

A large, stylized, light gray tree graphic is positioned on the right side of the page, extending from the top to the middle. The tree has a thick trunk and several branches, with some branches ending in circular shapes that resemble leaves or clouds. The background is white.

# Horizontality, Negotiation, and Emergence: Toward a Philosophy of Environmental History

Diogo de Carvalho Cabral<sup>1</sup>

## ABSTRACT

In this article, I intend to creatively synthesize both the empirical findings and the theoretical formulations put forward by self-proclaimed environmental historians, as well as those by the scholars who preceded and influenced them. Establishing a dialogue with the broader field of Environmental Humanities, especially posthumanism, I propose three principles for writing environmental histories: horizontality, negotiation, and emergency. Horizontality refers to the inexistence of a given and absolute 'ground' for human life. We walk, build our houses, earn a living, and develop ideas and cultures, not on top of an ontological floor, but attending to and being attended by the bodies surrounding us, some of them animated and some not, some solid and some liquid and gaseous. To inhabit is to make oneself available to be inhabited. Mutual habitation weaves assemblages that are both the continent and the content of life. Negotiation alludes to the human conversation with a larger world, both animated and inanimate, about coexistence. Humans never get everything they want, just the way they want it, from their relationships with nonhumans. Though people rarely recognize this, the only way history can be made is through compromise with the rest of the biosphere. This means that humans are continuously becoming, as they and their activities couple themselves with other natural entities and their activities. Emergence, therefore, is the radical geo-historicity of all earthly things, whose character is never given beforehand but constituted as they make their way through the world.

**Keywords:** Theory of Environmental History; Posthumanism; Human/Nonhuman Entanglements.

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<sup>1</sup> Ph.D. in Geography (Rio de Janeiro Federal University, Brazil). Assistant Professor in Environmental History, Department of History, Trinity College Dublin, Ireland. ORCID: <https://orcid.org/0000-0002-2415-4675>. e-mail: [decarvad@tcd.ie](mailto:decarvad@tcd.ie)

Any academic field grows and strengthens itself through conceptualization and, despite the reluctance of many practitioners to discuss their theoretical frameworks, Environmental History is no exception.<sup>2</sup> In truth, one can argue that environmental historians have indeed produced a considerable body of theoretical literature, at least in comparison to other historical subfields. In a chanceful listing, I would highlight the writings of Carolyn Merchant, Arthur McEvoy and Donald Worster who, in the late 1980s, developed the already classic three tiers of environmental-historical studies (land, political economy, and the cognitive world);<sup>3</sup> William Cronon's ingenious attempt, sometime later, to reconcile Environmental History's materialism with postmodern claims about linguistic and narrative arbitrariness;<sup>4</sup> Cronon's new theoretical endeavour four years later, this time around problematizing the deep-rooted notion of wilderness;<sup>5</sup> Ted Steinberg's proposal, made already in the present century, to use "environment" as an analytical lens similar to race, class, and gender;<sup>6</sup> Linda Nash's discussion of agency in a materialistic but non-reductionistic fashion;<sup>7</sup> the works of Donald Hughes and José Augusto Pádua in the late 2000s, both trying in their own ways to dissolve or at least attenuate Western culture's dualisms (nature/culture, history/science, time/space);<sup>8</sup> the ambitious theory of social metabolism as a mechanism of historical change as developed by Manuel González de Molina and Víctor Toledo in the mid-2010s;<sup>9</sup> and the recent effort by Emily O'Gorman and Andrea Gaynor to bring Environmental History closer to the conceptual developments unfolding in the broader field of Environmental Humanities.<sup>10</sup>

<sup>2</sup> Esa Ruuskanen & Kari Väyrynen, "Theory and prospects of environmental history", *Rethinking History* 21, 4 (2017): 456-473; Grégory Quenet, "Environmental History" in Peter Burke & Marek Tamm, eds., *Debating New Approaches to History* (London and New York: Bloomsbury Academic, 2018), 75-86.

<sup>3</sup> Carolyn Merchant, "The theoretical structure of scientific revolutions", *Environmental Review* 11, 4 (1987): 265-274; Arthur F. McEvoy, "Toward an interactive theory of nature and culture: ecology, production, and cognition in the California fishing industry," *Environmental Review* 11, 4 (1987): 289-305; Donald Worster, "Appendix: doing environmental history", in D. Worster, ed., *The Ends of the Earth: Perspectives on Modern Environmental History* (Cambridge: Cambridge University Press, 1989), 289-308.

<sup>4</sup> William Cronon, "A place for stories: nature, history, and narrative," *Journal of American History* 78, 4 (1992): 1347-1376.

<sup>5</sup> William Cronon, "The trouble with wilderness or, getting back to the wrong nature," *Environmental History* 1, 1 (1996): 7-28.

<sup>6</sup> Ted Steinberg, "Down to earth: nature, agency, and power in history," *American Historical Review* 107, 3 (2002): 798-820.

<sup>7</sup> Linda Nash, "The agency of nature or the nature of agency?," *Environmental History* 10, 1 (2005): 67-69.

<sup>8</sup> Donald Hughes, "Three dimensions in environmental history," *Environment and History* 14, 3 (2008): 319-330; José Augusto Pádua, "As bases teóricas da história ambiental", *Estudos Avançados* 24, 68 (2010): 81-101.

<sup>9</sup> Manuel González de Molina & Víctor M. Toledo, *The Social Metabolism: A Socio-Ecological Theory of Historical Change* (New York and London: Springer International, 2014).

<sup>10</sup> Emily O'Gorman & Andrea Gaynor, "More-than-human histories," *Environmental History* 25, 4 (2020): 711-735.

