something and that something was nothing like the things you know, and yet was precisely *all* the things you know (and all those you don't): all the matter of the universe, the Amazon Rainforest and the Andromeda Galaxy, the *Psilocybe zapotecorum* and the constellations of the zodiac, your morning coffee and the crust you absentmindedly pick out of the corner of your eye, all of it compressed into a hot, thick clod a billionth the size of a nuclear particle, smoother, denser, and hotter than anything since. It was an extremely, unimaginably, infinitesimally *small* bang, despite what they tell you at school. But as soon as it was, it was growing: stretching space and time and forces into existence, energy cascading into a mist of particles that had oh such a future before them, that had the future before them. Three quarks and then some. Four inexplicable forces before breakfast. And the mist had little ripples in it, slight quantum swerves that rucked the fabric of reality into patches of densities and thinnings, negligible at first, imperceptible certainly, but a seed of divergence had been sown. Suddenly *here* could be differentiated from *there*, *now* from *then*, duration and location tumbling into being so that nothing

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would ever be the same again. Difference was the origin. Here a few more particles; there a few less. Here a splodge more gravity; there a jot less. Possessed by a strange primal inclination, particles began to gravitate—they couldn't themselves explain why—towards those dense patches, so that things became rather clumpy, like a duvet cover full of balled socks or a hot, bright, inhospitable soup—with dumplings.

As the soup expanded, it cooled and became dark. In the beginning there was light and then it got dark again, but the bible doesn't tell you that, because the bible does linearity not cycles. Only after a very long dark time did light return: after about one hundred fifty million years, the cosmic dumplings had become massive enough and dense enough that the nuclei of particles started to smoosh together, igniting matter back into energy. Stars sparked new light into the darkness, light that would reach for your eyes across the aeons. (They did not and could not know whose eyes, if any, would ever receive their messages, but they sent them anyway. That's the way it is with writing, too, you know. I don't know whether you even exist.) Clumps followed clumps, and stars accumulated into clusters, clusters into galaxies. Each star gathered armfuls of planets into her orbit, like a caring mother duck who would later explode and swallow all her young in a giant fireball.

Then: nine billion years after the beginning—four-and-a-half-ish billion years before you, dear reader, would open your eyes for the very first or last time—there were another couple of bangs in the general patch of the universe you call home. These supernovae scattered carbon and iron and silicon and magnesium, turning a nondescript corner of a nondescript galaxy into a rather more potentially habitable—and therefore also potentially describable—place (in the beginning there was the word, but before the word came consciousness, and before that life, and before that the solar system, and before that the molecular cloud from which it formed, and before that the seed supernovae, and before that the universe itself, and whatever happened before that if anything happened before that; no one is really sure, a fact that makes the whole thing extremely interesting, though teachers have a habit of focusing on the bits we do know, which rather, it might be said, disenchants the whole affair).

The explosions made a bit of a mess—dust everywhere like you wouldn't believe—and shock waves compressed the debris into a patchy spinning disc. Because of the gravity of the situation, there was more dust in the middle and less round the edges, and the patches got clumpier and dumplingier until they became planetesimals—which, despite what they sound like, were not infinitesimal: they were already ten kilometres or so across, which is much bigger than where the Little Prince lived. (Incidentally, the planet that the Little Prince lives on is not very scientifically accurate. A hunk of rock that is "scarcely any larger than a house" wouldn't generate enough gravity to compress itself into a spheroid, and so the Little Prince's planet would, in fact, be rather more lumpen and irregular like a boulder or a potato. But, then again, the Little Prince and his planet are not in fact in fact, they are in fact in fiction, so as long as we can presume to make such a distinction, we need not worry too much about such trifling inconsistencies.)

But we are getting ahead of ourselves. In the time of the planetesimals there was no Little Prince, no Antoine de Saint-Exupéry, and, perhaps most distressing of all, no potatoes. But they were all already on their way, already a pro-verbial twinkle in the eye of a carbon atom. A carbon atom, that was, you remember, still minding its business whirling about in a spinning disc of dust. Now by this point, the middle of the spinning dust disc was thicker than the outside bits, which is to say it was getting sunnier and sunnier there, until at last it begot sun: all the hydrogen atoms in the middle of the solar nebula started smooshing themselves together to form helium, and radiating a whole load of energy in the process—including that which you got from your porridge this morning, and that which Homer and

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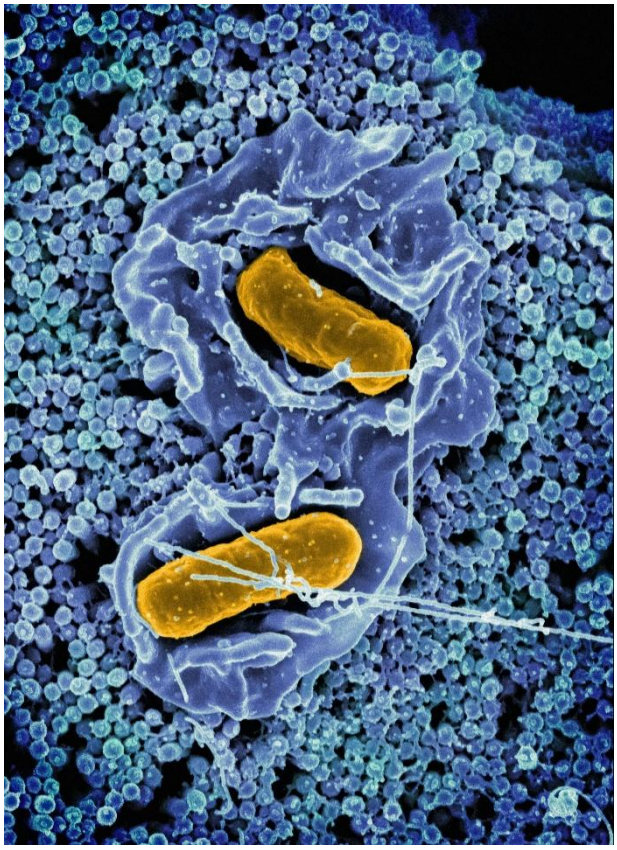
Shakespeare and Maya Angelou and Phillis Wheatley and Emily Dickinson and Rachel Carson got from their porridge not just one morning but every morning, and not just their porridge or breakfast carbon-hydrate of choice, but everything they ever ate, and not just everything *they* ever ate, but nearly everything everyone ever ate right from your great-great-great prokaryote grandmother who chomped down on the first breakfast three-point-five billion years ago—as far as we know breaking the universe's eleven-billion-year fast, so she must have been hungry—to the stromatolites and the *Dickinsonia* to the trilobites and the brachiopods and the corals and molluscs and cephalopods, the ferns and the rushes and the reptiles and the crustaceans and the fishes and the birds and the cycads and the angiosperms and the sharks and the turtles and the Proboscideas and the hominids and the house cats. And not just the energy in all things that were ever eaten or ate but also all of the fossilised energy that certain clever beasts use to make things faster or hotter or lighter, like trains and planes and radiators and computer screens. All that energy from the one sun, and she ain't done yet. Go on, my sun!



Scanning electron micrograph of *Salmonella Typhimurium* invading a human epithelial cell. Photo by National Institute of Allergy and Infectious Diseases (NIAID), US. Unsplash. Public domain.

But we are again getting ahead of ourselves. At the time of the formation of the sun there were no breakfasts and no stomachs and no so-called low-cost airlines, but there was energy, so much energy, pouring out in fierce waves of heat and light. And all the while the planetesimals were still circling round, occasionally crashing and combining into one another, becoming ever less esimal, ever more planety proper, until there were eight or nine propery planets (depending on when you went to school), one-hundred-and-forty-six moons—which is rather a lot of capacity to enamour, to mortify, to render insane, and all the rest of it—and lots of bits of comety rock and other cosmic rubble.

And so it went. Sun shone radiantly, and twirled and spun, and the planets twirled and spun and waltzed about, and besides the odd minor collision or Late Heavy Bombardment, everything orbited along quite nicely for ages and aeons. But, unbeknownst to sun, one planet was begetting ideas. Drunk on the water it had sluiced over its surface, your rascally Earth did the next inexplicable thing, and stirred rock into life. The story gets a little murky round this time, truth be told, but at some point, perhaps down by the deep-sea hydrothermal vents, a living thing emerged in the darkness, and the rest, as they say, is evolutionary history.

Time passes. After around five hundred million years those hungry marine prokaryotes invented the first alchemy: turning sunlight into sugar. But, as their great-great-great-great-great-great [1] grandchildren would later also discover, there's no such thing as a free lunch. These photosynthetic microfactories produced a toxic byproduct: oxygen. The more sugar these little protocritters made, the more they reproduced, and the more they reproduced, the more oxygen they pumped out, until the newly oxygen-rich atmosphere resulted in the extinction of many of the anaerobic species who had themselves, albeit unintentionally, engineered it. But, you know what they say: one microbe's noxious gas is another microbe's lifeblood. And so dawned the age of the eukaryotes. Nuclei, organelles, and mitochondria arrived on the scene—making multicellular life possible—and began a dance so intricate that you'd be forgiven for thinking it choreographed (it is not).