Of course, environmental historians – especially those trained as historians – have a special (and completely justifiable) appetite for the empirical. Not by chance, since the first theoretical discussions in the late 1980s, voices like Worster's broke out in the floor to warn us that “theory can become so abstract that it loses touch with the empirical reality that has always been the historian’s first devotion. It can end up obscuring or distorting the incredible variety of experience.”<sup>11</sup> Even though I recognize that this risk is real, I would argue that it is worth taking if the effort contributes to forging philosophical and methodological principles that keep in regular trade the islands and atolls of this archipelago we call Environmental History, where numerous workgroups, networks, and clusters conduct specialized research on forests, climate, cities, seas, among many other topics.<sup>12</sup>

In this article, I intend to creatively synthesize both the empirical findings and the theoretical formulations put forward by self-proclaimed environmental historians, as well as those by the scholars who preceded and influenced them, aiming to radicalize – so to speak – some of these insights. Advancing in the same direction as the aforementioned paper by O’Gorman and Gaynor, I will try to establish a dialogue with the Environmental Humanities, especially posthumanism, to propose three principles for writing environmental histories: horizontality, negotiation and emergence. While each of them has something significant to say for itself, their full meaning emerges only in relation to one another; indeed, as I hope to make clear, each of the principles logically presupposes the others. On the most general level possible, they seek to resituate the trajectories of our species (and their internally conflictive groupings) within the broader histories of matter and life. This sets the stage for a kind of historical writing that “unites natural history and human history in a single, grand, and intelligible narrative,” as William McNeill described the intellectual feat by David Christian in his *Maps of Time*.<sup>13</sup> However, before examining each of the principles, I will briefly discuss what, in my view, distinguishes environmental

<sup>11</sup> Donald Worster, Introduction to Special Issue “Theories of Environmental History,” *Environmental Review* 11, 4 (1987): 253.

<sup>12</sup> Sverker Sörlin, “Comment,” in Peter Burke & Marek Tamm, eds., *Debating New Approaches to History* (London and New York: Bloomsbury Academic, 2018), 88.

<sup>13</sup> William H. McNeill, Foreword to David Christian, *Maps of Time – An Introduction to Big History* (Berkeley and Los Angeles: University of California Press, 2005), xv.

histories from the histories written up to the 1960s, including the ground-breaking analyses of French *annalistes*.

## SOCIONATURAL HISTORICITIES

Modern historians and history theorists have tended to conceive of human history in stark opposition to natural history. One of the leading twentieth-century philosophers of history, R. G. Collingwood, argued that the mental world of human sociality was historians' proper object of study. In *The Idea of History*, published posthumously in 1946, Collingwood wrote that “the historian is not interested in the fact that men eat and sleep and make love and thus satisfy their natural appetites; but he is interested in the social customs which they create by their thought as a framework within which these appetites find satisfaction in ways sanctioned by convention and morality.”<sup>14</sup> This position, of course, was already being contested in that same decade by Fernand Braudel, who advocated a totalizing study of human history – a “living and unbreakable unity,” therefore irreducible to its purely social or biological aspects.<sup>15</sup> One of the founders of the historiographical method that Braudel would further develop, Marc Bloch made a quick but provocative observation in *The Historian's Craft* about the siltation of the Gulf of Zwin, on the present Belgian-Dutch border, in the 10th century. According to Bloch, that was as much a “historical” as a geological phenomenon, as it had been caused by infrastructure works (dike construction and drainage) that, moreover, had contributed to the decline of the Bruges port.<sup>16</sup>

But, as we know, Bloch had his career tragically interrupted by the Nazis, and Braudel himself never fully solved the problem of how to bring the “geographical” into the writing of history without stripping it of its own temporality. While acknowledging

<sup>14</sup> R. G. Collingwood, *The Idea of History* (Oxford: Oxford University Press, 1961[1946]), 216.

<sup>15</sup> Fernand Braudel, “Y a-t-il une géographie de l'individu biologique?”, *Mélanges d'Histoire Sociale* 6 (1944): 36. It is widely recognized that in order to formulate this argument, Braudel turned to several pioneers in his own country, such as Paul Vidal de La Blache and Lucien Febvre. But it is also important to note that scholars outside the North Atlantic were also moving in the same direction, such as anthropologist Gilberto Freyre, who as early as 1937 had published a regional historical study written from an ecological point of view.

<sup>16</sup> Marc Bloch, *The Historian's Craft*, trans. P. Putnam (New York: Vintage Books, 1953), 23-4.

that “everything changes, even the [...] elements of physical geography,”<sup>17</sup> he was not much interested in what Richard Irvine, commenting on the work of nineteenth-century geologist Hugh Miller, called “biographical geology.”<sup>18</sup> In his classic three-volume study of the Mediterranean, Braudel made it clear he did not wish to “enter into discussion of the geological or geographical problems” – which for him consisted of little more than “hypotheses” –, even though he seems to have mastered the literature available at the time on the region's geological history.<sup>19</sup> True, there is nonhuman movement in Braudel's Mediterranean, but most of it is seasonal in character – hence cyclical, not “directional.” In a section titled “Has the climate changed since the sixteenth century?,” volume one's most explicit discussion of environmental change, Braudel is very cautious in admitting that “Climatic variations are likely,” though they could well be cyclical. “So the climate changes and does not change,” he concluded, as “it varies in relation to norms which may after all vary themselves, but only to a very slight degree.”<sup>20</sup>

With this theoretical stance, Braudel, in a way, gave up one of the greatest scientific and philosophical advances of the Enlightenment, namely, the historicizing view of nature, whose most excellent articulator was perhaps Georges-Louis Leclerc, the Count of Buffon. While maintaining the deist position that the Creator had imposed some fundamental structure on the Universe, Buffon pushed towards a secular, historical account of the biophysical reality, addressing the planet's origins and the transformations of minerals, plants and animals.<sup>21</sup> In his 1780 book *Les Époques de la Nature*, Buffon argued that “all things in the physical Universe are like those of the moral world, in a continuous movement of successive variations.” This historicization encompassed the relationship between humans and the rest of the biophysical world, as Buffon recognized that “the state in which we see Nature today is as much our work as hers; we temper it, modify it, adapt it to our needs, to our

<sup>17</sup> Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, vol.1, trans. S. Reynolds (London and New York: Harper & Row, 1972), 267.