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And so there was eating and fucking, fighting and flying, there was cooperation and mutual back-scratching before there were even backs to scratch. And, as before so again, difference—imperfect replication—was at every origin, allowing species to become shape-shifters, turning fins into feet and reproductive instinct into romantic desire.

It's hard to ascertain when precisely the next inexplicable thing happened, but at some point between single-celled organisms and the orange-chinned parakeet, between the archaea and your great uncle Andy, life became conscious and began to have experiences of the world. And what experiences! There were beasts that conquered gravity to soar through the sky, others that could see through their ears in the dark, and some that coordinated their tiny bodies into complex colonies that acted as one. Noticing all this, one set of beasts invented storytelling, so that they too could take flights of fancy through the mind's sky, could see whole worlds through their ears in the dark, and could spin tales that would unify and motivate many individuals to act together. But the beasts didn't realise that just as they were inventing stories, the stories were also inventing them.

For a time—let's call it the Holocene—the beasts lived in the glittering worlds of their stories and did not notice that anything was awry. They built civilisations on these stories, they fought wars and made laws based on these stories, and many forgot that the stories were stories at all. Many forgot, too, everything I've just told you, the accumulative chain of chancy miracles that conspired to make the clever beasts and their stories possible in the first place. Meanwhile, Earth receded gently into the background, as if its rhythms were as regular and stable as a metronome, simply keeping time as the beasts played on. But the planet was a sleeping giant and the constant scratching at its skin began to wrench it back into wakefulness. At first, the beasts wondered at Earth's quaking, as if it had no cause. As if the invisible things didn't accumulate heavy in the air, or as if the past had passed entirely away.

Slowly—all too slowly—the beasts came to realise that they had a problem. Or, rather, a multitude of interconnected and accumulating problems. The problems themselves began to sketch out a story, and it was one that many of the clever beasts did not want to hear. It said that there was something fundamentally wrong with how the beasts had been living. It said that, no matter what they believed, control was only ever temporary and partial. That a common side effect of cleverness was severe myopia. It said that knowledge and wisdom live in different places, live entirely different lives. That rationality and logic are never immune from the undercurrent of irrational forces. That beasts, no matter how clever, still need to eat.

Of course there were some clever beasts that had always known these things, that had never lost their hold on the vastnesses at play, that had never forgotten where they came from. But those beasts were ignored or mocked by those who held power, even as their truth became impossible to tune out.

Now if this was a fable or a Disneyfied fairy tale, the beasts would learn from their mistakes and live happily ever after upon Earth (though of course there's in fact no ever after, happily or otherwise, in a universe ruled by entropy). But things are looking a little more Grimm than that. I don't even know if anyone is listening anymore. Perhaps you think all this is just another old wives' tale. Well, I am a very old wife, I suppose. But this is not my tale, it's yours. And it's a tale that will go on telling itself even when there are no more clever beasts to hear it.

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Notes

[1] There should actually be around nine trillion "greats" here, but you, dear reader, will not have time for that.

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GROWING UP AMID ENVIRONMENTAL CHANGE: A CONVERSATION WITH JAN DAVID HAUCK

Jan David Hauck and Pooja Nayak

Springs

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Jan David Hauck and Pooja Nayak

Jan David Hauck is an anthropologist who has been working with the Indigenous Aché communities in Paraguay since 2007 on topics including language shift, child socialization, ethics and morality, health care, and environmental transformations. Recently settled hunter-gatherers, the Aché like to make fun of his lack of hunting skills whenever he accompanies them on forest treks. If he manages to capture anything, it's not an armadillo or peccary but video footage, which he analyzes to understand linguistic, cultural, and moral change. At the RCC, he is principal investigator of the project "Changing Environments, Changing Childhoods: A Cross-Environmental Ethnography of Moral Socialization in Three Small-Scale Societies," for which he received an ERC Starting Grant. Pooja Nayak is a sociocultural anthropologist of environments and modern South Asia, researching how aspects of work, biodiversity, state capitalism, and more-than-human relations overlap in post-extraction settings in the Western Ghats. In Munich and nearby, she's been enjoying getting to know the moods of various pools and waterbodies through swims. Here, Pooja and Jan discuss environmental change and language, ethnographic practices, different forms of subsistence, as well as conceptions of morality and well-being.

A baby tapir growing up in the Aché village is curious about his human playmate. Photo by Jan David Hauck. CC BY-NC-ND 4.0.

POOJA NAYAK (PN): Jan, your current project broadly studies the impact of environmental change on children's moral socialization. Before this, you researched and taught linguistic anthropology in the US and in the UK. Could you share a little bit about your academic trajectory?

JAN DAVID HAUCK (JH): I began studying sociocultural anthropology in Germany at the Free University of Berlin in 2003, with a minor in Latin American studies. In my third year of studies, I participated in a research trip to the Mercosur countries,[1] and as part of that, I did fieldwork in Paraguay on bilingualism of Spanish and the Indigenous language Guaraní, about which I later wrote my MA thesis.[2]

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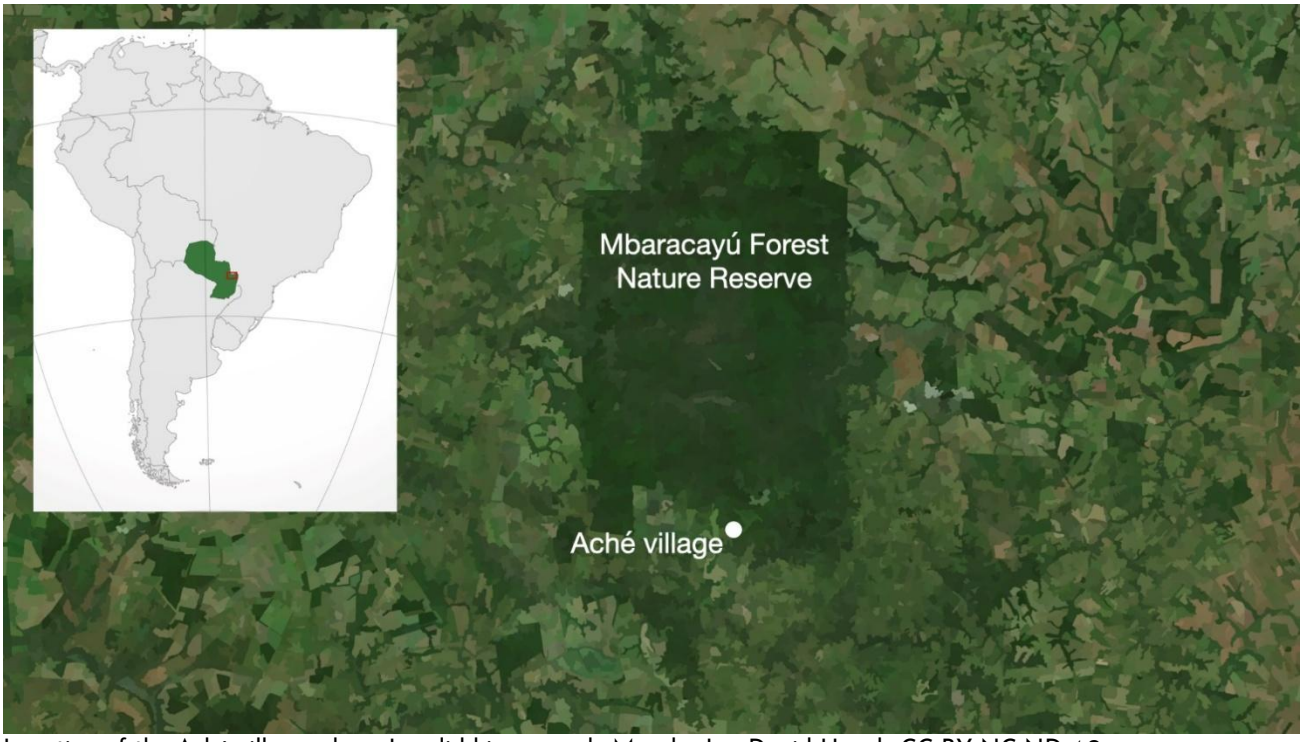
After that trip I got a visiting scholarship from DAAD, the German Academic Exchange Service, to spend a year at the University of São Paulo in Brazil. There I began collaborating with a linguist, Eva-Maria Roessler, who was studying close by at the University of Campinas, and who proposed to apply for a language documentation project with the Indigenous Aché, former hunter-gatherers in Paraguay. Together with another colleague who had begun working with the Aché, Warren Thompson, we wrote a project for the Volkswagen Foundation's DOBES endangered languages program and were awarded funding, initially for three years. I finished my MA, and while working on language documentation, I applied to the PhD program in linguistic anthropology at the University of California, Los Angeles (UCLA), where I started in 2010.

I had become interested in the question of language shift—why are the Aché shifting away from their heritage language? My training at UCLA opened my eyes to the role of children and child socialization. We were awarded a second DOBES grant, and with that grant, in 2013 I embarked on a language socialization study for my dissertation fieldwork. I spent over a year living in one Aché village, working closely with two families, and looking at children's language learning and language awareness. That research became my dissertation.



Location of the Aché village where Jan did his research. Map by Jan David Hauck. CC BY-NC-ND 4.0.

PN: Right. And your current project, how does it take that forward?

JH: The Aché used to live as nomadic foragers in the forest, before settling in villages in the 1960s and 70s. They now subsist on small-scale agriculture, but the village where I did my research is located adjacent to a forest reserve, where they have hunting rights. I was fortunate that I could join them on monthly hunting treks, spending four or five days in the reserve. I collected and analyzed ethnographic data and video recordings from both environments, forest and village, which represent past and present modes of existence.

In 2019 I started a postdoc at the London School of Economics and Political Science, which was concerned with morality. I reanalyzed my videos, focusing on behavior that was relevant to the socialization of moral values, such as cooperation and sharing. And I began noticing some striking differences: In the forest, children unquestionably helped clearing the campsite, making fire,

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fetching water from a creek, or collecting grubs. In the village, they spent more time playing in the peer group and sometimes even asked for compensation when helping out with everyday chores. The environment seemed a relevant variable for children's moral behavior. And that was when the idea for my current project was born: How do environmental transitions, moving from one environment to another, impact children's moral socialization?

Aché children wash the intestines of game that the women had cut up at a small creek close by the camp. Photo by Jan David Hauck. CC BY-NC-ND 4.0.

PN: What are some of these reasons why the Indigenous groups you study shifted from hunting and gathering in the forest to now living in the village?

JH: Paraguay is quite a sad story because almost all of the original forest in the eastern part of the country has been cut down. The Aché simply didn't have anywhere to go. Moreover, throughout the first half of the twentieth century, Paraguayan settlers organized manhunts of the Aché. The government intervened in the 1960s and began to contact and settle the remaining groups. Many also died from contact-related diseases once settled. It's a very traumatic history.

> *The Aché were always on the move. That means that for them settling in villages was a much more dramatic change than for other groups, with a major impact on language, culture, and morality.*

PN: What does subsistence now look like for the Aché after being forced out of the forest?

JH: As full-time nomadic foragers the Aché were a special case among Indigenous groups in South America. Most other groups have always been semi-sedentary; they did hunt and gather but also engaged in slash-and-burn agriculture, where patches of the forest are cleared and cultivated for some time and then abandoned to regenerate, and new patches are burned and cultivated. But the

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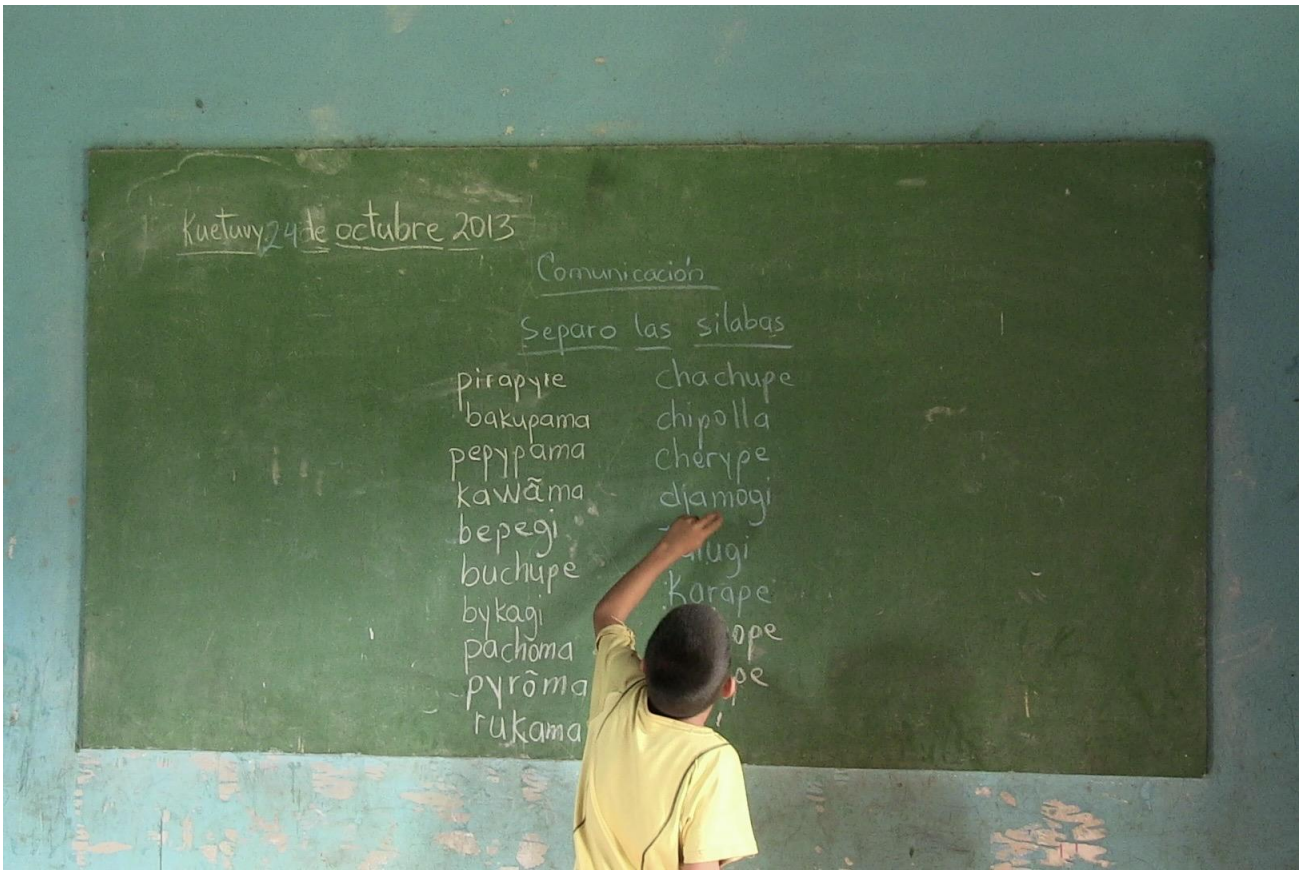
Aché were always on the move. That means that for them settling in villages was a much more dramatic change than for other groups, with a major impact on language, culture, and morality.

PN: And how would you describe the impact of this change of environment on language and ideas of morality?

JH: As the Aché were settling in villages there was a lot of pressure to learn Guaraní. Paraguay is a unique case in South America, because an Indigenous language, Guaraní, is spoken by most of its population, not just by a few Indigenous groups.[3] While most Paraguayans are bilingual in Guaraní and Spanish, the dominant language in the countryside is Guaraní. And that's what the Aché ended up needing to learn, not Spanish. But the shift to Guaraní was also a very slow and complex process. Settlement took place over the course of almost two decades, with one group after another leaving the forest and settling in different reservation communities. For pragmatic and cultural reasons, newcomers were compelled to learn the language of those already settled.[4] But they themselves were often also still in the process of learning Guaraní, so the language that the newcomers heard was a partial or mixed Guaraní. And you end up with a very dynamic linguistic ecology with elements from both Aché and Guaraní in frequent use. The children are taking all those linguistic resources and appropriate them and make them their own, creating a new mixed language, which they call Guaraché.[5]



An Aché boy is identifying syllables of words of his heritage language that the teacher has written on the blackboard in a village-school classroom. Photo by Jan David Hauck. CC BY-NC-ND 4.0.

PN: Maybe this is a good place to ask, did you end up studying Guaraní when you were in Paraguay?

JH: I did. Before starting dissertation fieldwork, I took a language course in Guaraní, so I could really understand the difference between it and Aché. It's really fascinating, because they are

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related languages; they're both from the same language family. So, at times it's hard to discern: When you look at a particular linguistic construct, is this Guaraní, is this Aché, or is this a new invention? I studied Guaraní to be able to analyze these subtle differences. But I never became fully fluent, because as soon as I arrived in the village, I began to learn the mixed language, Guaraché. By the way, learning a language with children is a very rewarding experience because they just talk freely with you; they don't try to accommodate you, and their language is a bit more straightforward—it is not as complex yet.

PN: But what about the relation of environmental change and morality?