<sup>18</sup> Richard D.G. Irvine, *An Anthropology of Deep Time: Geological Temporality and Social Life* (Cambridge: Cambridge University Press, 2020), 129 ss.

<sup>19</sup> Braudel, *The Mediterranean*, 26.

<sup>20</sup> Braudel, *The Mediterranean*, 269.

<sup>21</sup> Paul L. Farber, *Finding Order in Nature: The Naturalist Tradition from Linnaeus to E. O. Wilson* (Baltimore and London: The Johns Hopkins University Press, 2000), 19-20.

desires.”<sup>22</sup> This view exacerbated the specific forms of anthropocentrism and human exceptionalism that had begun to emerge during the European Renaissance and the so-called “Scientific Revolution.”<sup>23</sup> Considered nowadays as a predecessor of the Anthropocene concept, Buffon's history of the Earth can also be seen as the maturation of the humanist trope according to which “the history of civilization is the story of man from a time when nature controlled him until [another time when] he controlled nature,” a reversal attributed to “increased knowledge, technical skill, and invention.”<sup>24</sup>

In this trope, human history is the story of an animal species that eventually detaches itself from nature. Enlightenment thinkers often understood human historicity in contrast to natural historicity. One of the most famous arguments to support this distinction was based on the notion that only the truth of mindful works, of what is intentionally achieved, can be known, which means that only the actions of other human beings could be fully understood. Originally proposed by Giambattista Vico in the early eighteenth century, this theory was the basis on which the modern field of historical-humanist studies came to be formed. In the twentieth century, the aforementioned Collingwood was one of the last great philosophers to be inspired by Vico in his theorizing of historical knowledge. To Collingwood, while forces and mechanisms triggered natural changes without subjective interiority – and therefore only analyzable as “events” –, human social changes emerged from perception and thought, and therefore should be interpreted based on empathy.<sup>25</sup> Such an assumption impeded the narrative integration of geo-ecological processes and human symbolic dynamics in an interactionist scheme.

This would turn out to be the remarkable feat of late-twentieth-century environmental historians. They achieved this through an innovative narrative model

<sup>22</sup> Comte de Buffon, *Les Époques de la Nature*, tome première (Paris: Imprimerie Royale, 1780), 4.

<sup>23</sup> Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco: Harper & Row, 1980).

<sup>24</sup> Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley: University of California Press, 1967), 96. It must be stressed, however, that Buffon did not conceive of human history in a strictly linear way; he acknowledged, for example, the decline of civilizations and their plunge into “barbarism.” But even in these cases, his account appeals to teleological and exceptionalist notions, arguing that, as a consequence of the debacle of a civilization, “man then plunged back in the darkness of ignorance, he ceased, as it were, to be man.” Comte de Buffon, *Les Époques de la Nature*, tome second (Paris: Imprimerie Royale, 1780), 183.

<sup>25</sup> Cf., Giuseppina D’Oro, “The touch of King Midas: Collingwood on why actions are not events,” *Philosophical Explorations* 21, 1 (2018): 160-169.

that reconciled the view of nature as an autonomous material reality with the view of nature as a human technical-discursive construction.<sup>26</sup> But however brilliant the individual minds behind this intellectual project, it would never have been as impactful as it was had it not expressed a more profound collective sense that, after dominating nuclear fission in the 1940s, humans had obliterated “defensive boundaries between natural elements and the human artifice by which all previous civilizations were hedged in,” as Hannah Arendt had observed in the late 1950s. She distinguished between an earlier regime based on what she called “fabrication,” in which external relations with nature – manipulated to produce materials, tools and energy – had “a definite beginning and a predictable end” and a new regime based on what she dubbed “action,” a type of intervention that led “nature into the human world as such,” transforming it from within and unleashing “endless new chain[s] of happenings.”<sup>27</sup> As a brilliant early articulation of the Anthropocene concept, Arendt's observations go a long way toward understanding how humans “have become a natural condition” of life on Earth, to use Dipesh Chakrabarty's much more recent formulation.<sup>28</sup> As this author argued in another paper, the Anthropocene forces us to extend politics beyond *Homo sapiens*, for which it is necessary to develop the ability to look at humans from an Earth-centered perspective.<sup>29</sup> This requires a narrative strategy similar to that adopted by the American writer George Stewart, who told the story of a storm though not as a lifeless thing but as a being that expressed itself through its impact on humans and their trajectories.<sup>30</sup>

## HORIZONTALITY

Taken to its ultimate consequences, the writing of environmental histories tends to abolish categorical distinctions between *dramatis personae* and setting and replace it with flat topographies of constitutive – though often also destructive – encounters between humans and nonhumans. Shared with other contemporary approaches, such as actor-network theory, vital materialism and the Ingoldian

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<sup>26</sup> Quenet, “Environmental History,” 78.

<sup>27</sup> Hannah Arendt, “The modern concept of history,” *The Review of Politics* 20, 4 (1958): 585, 588.

<sup>28</sup> Dipesh Chakrabarty, “The climate of history: Four theses,” *Critical Inquiry* 35, 2 (2009): 214.

<sup>29</sup> Dipesh Chakrabarty, “Anthropocene time,” *History and Theory* 57, 1 (2018): 5-32.

<sup>30</sup> George R. Stewart, *Storm – A Novel*, 2nd ed. (New York: The Modern Library, 1947).

*plenum*, the principle of horizontality has been around from the very beginning of environmental historiography. “Nothing can be understood apart from its context,” wrote Alfred Crosby in the introduction to his *The Columbian Exchange*, “and man is no exception. He is a living entity, dependent on a number of other living entities for food, clothing, and often shelter. Many living things are dependent upon him for the same. Man is a biological entity before he is a Roman Catholic or a capitalist or anything else.”<sup>31</sup> In addition to naturalizing humans, this theoretical move made the environment more relational and dynamic. Although his empirical works have sometimes fallen short of theoretical principle, Paul Vidal de La Blache pioneered this critique at the turn of the twentieth century. “One pictures the earth as the ‘stage’ upon which man’s activities take place,” wrote the great French geographer, “without reflecting that the stage itself is alive.”<sup>32</sup>

For my part, I would take a further step and argue that there is no pre-existing, absolute stage or ontological floor for human life – or any life, for that matter. As I wrote elsewhere, the image of the stage should be replaced by that of “a play in which, as an integral part of the drama, the actors build the stage using their own bodies or, at the most, prostheses that expand their reach.”<sup>33</sup> Consider, for example, that biophysical reality we call “soil.” Far from a simple substrate, the soil is at the same time the result and the material medium of a nonhuman labor web that develops in geological time: growing plant roots making their way through small rock fissures, the bacteria and fungi in these roots promoting the chemical breakdown of minerals, geophagic earthworms feeding on the smallest particles of this friable material, among several other relationships and processes. As quantum physicist Carlo Rovelli pointed out, things “dwell one over the other,” and space is actually the fabric generated by these unstable “neighbouring relations.”<sup>34</sup> Rather than developing in an environment, life is the process by which natural beings make one another, dwell on one another, weaving together assemblages that are both the content and

<sup>31</sup> Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492*, 30th anniversary ed. (Westport: Praeger, 2003), xxv.

<sup>32</sup> Paul Vidal de La Blache, *Principles of Human Geography*, transl. M.T. Bingham (London: Constable Publ., 1926), 6.

<sup>33</sup> Diogo de Carvalho Cabral, *Na Presença da Floresta: Mata Atlântica e História Colonial* (Rio de Janeiro: Garamond/Faperj, 2014), 27.

<sup>34</sup> Carlo Rovelli, *Reality is not What it Seems: The Journey to Quantum Gravity*, transl. S. Carnell and E. Segre (London: Allen Lane, 2016), 151.



the container of history. In this horizontal field of entangled agencies, to inhabit is to make oneself available to be inhabited – it is to offer oneself as a terrain for the Other's happening. So, there is no space or stage, but only unstable *grounding configurations*. What we used to think of as individual bodies or even species are actually entire ecosystems nested (and moving) within other ever-larger ecosystems.<sup>35</sup>

Naturally, humans are part of this fractal generative web. As Timothy LeCain has argued, “humans do not just manipulate a clearly separate and distinct material environment that exists beyond the bounds of our genes, bodies, brains, and minds. Rather, this material environment is the very stuff out of which the changing and evolving amalgam that we call human emerges.”<sup>36</sup> Neo-materialist authors like LeCain challenge what I have called elsewhere “modern creationism,” that is, the post-medieval belief that humans are capable of creating worlds out of their intellectual abilities.<sup>37</sup> Neo-materialists depart from a concept of decentralized agency, championing the principle that humans participate in rather than create the world. In this perspective, creativity resides not in humans themselves and their cognitive powers but in their encounters with other beings and things and the relationships thus established. To the philosopher Nevena Ivanova, creativity can no longer be equalled with “the production of human cultural artefacts and experiences,” but must be understood as the “ubiquitous activity performed by heterogeneous, highly dynamic machinic assemblages (comprising of human, animal, computational, social, molecular, bacterial, viral, and other processes), which lead to the production of novel modes of existence.”<sup>38</sup>

Historically emerging from horizontal life processes, *Homo sapiens* acquired the ability to reflect about its own objectivity and, therefore, to create symbolic environments. This proved to be an essential skill in transitions to new horizontalities. With the appearance of human language – especially written language – it comes to

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<sup>35</sup> Eduardo Viveiros de Castro, “On models and examples: engineers and bricoleurs in the Anthropocene”, *Current Anthropology* 60, Suppl.20 (2019): S301.

<sup>36</sup> Timothy LeCain, *The Matter of History – How Things Create the Past* (Cambridge: Cambridge University Press, 2017), 7.

<sup>37</sup> Diogo de Carvalho Cabral, “No mutirão da vida: pensando como um historiador ambiental,” *Desenvolvimento e Meio Ambiente* 31 (2014): 142-145.