JH: Right, morality! So, my initial observations of children cooperating more spontaneously in the forest but not so much in the village, they evoke some long-standing questions on human morality that have been debated extensively. To simplify a bit, the common narrative is that way back when all of humanity was still hunting and gathering, everybody was cooperating extensively, just as contemporary hunter-gatherers like the Aché.[6] Those conditions are often understood to have provided the grounds for the origin of morality in general—of ideas of fairness and justice and so on.[7] Then came the Neolithic: Humans began to settle, developed agriculture, started accumulating resources, and eventually power hierarchies and inequalities emerged.[8]

> *It seems that forms of political organization and moral dispositions represent choices of how to live together that human communities have been making throughout their history.*

More recent research has complicated this linear evolutionary narrative, much of it condensed in David Graeber and David Wengrow's book *The Dawn of Everything*.[9] They provide archaeological, historical, and ethnographic evidence for the coexistence of egalitarian and hierarchical structures throughout history and give many examples of collectives that switched between forms of social organization depending on the circumstances, often on the season: hierarchical in the summer, egalitarian in the winter, or vice versa.[10] Rather than the inevitable outcomes of sedentarization and the development of agriculture, it seems that forms of political organization and moral dispositions represent choices of how to live together that human communities have been making throughout their history.

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An Aché hunter carries a peccary back to the camp. Photo by Jan David Hauck. CC BY-NC-ND 4.0.

Does all that mean that environments and modes of subsistence are entirely irrelevant? Had deforestation and sedentarization no bearing on the Aché? What is unique about them and what gives us an opportunity to tackle these long-standing questions in a novel way is that many Aché still go back and forth between forest and village. There are lots of studies with small-scale societies that focus on morality, on cooperation and sharing, but most of them simply compare hunter-gatherer collectives with agriculturalists or with pastoralists or city dwellers; so they contrast not only environments but also different people with different cultural histories, different languages, different values. By contrast, we will work with the same families as they move between environments, so that we can isolate the environment as an independent variable.

And then, approaching this question from the perspective of child socialization will allow us to explore not only if different environments impact moral understanding and behavior but also how these are learned. We come to understand our rights and duties, ideas of fairness and justice, through everyday interactions with caregivers and peers. Analyzing these can shed light on whether particular moral understandings are acquired, acquired differently, or not at all.[11]

> *We come to understand our rights and duties, ideas of fairness and justice, through everyday interactions with caregivers and peers.*

PN: Long-term ethnographic work typically involves building mutual relations of trust over time. Have you had a chance to learn what community members thought of your project?

JH: I've worked for almost two decades with the Aché on different projects, on language documentation, pedagogy, on health—I've built a clinic in one of the communities. So, I have a long-standing relationship with many Aché people, and they collaborate actively in my research. But this particular project also addresses a fundamental concern of the Aché themselves.

The Aché are observing moral change. They wouldn't frame it explicitly as moral change, but I would often hear statements such as, "We don't give anymore." Giving is a very important value for the

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Aché. A virtuous person, someone who is highly valued is someone who is able to give. This is not uncommon in a hunting-and-gathering context, where hunting success is not guaranteed all the time or where you have to cooperate in hunting down large game. It only works if people share, even if reluctantly,[12] if you can rely on someone else on the day you come home empty-handed. Giving, sharing, and generosity are highly valued in many of these contexts.

Now that they live in villages and have less opportunities for hunting, there are less resources from the forest that people can share. And then there is the exposure to the capitalist economy that extends to rural Paraguay. There are primary schools and teachers who receive salaries. There is government assistance in the form of provisions or pensions. There are Paraguayan peddlers that come to the communities to sell their goods. They are experiencing a completely new way of relating to the needs of everyday life and the way resources that can fulfill those needs are generated. Moreover, people live in huts or houses where they can hide things away.

This situation has created a kind of conundrum: A lot of the traditional virtues are no longer realized. And how to maintain some of the values that were so dear to them in the face of all these changes is a moral question that the Aché are deeply interested in—as are many communities experiencing environmental changes around the world.

Women and children stay at the forest camp while the men are out on a hunt. The smoke from the fires helps keep mosquitoes at bay. Photo by Jan David Hauck. CC BY-NC-ND 4.0.

PN: Alongside your research in Paraguay, you're also supervising scholars who are conducting their own projects among Indigenous communities in Malaysia and Namibia. What do these three field sites share or how are they different from one another?

JH: When I was a postdoc at LSE, my colleague Megan Laws was finishing her doctoral research with the Ju|'hoansi in Namibia, also a former hunter-gatherer community. She wrote a fantastic dissertation on the relationship between uncertainty, egalitarianism, and patterns of movement across environments. The environments are very different, the Ju|'hoansi live in the Kalahari Desert. But there are also many parallels with the Aché, in that they were forced to settle in a small town in the 1970s and 80s, but more recently were able to move back to their original territories after

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conservancies had been established in the late 1990s. Her work was a crucial inspiration for the development of my project, and she has joined us now as co-investigator. Megan then put me in touch with another colleague, Alice Rudge, who has been working in Malaysia with the Batek. The Batek also share a very similar history, having been settled but still moving back to the forest occasionally. So this is how this three-way comparative project came about. And I am very lucky to have found two highly qualified doctoral students, Wong Pui May and Hiskia Akuupa, who will be conducting the field research in Malaysia and Namibia respectively.

> *The Aché, the Batek, and the Ju|'hoansi strike a good balance in that they are all former and still part-time hunter-gatherers and thus provide ideal settings for cross-environmental ethnography.*

Of course, in a comparative project you have to find a balance between the differences and the similarities. You can't compare too many things. But the three societies, the Aché, the Batek, and the Ju|'hoansi strike a good balance in that they are all former and still part-time hunter-gatherers and thus provide ideal settings for cross-environmental ethnography, while also being linguistically, culturally, and environmentally quite diverse.

PN: As an ethnographer, do you find such cross-cultural comparative work valuable?

JH: Anthropology, in my view, is inherently comparativist.[13] I'm not saying that you have to find different groups on different continents to start a comparison. You can do a comparative study within one single community. The value of comparison is that it allows you to accumulate multiple perspectives on a phenomenon, whatever phenomenon you're interested in—which is important because that's how you refine your theory. It forces you to rethink your concepts, and you arrive at a multidimensional understanding of the phenomenon. Like take the case of sharing: When we think about sharing, it's something seemingly very straightforward, giving something to others or letting them take it. But there are tons of questions that remain: What exactly does sharing entail in a particular location? How is it valued? What can and cannot be shared? Is sharing downplayed or highlighted? The comparative perspective allows us to bracket our own understandings of such everyday concepts and to let them be transformed by other ethnographic realities.

PN: This gives me a chance to ask you about methods broadly. You mentioned you also use visual methods. Could you elaborate?

JH: Yes, yes. So, by training I'm a linguistic anthropologist, and I was using video ethnography already for my dissertation.[14] That's, of course, crucial for studying language, because language is so much more than just the words; it's also the embodied behavior, gestures, and so on. But multimodal linguistic anthropology is well equipped to answer all kinds of research questions, because studying interaction can tell you a lot about human culture, human behavior in general, whether it's the economy, religion, questions of morality.

Taking the example of sharing again, you can of course quantify—say, in the forest, there is this much of a given resource that is shared, and in an agricultural community only that much. But what most studies don't do is look at how sharing is accomplished, which can give you answers to questions like: Do people share freely or reluctantly? What language is used to request something, to offer something? What obligation or entitlement is implied in the way a request is formulated? How close are the people standing together? Does somebody stretch out a hand? Do they make eye contact?

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(Left) Aché children cross a natural bridge over a stream in the forest. The girls are carrying their belongings in traditional baskets that are attached to their foreheads. (Right) An elder woman weaving a carrying basket. Photos by Jan David Hauck. CC BY-NC-ND 4.0.

Among the Aché in the forest, let's say, somebody collected a palm heart, a delicacy that they love. There are not that many palms left, so it's quite valuable. But this particular palm heart, it doesn't just automatically end up divided equally among everybody. In one interaction that I observed, a girl was trying to get her cousin to give her a piece of palm heart, and she went through several ways of reformulating her question. Translated into English, it would be like "give me," "give me a little," or "give me, please," with different intonation and affect. All these ways of initiating a transaction, the linguistic, grammatical, and interactional resources that are used to achieve the distribution of a palm heart, have moral weight. You show entitlement; you show respect; you show politeness. It tells you a lot about the relationship between the participants and how they perceive it. The formulation that ended up being successful in that she indeed received a share was a grammatical construction that kind of translates as "let's eat together." When you say, "Let's eat together," and one person has something and the other person doesn't, then it implies that, before this eating together can be achieved, a piece has to be transferred. At the same time the formulation de-emphasizes the fact that something is being shared. Video ethnography and interactional analysis can provide us with a lot of insights that otherwise we wouldn't be able to get at.

PN: Earlier you mentioned collaborating with the Aché in eastern Paraguay for more than a decade. What does collaboration with community-based members to conduct this research look like on the ground?

JH: Doing anthropology has always been a fraught exercise. As a researcher with funds from the Global North collecting data in an Indigenous community in the Global South you are inevitably faced with a highly unequal situation. Even if the goal is to use the resources of the researcher for the benefits of the community, for documenting a language, or for researching questions that are of local interest. Inequalities pervade our relationships in the field. You can't deny that.