<sup>38</sup> Nevena Ivanova, “Non-anthropocentric creative mechanisms in multispecies symbiotic assemblages,” *Technoetic Arts – A Journal of Speculative Research* 14, 3 (2016): 226.

existence what could be called “textuality.” I am referring to the process described by Jacques Derrida through which endless chains or networks of referentiality generate linguistic meanings.<sup>39</sup> But textuality does not restrict itself to the narrow domain of human symbols. In its different forms, meaning circulates throughout the entire biosphere. Therefore, by jotting down their thoughts, people commit to a durable medium not pure symbols but messy, embodied transactions with other, non-symbolic beings.<sup>40</sup>

As an example, let's examine a passage from a mid-nineteenth-century Brazilian work, the *Tratado de Medicina e de Outros Variados Interesses do Brazil e da Humanidade*. Written by Fortunato Raphael Nogueira Penido, bachelor of law and polymath from Minas Gerais, the book addresses everything from the causes of deafness, to the role of iron pipes in the outbreak of fires, to the issue of tax municipalization. But such a “brief wave to the universe” wouldn't be complete without an extensive meditation on leaf-cutting ants, insect farmers that cut out pieces from crops to supply their underground fungus fields. In a chapter entitled “History of the past, present and future of ants in Brazil, with the exposition of the various means or processes to thin them,” Nogueira Penido argues that “the pertinacity they show in pursuing the plantations is because they understand that these plants are specially designed for their use.”<sup>41</sup> To demonstrate his point, he tells the following story:

As I was with this fellow resting under a tree's shade, I noticed the encounter of two ants who seemed to be talking to each other, and that the conversation was lively, given the various movements, contortions, and gestures they made. I said: I very much wanted to know what these two ants are talking about. The man replied that he had understood what they were saying, that the older one advised the younger not to approach because, though they are good servants, men are brutish, and so, in an attempt to caress you, they could clumsily break your back or worse; and that [Nogueira Penido's companion continued] the bespectacled man you see there, despite his charity to plant large crops to delight us with delicious food, he thinks that, because we live underground, we feel cold; the other day his charity was such that he set fire to the center of an ant nest; but instead of heating the ants he killed them, and only a few escaped; he has been trying to supply water to other anthills, and he has occasioned the same wreckage: in short, it is the habit of men to interpret the

<sup>39</sup> Jacques Derrida, “Différance,” in *Margins of Philosophy*, transl. A. Bass (Chicago: The University of Chicago Press, 1982), 1-27.

<sup>40</sup> Diogo de Carvalho Cabral and André Vital, “Multispecies emergent textualities: Writing and reading in ecologies of selves,” *ISLE: Interdisciplinary Studies in Literature and Environment*, <https://doi.org/10.1093/isle/isab024>

<sup>41</sup> Fortunato Raphael Nogueira Penido, *Tratado de Medicina e de Outros Variados Interesses do Brazil e da Humanidade* (Rio de Janeiro: Typographia do Commercio de Brito & Braga, 1858), 195.

things of heaven and earth according to what is happening between them: to pamper us they even apply tobacco smoke. In view of this explanation, I was so hurt that they considered me a servant that I proceeded to declare a bloody war on them, and managed to extinguish those that had settled within the territory that I have in the village of Formiga; but with my retreat I am told that they have once again invaded and seized the land; thus, it is necessary not to discontinue war if one wants to be free of such a plague.<sup>42</sup>

Interestingly, this ingenious narrative resembles Amerindian cosmologies, in which all-encompassing humanity is instantiated in different bodies, thus enabling different perspectives.<sup>43</sup> Like humans, ants are portrayed as selves who interpret events around them through the lens of their own needs and social ties. Using a clever mirror effect, Nogueira Penido makes the ants – through their human interlocutor – express their belief that human attitudes towards them are shaped “what is happening between them,” that is, their own cultural perspective. This is particularly eloquent evidence that, despite all the modern apparatus of anthropocentric disciplining of worldviews, the non-centeredness and flatness of lived ecologies is so powerfully suggestive that it sometimes manages to assert itself within human discourses.

## NEGOTIATION

But as the passage from Nogueira Penido's book also makes perfectly clear, horizontality does not imply “harmony” – quite the contrary. The absence of any gradient, of any given or predetermined topography of power, makes earthly coexistence an eminently political process. In its most general sense, what I am calling negotiation here is the process by which the being of an entity is always configured in relation to others, thus incorporating constitutive conflicts. As expressed in one of the meanings of the English verb “to negotiate,” natural, objective beings can traverse the fabric of existence only by negotiating with neighboring entities. Therefore, the concept of negotiation alludes to the conciliation of the dual terrestrial condition of having (and, therefore, changing) environments and, at the same time, being the environment of other beings. Environmental objectification is always dialectical. As Marx observed in his 1844 Economic-Philosophical Manuscripts, “As soon as I have an

<sup>42</sup> Idem.

<sup>43</sup> Eduardo Viveiros de Castro, “Cosmological deixis and Amerindian perspectivism,” *The Journal of the Royal Anthropological Institute* 4, 3 (1998): 469-488.

object, this object has me for an object."<sup>44</sup> In a sense, Isabel Archer, the immortal heroine of Henry James's classic novel *The Portrait of a Lady*, is a metaphor for Western high-modernist humanity, which now faces the dire consequences of its fossilist development model. In her passionate, unstoppable quest for freedom and self-determination, the protagonist eventually discovers that she had been objectified by other beings and forces while actively shaping her environment.<sup>45</sup> LeCain shrewdly observed that associating with coal and oil to increase their power was easy for humans. "The hard part," he added, "is to figure out how to keep these powerful partners from enslaving and destroying them."<sup>46</sup>

Ecological negotiations structure the very possibilities of historical knowledge. Consider paper, for example, the inscription surface whose systematic examination has become modern historians' main methodological tool. The specific set of documents available to historians at any given time is – in addition to cultural and political choices and, of course, sheer chance – the result of past people's ability to negotiate the preservation of paper with the degrading forces of atmosphere, as well as with insects such as moths and termites. After all, whether they are made of papyrus, hemp, rags or any other material, paper sheets are bodies interacting with the other bodies around them. If, as anthropologist Eduardo Kohn has observed, "meaning, broadly defined, is part and parcel of the living world beyond the human,"<sup>47</sup> then the biophysical preservation of written documents is a negotiation over the meaning of such packets of decaying cellulose: Are they material supports of symbolic heritage or large concentrations of food? Thus, for example, the moth loves degraded cellulose, being referred to by Robert Hooke, the famous seventeenth-century English chemist and physicist, as one of the "teeth of time."<sup>48</sup>

As "surviving structures,"<sup>49</sup> to use John Lewis Gaddis' term, written documents bear the bodily imprints of the human/nonhuman bargain that determine their more

<sup>44</sup> Karl Marx, *Economic and Philosophic Manuscripts of 1844 and The Communist Manifesto*, transl. Martin Milligan (New York: Prometheus Books, 1988), 155.

<sup>45</sup> Juliet McMaster, "The portrait of Isabel Archer," *American Literature* 45, 1 (1973): 57-8.

<sup>46</sup> Timothy James LeCain, "Against the Anthropocene: A neo-materialist perspective," *International Journal for History, Culture, and Modernity* 3, 1 (2015): 5.

<sup>47</sup> Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human* (Berkeley: University of California Press, 2013), 20.

<sup>48</sup> Apud Wilfred J. Plumbe, "Preservation of library materials in tropical countries", *Library Trends* 8, 2 (1959), 292.

<sup>49</sup> John L. Gaddis, *The Landscape of History: How Historians Map the Past* (Oxford: Oxford University Press, 2002), 41 e ss.

or less successful journeys through time. More precisely, these journeys are necessarily *spatiotemporal*,<sup>50</sup> as the preservation of paper requires the construction and maintenance of places. Whether portable or fixed to the ground, places are instruments that, by defining the essence of things and beings through spatial boundaries, help humans transform reality. Boxes, trunks and other types of containers were fundamental in human social life for millennia, serving to spatially enable the ontological distinction between those beings who perceived documents as food and those who saw them as a substrate for writing (as well as the sociopolitical distinction between those who had the right to access the written information and those who did not). Thus, our environmental histories must begin with reconstructing the historical geographies through which our sources survived – that is, as bodies. Something like the 1890 commentary by Alexander Charles Ewald on the famous medieval manuscript known as the “Domesday Book”:

At the present day Domesday Book – as the Survey *par excellence* of the country at the time of William the Conqueror is called – is carefully housed [...] within the gloomy but fireproof precincts of the Public Record Office, nor can the most sensitive and irritable antiquary find any fault with the manner in which the work is now guarded and preserved. Massive covers protect its pages, glass cases exclude the dust, and on the occasions when it is exhibited to the stranger no one save the official in charge is permitted to touch or turn over its sacred leaves. Before its transfer to the Record Office it was kept by the side of the Tally Court in the Receipt of the Exchequer under three locks and keys, and placed in the custody of the Auditor, the Chamberlains, and the Deputy Chamberlains of the Exchequer. In 1696 it was deposited with the other documents in the Chapter House at Westminster, where it remained until the erection of the Record Office, when it migrated to Fetter Lane as its permanent home.<sup>51</sup>

However, if we stick to the “animality of (human) writing as an embodied practice,”<sup>52</sup> as Etienne Benson has put it, then we can conclude that socio-ecological negotiation begins in the very writing of documents. The place-based, embodied transactions between humans and animals interferes with the production as much as with the preservation of documents. By helping to shape the places where records are written, animals inadvertently participate in the writing acts. “When a person can keep in motion,” noted naturalist Richard Spruce on a trip through the Amazon in the

<sup>50</sup> Philip J. Ethington, “Placing the past: ‘Groundwork’ for a spatial theory of history,” *Rethinking History* 11, 4 (2007): 465-493.

<sup>51</sup> Alex. Charles Ewald, *Paper and Parchment – Historical Sketches* (London: Ward and Downey, 1890), 2.

<sup>52</sup> Etienne S. Benson, “Animal writes: historiography, disciplinarity, and the animal trace,” in L. Kalof and G. M. Montgomery, eds., *Making Animal Meaning* (East Lansing: Michigan State University Press, 2011), 5.

late nineteenth century, mosquitoes “do not settle much on him, but when I am obliged to be still, as in writing or working with the microscope, their torment is scarcely bearable.”<sup>53</sup> This was the forest, as an assemblage of living things, setting the conditions for its own written depiction. This kind of harassment suffered by European scientists and artists were alleviated with the help of indigenous or African workers, as shown in this drawing (Figure 1) by Auguste-François Biard (1862), which portrays a black servant feeding a bonfire to keep the mosquitoes away from his master (Biard himself). The fact that these non-white workers were left out of the accounts far more often than the insects themselves speaks as much to subalternity as it does to the capacity of nonhuman performances to intrude symbolic textuality.

**Figura 1. “Moyen d’écarter les moustiques”.**



Fonte: Auguste François Biard, *Deux années au Brésil* (Paris: Librairie de L. Hachette et Cie., 1862).

<sup>53</sup> Richard Spruce, *Notes of a Botanist on the Amazon and the Andes*, vol. I (London, Macmillan and Co., 1908) 370.