> *As a researcher with funds from the Global North collecting data in an Indigenous community in the Global South you are inevitably faced with a highly unequal situation.*

There have been a lot of efforts to mitigate some of those inequalities through different initiatives of benefits sharing, designing collaborative projects, and capacity building. And there are certain countries, like neighboring Brazil for example, where members of Indigenous communities have acquired PhDs in anthropology, in linguistics, and are now professors at universities. This is laudable and really an important corrective to the long colonial history.

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But in contexts like Paraguay, where a PhD program in anthropology doesn't exist at all, things are much harder. One way in which we are trying to achieve a more equitable engagement with the communities is by creating programs to train community members as researchers, while working with local educational institutions to establish a system so they can receive credit toward different degrees. That would allow them to learn anthropological research methods, to design their own research questions, and to conduct their own research, all the while working toward an educational degree, and thus benefiting their own career. It's a fairly new initiative that I'm hoping to move forward.

PN: In an earlier conversation, you also hoped that your project would be of interest to audiences outside Paraguay, Namibia, and Malaysia. Could you share how a general audience might benefit from learning about environmental changes and its impact on language change and morality?

JH: We are all facing dramatic changes—environmental, social, cultural—across the world. And while I wouldn't claim that the experience of a small-scale hunting-and-gathering group undergoing a dramatic transition to a completely different lifestyle directly speaks to the experience of a shepherd on an Alpine pasture or a kindergarten teacher in Munich organizing an excursion to the forest, the question of what happens to our moral values when we're experiencing radical transitions is one that concerns us all. How are we going to continue to live together in light of all the environmental changes that we are facing? How will such changes affect the relationships that we build with one another?

> *The question of what happens to our moral values when we're experiencing radical transitions is one that concerns us all.*

Thereby, our research doesn't just look at the transition from forest or bushland to village, from hunting and gathering to an economy based on agriculture and wage labor. While the Aché, the Batek, and the Ju|'hoansi, all have been forced to shift from a nomadic to a sedentary mode of existence, what is remarkable is that they have made the choice to continue to go hunting and gathering. They don't need to go to the forest or to a remote territory in the Kalahari to survive, but they have chosen to maintain that mobility. That is an important thing to consider: They chose to maintain different lifestyles and different subsistence practices simultaneously. And that could be something that other communities that were not originally nomadic foragers might be forced to resort to if their livelihoods are jeopardized by ecological changes—to creatively find alternatives if their sedentary existence becomes no longer viable. Our project will provide answers in that regard as well.

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The anthropologist is filming an Aché boy who has been sitting for hours on top of a tree overlooking the camp. The Aché are highly adept at climbing any tree that's around. Photo by Teruko Mitsuhara. CC BY-NC-ND 4.0.

PN: What are you looking forward to next in terms of your project?

JH: My doctoral students have now arrived in Munich, and we're preparing for the first pilot field visits at the end of the month to get everything set up. I am certainly very excited about the opportunity to dedicate the bulk of our time to research, to have extended opportunities to travel and work closely with the communities and build new relationships.

But I also hope that our research will instigate further debate, especially on the question of the relationship of environmental and moral change. These two topics have been discussed extensively in anthropology and other disciplines, but there's very little work that has brought and thought them together. And then, looking at child socialization provides us a privileged lens onto the emergence of moral values, of perceptions of the environment and environmental differences, and of the skills that are necessary to navigate brave new worlds.[15] So I hope that our research will inspire others to follow suit and explore the nexus of environment, morality, and childhood in other parts of the world.

Notes

[1] Mercosur or Mercosul is a regional trade bloc in South America established in 1991 between Argentina, Brazil, Paraguay, and Uruguay, aimed at promoting economic integration and cooperation among its members.

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[2] Jan David Hauck, *Language Under Construction: Bilingualism in Paraguay and Some Unsettled Thoughts About Language* (Weißensee Verlag, 2009).

[3] There are several reasons for the relative dominance of Guaraní in Paraguay, including: The Jesuit missions of the colonial period that operated in Guaraní and created the first written materials in the language; the *encomienda* labor system that gave land grantees control over Indigenous populations, which fostered a Guaraní-dominant environment; as well as alliances of local rulers with Indigenous Guaraní populations in conflicts with coastal powers.

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[13] Peter van der Veer, *The Value of Comparison* (Duke University Press, 2016).

[14] Teruko Vida Mitsuhara and Jan David Hauck, "Video Ethnography: A Guide," in *Research Methods in Linguistic Anthropology*, ed. Sabina M. Perrino and Sonya E. Pritzker (Bloomsbury, 2022).

[15] Jan David Hauck and Francesca Mezzenzana, "Growing Up in the Face of Change: Environmental Transformation and Child Socialisation in Indigenous South America," *Social Anthropology/Anthropologie sociale* 33, no. 1 (2025): 1–14, https://doi.org/10.3167/saas.2025.330101.

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MAKING *BOURDÉLOTS* AND TASTING TERROIR

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Rory Hill

Newly planted orchard at Hamptonne Country Life Museum, St Lawrence, Jersey, 1990. Note pink Jersey granite wall to left, and windbreak trees at right. Société Jersiaise Photographic Archive, SJPA/009392. © Société Jersiaise. All rights reserved.

There is a line in *the Iliad* where Nestor, breaker of horses, laments Diomedes as:

> Lost to the hearth, lost to the clan, lost to the old ways.[1]

It has always struck me that the transmission of culture, from whatever source, in however small a way, is a means of resisting such an accusation. It implies some attachment, care, and concern for a specific place, which, in a world of flows, connections, and endless choice, has given rise to reflection among scholars.[2] As a cultural geographer, I explore and report back from other cultures. I look at languages, religious beliefs, oral histories, culinary traditions, and relationships with the environment. Less often, I am asked to share and interpret my own culture. In 2024, I led a class on the geography of food and drink at Oklahoma State University, exploring food cultures from places like Mexico, France, and India, examining what we eat today in the United States, and discussing how this connects to the nation's landscape, society, economy, and culture. Knowing where I grew up, one student asked me: What food comes from the Channel Islands? I may have blushed. What food comes from that tiny archipelago, lying in the shadows of the world-famous food and drink of Great Britain and France (figure 1)? I reeled off a list of a few traditional dishes, including bean crock (*pais au four*), Guernsey Gâche, and Jersey wonders (*mèrvelles*). I mentioned the Jersey Royal potatoes, which emerge from the soil in that island every spring, the earliest on the steepest sloped fields, with the best angle to catch the sun. I talked about the Jersey cow, selectively bred for some two hundred years, and now present on every continent. And for a dish close to the soil, *bourdélots* came to mind, a word I hadn't uttered since landing in the United States. I insisted they were very plain, but would I make some for the class, my students inquired.

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Fig. 1. Location of the Channel Islands, in relation to the south coast of the United Kingdom and historical regions of northwest France. Map data from OpenStreetMap, edited by Rory Hill. Open Data Commons Database License (ODbL).

I had learned to cook some traditional island dishes from my grandmother, my mother's mother. We made apple pie; we made vraic buns; but we had never made *bourdélots*, though I understood the general principle. The *bourdélot* is a cored apple baked in a pastry crust. It was popularized at a time when apple orchards covered much of the island, and cider production was an important part of its economy. This was most certainly before the twentieth century, but like much in food history, it is hard to say precisely when. To prepare, cook, and eat *bourdélots* is to continue a tradition, and the taste of the soft, baked apple—most of all if it is an apple grown in Jersey—is a taste that was enjoyed by earlier generations of islanders. The *bourdélot* has no official geographical protection of any kind; no dossier has been prepared to itemize and describe its nature and origins. While it does appear in the *Larousse Gastronomique* encyclopedia, it is described with characteristic brevity as a "baked apple or a pear enclosed in pastry," which comes "from Normandy."[3] Its last appearance in print may have been in a recipe book produced by the Federation of Women's Institutes in Jersey in the 1970s (figure 2).[4] But its existence betokens an apple-producing terroir that is historical and, just, still in use.

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Fig. 2. Book of traditional Jersey recipes, edited by Kathleen Simmonds and published by the Jersey Island Federation of Women's Institutes in 1971. © Jersey Island Federation of Women's Institutes. All rights reserved.

In making *bourdélots* for my class of culinary-geography students, I had the chance to bring terroir to life—an originally French concept that has animated my research over the last 10 years—and to "domesticate" it by applying it to a case study close to, but outside of, France. Terroir is a term that was first used in late medieval Burgundy to interpret the geographical origins of fine wines. In our own century, wine producers in France still tell us that *"il faut des grands terroirs pour des grands vins,"* [5] i.e., great terroirs make for great wines. The concept has been widely adopted throughout the world to explain why good wines taste the way they do, and to justify their value in a necessarily exclusive way. No two vineyards, the thinking goes, have exactly the same combination of soil, aspect, slope, microclimate, grape varieties, or ecology; nor are they tended by the same producers with the same philosophies, practices, and traditions; and so a great wine can never be fully imitated.

Terroir protects the product of a particular patch of Earth, be it in Meursault, Burgundy, or Kumeu, New Zealand, with the "age-old distinction between the same and the other." [6] According to the French government body INAO, it consists in: "a defined space in which a human community has developed collective farming traditions over time. Terroir is based on a system of interactions between a physical and biological environment and an ensemble of human factors."[7] When the late British philosopher and wine lover Roger Scruton described terroir, in poetic, even spiritual terms, he wrote that its matter, its physical stuff, has been made by plants rooted in the soil of that place and then transformed by human labor according to the customs of that place.[8] For the French, terroir always contains a human story; the history of production in a particular place is practically inevitable in the way it is used, and it is applied to products beyond wine, including fruit, cheese, bread, and meat. This sense persists despite the observation that the historicity and cultural dimensions of terroir get marginalized in the European Union's regulatory approach to the geographical protection of food and drink, and despite calls from wine's New World for "scientific" understandings of terroir that extricate its intangible qualities.[9] Those trends promote the biophysical, tangible, measurable components of terroir well above the perceived, felt, remembered, customary, culinary, and aesthetic components.

The cultural context of the apples from which *bourdélots* and cider are made in Jersey forms the cultural dimension of the island's terroir, just as its topography, soil, climate, and ecology form the biophysical dimension. Their interaction over time is, as INAO avers, the substance of terroir, and we can trace its outline. It is quite plausible that *Malus domestica* (the common apple tree) was first brought to Jersey and Guernsey during their time as Roman colonies (known as *Caesarea* and *Sarnia*, respectively).[10] The Romans made cider out of their apples in various parts of Europe, and production of this drink became popular in Normandy and Brittany, on the Channel Islands, and in southern England. Records show that cider was being exported from the islands to England in the thirteenth century, within the context of monastic and ecclesial intercourse; and cider was involved in trade between the islands and neighboring coasts of England and France.[11]

From the medieval period to the late sixteenth century, Jersey had a "flourishing agriculture except in the years when it was harried by raiders" from overseas.[12] Though in the best cases farms were largely self-sufficient, with some or all of sheep, cows, fowl, pigs, grain, apples, and other crops being raised, there was usually insufficient wood for local building and heating needs.[13] In a "land of open fields" surrounded by cliffs, dunes, and beaches, wood was sometimes imported from England, "wooden planks [that] washed upon the beach were highly prized," gorse and bracken were cut as fuel, and "dried seaweed had to be used to supplement wood for fires."[14] The boom in cider-apple cultivation, however, that began in Jersey in the late sixteenth century, was accompanied by a particular form of orchard enclosure that gradually filled the island with trees. Elms were imported from Normandy and planted around orchards to form separating hedgerows in the Norman bocage

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style.[15] Banks were built up, and the ditches in between them further widened to create small field patterns, which, while now mostly denuded of apple trees, have persisted.[16]

Apple orchards in these enclosed fields spread so quickly that by the late seventeenth century, the island's government felt compelled to limit the number of fields being turned over to apple cultivation, because of fears that not enough food crops were being grown to feed Jersey's increasing population and provide royal tithes. In 1673, the States of Jersey passed an act that aimed to prevent the planting of new orchards but allowed for existing ones to be maintained.[17] However, when England exempted Jersey cider from customs duties in 1676, it provided an even more lucrative export market for the product. So in 1681, while the island had to import wheat to ensure bread, not enough casks could be found to contain all the cider that was being produced there.[18] The following year, the historian Poingdestre wrote, "the whole island is in danger of becoming a continual orchard."[19] The number of skylarks was observed to decrease, "while species such as chaffinches which nest in trees and bushes would increase."[20] Shade-loving species of flowers grew in abundance, with knock-on effects on the island's insect fauna.[21]

Around 1780, a local expert on cider making, Francis Le Couteur, wrote a book about the practice, which the British Board of Agriculture adopted as an exemplar for cider making across the English Channel.[22] Jersey had established a reputation for cider production, not only in the quantity of it produced, but in the perfection of its craft. By 1795, 1,781 hectares of the island were planted in fruit orchards, of which the vast majority were apples for cider production.[23] These orchards appear in pretty rows on the "accurate survey and measurement of the Island of Jersey" drawn up in 1781 at the behest of the 3rd Duke of Richmond, master-general of the British Board of Ordnance (figure 3).

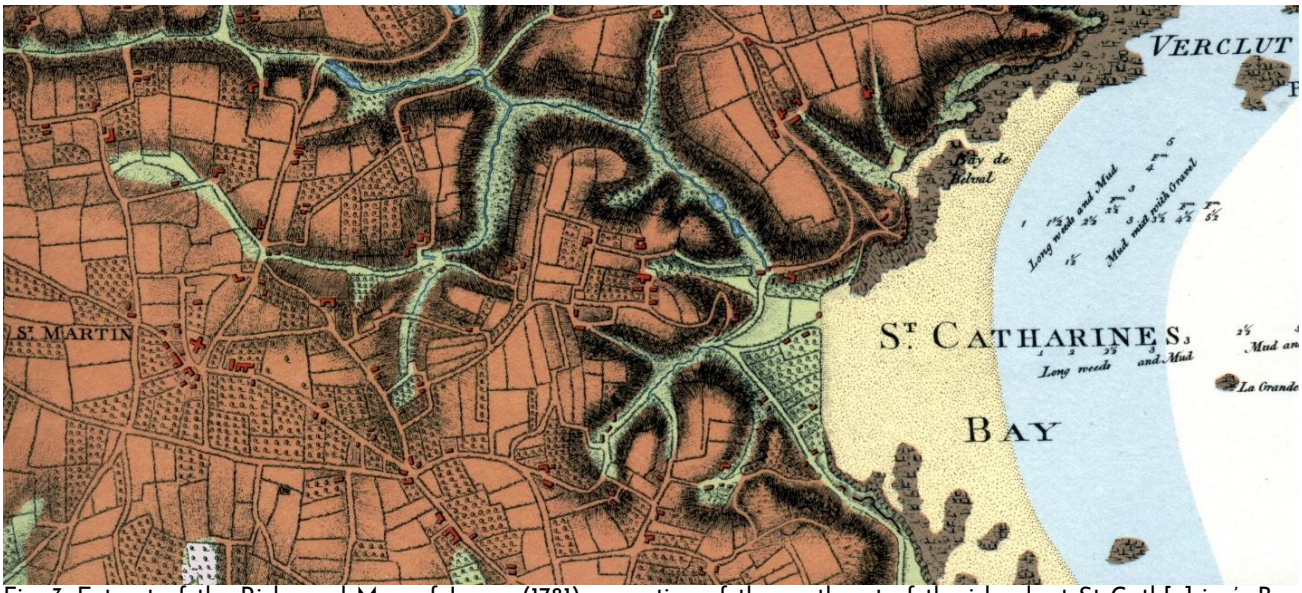

Fig. 3. Extract of the Richmond Map of Jersey (1781); a portion of the northeast of the island, at St Cath[e]rine's Bay. Apple orchards are shown as fields containing regular dots. Public domain.

In 1952, G. H. Dury carefully redrew Richmond's map and highlighted the geographical variation of orchard plantings within the island—heavier in the east than in the west. The placement of orchards reflected the agricultural aptitude of the island, bypassing the coastline with its pounding Atlantic surf and sea spray; bypassing the sand dunes that continued inland on the west and south coasts; and enjoying as much shelter as possible from the frequent severe gales of prevailing westerly wind that the natural historian Frances Le Sueur notes as a limit to growth for many plant species in the island. But it also reflected adaptation: the enclosure of small fields, driven by the division of land among large farming families before the mechanical era; and the widespread planting of elms along field boundaries as a windbreak.[24] Archaeologists and cultural ecologists might refer to the combination of aptitude, adaptation, and the transmission of knowledge in the island's cider production as a form of human niche construction.[25] I would contend that we can also understand it as terroir.

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There were far more apples and cider produced from this terroir than could be consumed locally; most of the output was destined for export. But apples were consistently and widely used in the islanders' food and drink. In a late seventeenth-century contract, Syvret and Stephens note a daily cider ration as part of the payment terms for workers;[26] and barrels of cider can be spotted in photographs of farm laborers in the fields of late nineteenth-century Jersey. For my grandfather's generation, in the early twentieth century, a breakfast of hot cider and toast was not uncommon. Stored correctly, raw apples could last through the winter and provide sugar and vitamins; if not prepared in various dishes, they could be cooked down into preserves like black butter (*nièthe beurre*; very similar to apple butter in the United States); they could be made into cider, and furthermore distilled into apple brandy (made famous in Normandy as Calvados).