But since material things always mediate human social relations and practices, any human/nonhuman negotiation is perforce the other side of negotiation between humans. Several examples could be drawn from colonial and neocolonial situations. British imperialism in India had to deal with termites or “white ants,” which threatened, among other things, to destroy the written testimonies of British occupation and, therefore, the imperial narrative. According to historian Rohan Deb Roy, it was feared “alongside damaging government documents white ants were perniciously destroying memories of earlier phases of British rule in India. An article published in the *Times of India* in 1874, for instance, lamented that documents related to Calcutta in the pre-1770 period had been ‘swept away’ by white ants.”<sup>54</sup> The lesson here is that power is a more-than-human phenomenon, or, more precisely, it always emerges (and is exercised) within heterogeneous sets of beings and things. Of course, this observation is not intended to minimize the importance of political and socioeconomic inequalities, but rather to highlight “the ways in which humans, nonhumans, and ecosystems intersect to produce hierarchies—privileges and disadvantages—within and across species,”<sup>55</sup> as well as sometimes to destabilize these hierarchies. In his now-classic study of the “banana cultures” that transformed the landscapes of Honduras’ northern coast between the late nineteenth and late twentieth centuries, John Soluri argued it is necessary to inscribe politics in its telluric contexts, thus including in the account nonhuman characters such as soils, plants and pathogens. Soluri noted that

images of ‘banana men’ cutting backroom deals with corrupt politicians obscure the fact that bananas grow in soil, not on paper; the concessions provided the banana companies with crucial advantages over potential competitors, but they did not make banana production a fait accompli. The biophysical resources needed to grow bananas were not infinitely malleable ‘raw materials,’ but components of dynamic agroecosystems. Ultimately, the fruit companies had an easier time manipulating politicians than they did controlling the people, plants, and pathogens whose daily interactions largely shaped landscapes and livelihoods on the North Coast.<sup>56</sup>

<sup>54</sup> Rohan Deb Roy, “White ants, empire, and entomo-politics in South Asia,” *The Historical Journal* 63, 2 (2020): 416.

<sup>55</sup> David Pellow *apud* Michael Warren Murphy and Caitlin Schroering, “Refiguring the Plantationocene: racial capitalism, world-systems analysis, and global socioecological transformation,” *Journal of World-Systems Research* 26, 2 (2020): 408.

<sup>56</sup> John Soluri, *Banana Cultures: Agriculture, Consumption, and Environmental Change in Honduras and the United States* (Austin: University of Texas Press, 2006), 12-13.

## EMERGENCE

Contingent negotiations with other entities shape each and every natural entity. This means that nothing in the Universe has its being apart from its relationships: this is the broadest sense of what I am calling here “emergence.” On a more analytical note, however, emergence refers to how relationships at a given level have unpredictable effects on a higher level of organization. As William Connolly explained, “the new effects become *infused* into the very [...] organization of the second level [...] such [...] that the cause cannot be said to be fully different from the effect engendered.” According to the same author, “a series of [...] feedback loops operate between the first and second levels to generate the stabilized results.”<sup>57</sup> Having themselves formed over time, these unstable and provisional arrangements – what Marxists call “totalities,” Latourians “networks”, and Deleuzians “assemblages” – confer new properties and limits to their formative entities. Richard Levins and Richard Lewontin give the example of the human ability to fly:

A person cannot fly by flapping her arms, no matter how much she tries, nor can a group of people fly by all flapping their arms simultaneously. But people do fly, as a consequence of the social organization that has created airplanes, pilots, and fuel. It is not society that flies, however, but individuals in society, who have acquired a property they do not have outside society. The limitations of individual physical beings are negated by social interactions. The whole, thus, is not simply the object of interaction of the parts but is the subject of action on the parts.<sup>58</sup>

In a very concrete sense, the ability and experience of flying – made possible by previous investigations in aerodynamics and the systematic, industrial use of fossil fuels, among other entanglements – equipped individual human beings and initiated new processes of change. Consider the cognitive power of seeing the Earth's surface from afar or the acceleration of travel and its implications in terms of environmental imagination and land use, for example. A very important subfield of geography that would come to be known as “Landscape Ecology” was created in post-WWII Germany from the systematic study of photographic images taken from aeroplanes. One can trace the historical connections between the Wright brothers and Santos Dumont’s invention in the early years of the last century and the photographs of the planet

<sup>57</sup> Apud Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham and London: Duke University Press, 2010), 33.

<sup>58</sup> Richard Levins and Richard Lewontin, *The Dialectical Biologist* (Cambridge, MA and London: Harvard University Press, 1985), 273.



taken from rockets, satellites, and spacecraft from the 1940s – culminating with the so-called “blue marble,” taken by the Apollo 17 mission in 1972 – which progressively helped to shape the image of the Earth as our home within the Universe. Of course, the idea of the planet as one among many other celestial bodies, a globe on whose surface we inhabit, was by then very old already. But the photographs turned a concept, a more or less abstract construct – especially for laypeople – into an *image*. As Carlos Walter Porto Gonçalves reminded us, “now we are immersed in a globe floating in space, but a globe that is there objectively, and that was placed before us by a lens that photographed it.”<sup>59</sup> The emotional appeal of these images was to play a crucial role in the formation of late twentieth-century popular strands of environmentalism.

In a sense, any historian – environmental or otherwise – deals with emergence processes. One example is the classic debate on how individual actions can, in specific contexts, change social structures. However, environmental historians radicalize this notion by conceiving not only worldviews and human behavior as subject to emergence dynamics but also the very bodies of these actors. Rather than strictly determined by genetic recipes, human bodies are malleable and responsive to their geohistorical circumstances, even on non-evolutionary timescales. Moreover, because they are themselves heterogeneous assemblages, individual human bodies enter into unexpected relationships with surrounding bodies, the effects of which materialize at higher levels of socio-ecological organization.<sup>60</sup>

Take slave societies, for example. The human body was both the instrument and the index of the socio-ecological differentiation between masters and slaves. In the Luso-Brazilian *Ancien Régime*, the two estates had specific “metabolic regimes,” or patterns of biophysical exchanges with the rest of the biosphere. Evidently, this differentiation stemmed from the fact that one of the groups appropriated the labor of the other. To live off their captives was the desire of all, including many freedmen. Although “cultural” at the intangible level of expectations and worldviews, this was a societal element that never failed to be ecological at the level of experience. Becoming

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<sup>59</sup> Carlos Walter Porto Gonçalves, *A Globalização da Natureza e a Natureza da Globalização* (Rio de Janeiro: Civilização Brasileira, 2006), 11.