Fig. 4. Apples being picked at Stonewall Orchards, Mont au Prêtre, St Helier, 1980. L/A/75/A3/5/5193. © *Jersey Evening Post* / Jersey Heritage. All rights reserved.

In the 1830s, cider was described as being "still the main source of the farmer's wealth."[27] Local historian Raoul Lemprière writes that 564,768 gallons of cider were exported in 1832; and Crowden that approximately 320,000 gallons were sold abroad in 1836.[28] Year after year, the stuff of Jersey's carefully tended apple crop was consumed by islanders and by people on the other side of the Channel. In 1839, however, Syvret and Stevens report a drop to around 268,000 export gallons.[29] Orchards were beginning to be replaced with arable crop production or, where less fertile, left as pasture for dairy cattle. Lemprière writes that by 1893 cider "ceased to be listed among Jersey's exports, although it continued to be made in the island for local consumption."[30] In the early twentieth century, huge international demand for the selectively bred Jersey cows provided different incentives for farmers; tomatoes were making money; and the success of the Jersey Royal potato saw "half the arable land devoted to the crop" in the 1910s. Yet, the island's landscape was still full of the hedgerow trees that had sheltered orchards during the cider boom years.[31] Ditches that had formed between orchards had become rough tracks, and over time were paved as roads. Moreover, apples and cider remained central parts of the island's culinary traditions in the first decades of the twentieth century, even as the island was urbanizing and culinary habits were becoming more cosmopolitan.

Apple cultivation has left a material imprint on Jersey's environment that can still be discerned. The suitability of the soil and climate for apple production—the biophysical components of terroir—had

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been put to economic use over multiple centuries, and the practices and products of apple cultivation were recognizable parts of the island's culture well into the twentieth century (figure 4). Dozens of local varieties of apple were cultivated and selectively bred in the island, which gave their distinctive flavor to the island's cider. These included the *Gros Romeril* and *Petit Romeril*—apples named after my mother's family, who were great cider producers in their day. After a massive storm in 1987 felled many of the island's remaining apple trees, Jersey's historical society, the Société Jersiaise, planted an orchard in which those historical apple varieties were grafted and kept alive. A few others also planted new, small orchards, including at the Hamptonne Country Life Museum, in the center of the island (cover image). Those trees are mature today, and about as old as me. Unlike me, however, they have stayed rooted in Jersey soil.

Fig. 5. Man and horse crushing apples for cider production in Trinity, Jersey (undated). Note barrel of cider to left of image. Société Jersiaise Photographic Archive, SJPA/004127. © Société Jersiaise. All rights reserved.

Most Jersey farms in the mid-nineteenth century had a trough and press used for making cider. The trough was usually fashioned from blocks of granite; the pink granite that Jersey shares with the north coast of Brittany, and the undersea pluton that connects them.[32] Its perdurability means that such troughs are sometimes found today planted with flowers and contributing to the kerb appeal of the properties they sit on. The method of cider production included having a horse pull the crushing wheel over the apples to extract the juice (figure 5), a practice that is still performed at fêtes and special occasions today.

Throughout the twentieth century, local newspapers featured advertisements for celebratory or fundraising soirées where black butter and other apple products would be made, to the sound of music, song, chatter, and laughter. These *séthées du nièthe beurre* involved people gathering at somebody's farm or house, preparing the apples, and stirring them with sugar and spices in huge *bâchins* or cauldrons over a fire all night long, until a thick, sweet, dark preserve was ready in the morning. At these events, too, *bourdélots* would sometimes be made and eaten, to help give energy to those peeling, chopping, and stirring (figure 6).

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Fig. 6. Scene of a black-butter soirée, shown in a Jersey Women's Institute calendar. *Bonnes femmes* dressed not entirely unlike the farmer's wife depicted in figure 2, which is to say, in the traditional, already old-fashioned, dress of a farmer's wife in the Channel Islands. At the bottom right of the picture, on a serving dish on the table edge, we see what is almost certainly a batch of *bourdélots*. To their right is what looks like an apple pie. On the table at the left of the image is an old-fashioned jug of cider and cups. The *bâchin* is in the fireplace getting stirred. Apples are everywhere. Judging by the faces and poses, some amusing chitchat has been taking place, very likely in Jersey-French. The soirée is in full swing. Undated (c. 1960). © R. H. Lawrence. All rights reserved. Courtesy of the Jersey Federation of Women's Institutes.

Cider, apple pie, *bourdélots*, and black butter enjoyed fame in Jersey; their quality was considered high, and their production reflected climatic and pedological suitability for *Malus domestica*. Photographic evidence and surviving material objects show us the equipment, hewn from local granite in some cases, used to crush apples and make cider. But like the parades of the *confréries* of wine in Burgundy, or the decoration of cows for their seasonal migration to high Alpine pastures, or the annual making of marzipan candies to celebrate Saint Agatha's martyrdom in Sicily, this collective transformation of apples into specific food and drink products, according to tradition, and in a festive way, demonstrates the close connection of people to the products of their land and indicates the cultural dimensions of the island's apple-growing terroir.

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Fig. 7. A pile of cider apples in an orchard in Jersey. Undated (twentieth century). Société Jersiaise Photographic Archive, SJPA/001372. © Société Jersiaise. All rights reserved.

The way of life of those who worked with, cultivated, and appreciated the fruits of this terroir was celebrated in events such as black-butter soirées. It was also celebrated and satirized in the work of Jersey-French poets in the nineteenth and early twentieth centuries. Mathilde de Faye, who went by the pen name Georgie, wrote an entertaining account of rural life in Jersey, centered on the weekly auction sale that took place in the middle of the island and attracted many farmers and country folk. In this poem she recounts, in Jersey-French:

> Where pastry and good *bourdélots* are made,
> That are big, and melt in the mouth[33]

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When traditional island recipes were compiled in a book whose cover image speaks to a rural way of life that was already slipping away (figure 2), many apple-based dishes were included. My grandma had that recipe book, and I remember flicking through it from time to time. Apple batter, black butter, apple pie . . . and *bourdélots*. The recipes transmitted traditions that came from the autumns of old when orchards throughout the island were covered with piles of fruit (figure 7); a taste of that tradition could be had for 25 pence a piece with the *bourdélots* made by Margaret Perchard and sold at a fair in Jersey in 1981 (figure 8). After my grandma died, I don't know what happened to her copy of the recipe book. Without access to it, I called my mum to ask about making *bourdélots*. I wanted to check I had the right idea. How should I make the pastry? When she described the process, she used the Jersey-French word *grumeleaus*, something I hadn't heard before. "Rub the flour and butter together until it makes little *grumeleaus*." I understood this, though I don't think either of us had ever written it down. What my mum was saying was rub the flour and butter together until they start to form breadcrumbs—a common step in pastry making. But to hear that word *grumeleaus* as I started down this road of making an old-fashioned Jersey dish . . . well, it really felt like one of the vernacular "fleurs de terroir" that Le Maistre described collecting when he talked with old Jersey folk to assemble, over decades, his dictionary.[34] You take an apple, core it, roll it in sugar (if the apple is not very sweet), and then wrap it in pastry. I remember grandma saying you could even put raisins in the space where the core was. You prepare as many apples as you have in this way, and put them in a hot oven. Then you take them out. The apple will have cooked down some, and the pastry will be a light gold color. There you have *bourdélots*, which should be eaten warm with cream. That's what I offered to my students, adding chestnuts to the cream for extra richness.

Fig. 8. *Bourdélots* for sale at the La Rocque Regatta, Jersey, 1981. More ornate versions of the bonnet seen in figure 2 are also on display here. L/A/75/A3/6/7823A. © *Jersey Evening Post* / Jersey Heritage. All rights reserved.

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Fig. 9. Black-butter making by members of the Jersey Young Farmers Club at Les Prés Manor, Grouville, Jersey, 1979. Note the large *bâchin* and stirrer. L/A/75/A3/4/2098C. © *Jersey Evening Post* / Jersey Heritage. All rights reserved.

Today, Jersey's landscape is increasingly urban, and the influx of global capital, which has maintained its prosperity, is attracted primarily by its British offshore fiscal status, and not at all by its terroir. In the landscape, rows of elm trees at field edges speak to the protection from strong westerly winds that was afforded to young apple orchards during the cider boom. There are many places in the island that bear names resonant of the same boom—Rue de la Presse in St Peter (*la presse* means the cider press), Les Vergers Farm in St Martin (*les vergers* is French for "the orchards"), Le Clos de la Pommeraie in St Saviour (*pommeraie* is another word for orchard), Les Pommiers Farm in St Lawrence (*les pommiers* means "the apple trees"), and Pomona Road in St Helier is described as "an area shown in old maps as a vale with orchards."[35] At historical fairs and on special occasions, such as at Samarès Manor and the Hamptonne Country Life Museum, horses are led to crush apples in old granite equipment, and black butter is still made from time to time (figure 9). Two commercial cider producers remain in the island, and one—La Robeline Cider Company—takes a great interest in traditional ways of making cider in this part of the world; its proprietors confer with cider producers in Normandy and Brittany, where France's most famous cider production—much of which enjoys Protected Designation of Origin status—takes place.[36]

Fig. 10. Steps of *bourdélot* preparation carried out in fall 2024: peeled and cored apple rolled in sugar and cinnamon; wrapped in pastry ready for baking; cooked, warm *bourdélots* served in class with chestnut whipped cream. Photo by Rory Hill. CC BY-NC-ND 4.0.

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Making *bourdélots* generated a felt, lived, remembered, and finally troubled understanding of terroir in myself. Like Scruton communing with a place and its past through a glass of wine, the smell of baked apple in pastry evoked Jersey, and did so ineffably more in the past than the present tense. My family had an old, mature orchard on its property for many years. My grandmother made *bourdélots* for my mother and my uncles when they were children. Before I became interested in wine and started exploring the complexities of French wine's terroir, cider was my drink of choice, and I follow(ed) the work of La Robeline with interest. But all of this is transitory. The island of Jersey today is a global offshore finance center, and while agriculture continues as a small part of its economy, the cultural change of the last 50 years has been enormous. Jersey-French is still spoken by a small number of people, but its future as a language passed from one generation of a family to the next is bleak. We could note that it is very fine to speak of a historical apple-growing terroir, but if the land is now more valuable for housing, it may literally get buried under concrete.[37] Though wine, cider, or *bourdélots* continue to be made as traditional regional products, is the link to terroir severed, or perhaps sublimated from present to past, once the ingredients come from somewhere else? Have we moved from tangible to intangible cultural heritage, and is Scruton's spiritual, spectral feeling of terroir all that is left? Perhaps in sharing the *bourdélots* with my students, both in narrative and edible form (figure 10), I demonstrated the broader feeling of a word—terroir—that is still "not fully domesticated" into English,[38] and that, despite its increasingly technical sense among New World winemakers and oenologists, retains a palpable sense of heritage and of home for many French people. I had introduced the terroir of my homeland and some of its culture—so little known elsewhere. Though I was far from my island home, I had avoided the trap of Diomedes, and shared some of its old ways.

Notes

[1] Homer, *The Iliad*, trans. Robert Fagles (Penguin, 1990), 253 (9.65).

[2] See, for example, John Tomaney, "Parochialism—A Defence," *Progress in Human Geography* 37, no. 5 (2013): 658–72, https://doi.org/10.1177/0309132512471235; Susanne Wessendorf, "Local Attachments and Transnational Everyday Lives: Second-Generation Italians in Switzerland," *Global Networks* 10, no. 3 (2010): 365–82, https://doi.org/10.1111/j.1471-0374.2010.00293.x; Alastair Bonnett, *The Geography of Nostalgia: Global and Local Perspectives on Modernity and Loss* (Routledge, 2015).

[3] Joël Robuchon, *Larousse Gastronomique* (Octopus, 2009), 125.

[4] It was slightly vexing, when searching for this book online by its Jersey-French title (*Bouon Appétit*), to be told by Google's AI that the phrase is "likely a misspelling of the French."

[5] Rory Hill, "'Local, Loyal, and Constant'? On the Dynamism of Terroir in Sustainable Agriculture" (DPhil diss., University of Oxford, 2016), 347.

[6] Michel Foucault, *The Order of Things* (Pantheon, 1970), xv.

[7] "Appellation d'origine protégée / contrôlée (AOP / AOC)," INAO, accessed 7 September 2025, https://www.inao.gouv.fr/aop-appellation-origine-protegee. Translations are by the author, unless noted otherwise. INAO stands for *Institut national de l'origine et de la qualité*, previously *Institut national des appellations d'origine*; National Institute of Origin and Quality.

[8] Roger Scruton, *I Drink Therefore I Am: A Philosopher's Guide to Wine* (Continuum, 2009).

[9] Delphine Marie-Vivien, Laurence Bérard, Jean-Pierre Boutonnet, and François Casabianca, "Are French Geographical Indications Losing Their Soul? Analyzing Recent Developments in the Governance of the Link to the Origin in France," *World Development* 98 (2017): 25–34, https://doi.org/10.1016/j.worlddev.2015.01.001; Luca Brillante, Antonello Bonfante, Robert G. V. Bramley, Javier Tardaguila, and Simone Priori, "Unbiased Scientific Approaches to the Study of Terroir Are Needed!," *Frontiers in Earth Science* 8 (2020), https://doi.org/10.3389/feart.2020.539377.

[10] John Crawfurd, "On the History and Migration of Cultivated Plants in Reference to Ethology—Fruits," *Transactions of the Ethnological Society of London* 5 (1867): 255–76.

[11] James Crowden, "Jersey Cider: The Paper Trail—Fragments of History," *Heritage Magazine* (Jersey Heritage Trust), 2006, 37–43.

[12] Frances Le Sueur, *A Natural History of Jersey* (Phillimore, 1976), 11.

[13] Marguerite Syvret and Joan Stevens, *Balleine's History of Jersey*, rev. ed. (Phillimore, 1981), 106.

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[14] Le Sueur, *Natural History*, 11; Syvret and Stevens, *Balleine's History*, 157.

[15] It is possible that new stocks of cider-apple seedlings were also imported from Normandy at that time. See Le Sueur, *Natural History*, 30.

[16] Julia Cliveley, *Trees in Jersey: A Guide to the Island's Familiar Trees and Shrubs* (Jersey Association of the Men of the Trees, 1997), 90–94.

[17] Etats de l'Île de Jersey, "8 avr. F°. 48, v°, 1673," in *Actes des Etats de l'Ile de Jersey 1660–1675*, ed. J. A. Messervy (Société Jersiaise Publications, 1900), 85–88, https://collections.societe.je/archive/books/actes-des-etats/actes-des-etats-1524-1700.

[18] Raoul Lemprière, *History of the Channel Islands* (Hale, 1974), 108.

[19] Syvret and Stevens, *Balleine's History*, 157–58.

[20] Le Sueur, *Natural History*, 12–13.

[21] Ibid.

[22] Lemprière, *History of the Channel Islands*, 167.

[23] G. H. Dury, "Some Land Use Statistics for Jersey in the Late Eighteenth Century," *Annual Bulletin of the Société Jersiaise* 15 (1952): 439–44.

[24] Le Sueur, *Natural History*, 10, 29–30.

[25] See, for example, Jeremy Kendal, Jamshid J. Tehrani, and John Odling-Smee, "Human Niche Construction in Interdisciplinary Focus," *Philosophical Transactions of the Royal Society B: Biological Sciences* 366, no. 1566 (2011): 785–92, https://doi.org/10.1098/rstb.2010.0306.

[26] Syvret and Stevens, *Balleine's History*, 158.

[27] Ibid., 224.

[28] Lemprière, *History of the Channel Islands*, 166; Crowden, "Jersey Cider," 41.

[29] Syvret and Stevens, *Balleine's History*, 224.

[30] Lemprière, *History of the Channel Islands*, 166.

[31] Le Sueur, *Natural History*, 13.

[32] Syvret and Stevens, *Balleine's History*, 224; Fiona Ferbrache, "Island Geologic Connections: Reimagining Guernsey's Spatial Dynamics Through Land-Sea-Geologic Relations, Past and Present," *Area* 56, no. 4 (2024): e12965, https://doi.org/10.1111/area.12965.

[33] Mathilde de Faye (Georgie), "Y faut allé es vendues pour vais ses viers anmeins," Les Pages Jèrriaises, undated, https://members.societe-jersiaise.org/geraint/jerriais/vendues.html. (Poet lived from 1846 to 1926.)

[34] Frank Le Maistre, *Dictionnaire Jersiais-Français* (Don Balleine, 1966).

[35] Collette Stevens, *Jersey Place Names*, vol. 1 (Société Jersiaise, 1987).

[36] Throughout Europe, when groups of producers argue for recognition of a specific product with a Protected Designation of Origin (*Appellation d'Origine Protégée; Geschützte Ursprungsbezeichnung*), they have to assemble a dossier with evidence that includes the geographical boundaries of production and an explanation of how the product is linked to the place it comes from. In France, that link is described as a link to terroir (*lien au terroir*), and evidence ranges from soil samples, geological maps, and climate data to the role of the product in local traditions, appearances of the product on local menus, and mentions of the product in historical documents.

[37] A challenge Daniel Gade also found in the wine growing terroir of Cassis on the French Riviera. See Daniel Gade, "Tradition, Territory, and Terroir in French Viniculture: Cassis, France, and Appellation Contrôlée," *Annals of the Association of American Geographers* 94, no. 4 (2004): 848–67, https://doi.org/10.1111/j.1467-8306.2004.00438.x.

[38] *Oxford English Dictionary*, s.v. "terroir (n. & adj.)," accessed March 2025, https://doi.org/10.1093/OED/4599872462.

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