<sup>60</sup> Bennett, *Vibrant Matter*, 39-51.

a master meant being able to live in domesticated habitats (private and public buildings), while their captives were exposed to the dangers of wild environments. Cutting down gigantic trees, churning sediment in icy river waters, hunting wild beasts, and removing leaf-cutting ant nests were just a few of enslaved people's risky daily tasks. These environmental interactions frequently left bodily marks that masters often used to recapture fugitives. Analyzing advertisements in the newspaper "O Universal," published in Ouro Preto, Márcia Amantino identified numerous cases in which advertisers mentioned wounds, mutilations, cuts and scars to describe the fugitives, "demonstrating the level of dangerousness of the activities performed by slaves."<sup>61</sup> By subjectifying their painful ecology, their bodies ended up contributing to the reproduction of their own captivity.

While their masters enjoyed a nutritionally and geographically varied diet, including food imported from overseas, the enslaved had to venture into forests, rivers and, mangroves if they were to supplement their restrictive diet. In addition, the exaggerated predominance of cassava in their diets may have led to negative rates of natural growth. Cassava has very little vitamin B1, or thiamine, as does jerk beef, another essential item in the slave diet. Eating these two foods primarily, enslaved people tended to be deficient in thiamine and develop beriberi, a disease that causes poor appetite, tiredness, digestive problems, limb atrophy, and ultimately death. Thiamine deficiency is transmitted from mother to child. Even in a healthy organism, breast milk contains little thiamine; when the mother has beriberi, the problem is even more dangerous. Although an adult woman can live with beriberi for many years, the breastfed child is exposed to a high risk of death. Considering that many African peoples had the habit of prolonging lactation, postponing the introduction of other foods potentially richer in thiamine in children's diets, it is likely that beriberi was an important cause of infant mortality. Available data indicate that it was high among the enslaved in nineteenth-century Bahia, probably higher than in any other population group. Over the nearly three centuries of colonial slavery, the infant mortality rate

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<sup>61</sup> Márcia Amantino, "Os escravos fugitivos em Minas Gerais e os anúncios do Jornal 'O Universal' - 1825 a 1832," *Locus - Revista de História* 12, 2 (2006): 71.

caused by this disease may have reached 30 percent in some places and periods.<sup>62</sup> Thus, the properties that emerged from the assemblage formed by the European enslavement of Africans, the biochemical attributes of cassava and dried meat, and the African lactation practices contributed to the failure of the Luso-Brazilian slave population to reproduce, which in turn reinforced the socio-economic role of the Atlantic trade.

## CONCLUDING REMARKS

Whether in the search for and interpretation of sources, or in writing the stories that derive from these procedures, the three principles I have just described are applicable in any of the specialized fields of the archipelago that is environmental history. These are certainly not cake recipes, which are always very artificial and schematic, therefore inhibiting the interpretative creativity which is essential in the humanities and social sciences. What I intended to offer here were fundamental guidelines to organize the psychic energy of scholars when faced with their research objects and materials, as well as with the task of writing. I tried to take to the ultimate consequences certain conceptual reasonings latent in literature, resorting to concrete examples to substantiate their adherence to the sublunar world, the historian's domain par excellence. On the other hand, I tried not to fall into that trap of excessive and alienating abstraction described by Worster decades ago. One characteristic that differentiates historical knowledge from other types of knowledge is its irremediable attachment to the richness of lived experiences as manifested in varied qualitative and quantitative data. As Gaddis has argued, the typical attitude of historians is to embed theories in narratives, not the other way around, which is a common procedure in economics, sociology and other social sciences.<sup>63</sup> Insofar as the description and explanation of lived life is their primary goal, historians turn to any conceptual reasoning – not uncommonly forming mosaics of different theoretical constructs – that might help them make sense of the spatiotemporal continuities and discontinuities in their data.

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<sup>62</sup> Kenneth F. Kiple, "The nutritional link with slave infant and child mortality in Brazil," *Hispanic American Historical Review* 69, 4 (1989): 677-690.

<sup>63</sup> Gaddis, *The Landscape of History*, 62.

On the other hand, we must remember that our stories are inescapably conceptual. Like everyday stories, academic narratives always incorporate assumptions and generalizations that barely reach the conscious level of our thought. The very selection of events (and actors) that feature in the stories is itself an analytic device that is not entirely empirical. The narrative form manages to make sense of the past insofar as it “hides the discontinuities, ellipses, and contradictory experiences” that would otherwise keep the jungle of facts completely unintelligible.<sup>64</sup> Thus, environmental historians cannot neglect theoretical thinking, especially considering that, in their commitment to unravel the role of “the earth itself as an agent and presence in history,”<sup>65</sup> they need to give voice to beings still widely regarded today as mute and irrational. This requires that they engage, at the philosophical level, with entrenched cultural premises. Perhaps more so than other forms of history writing, environmental history needs to be heavily loaded with conceptual discussion.

Horizontality challenges human exceptionalism, calling us to place people at the same ontological level on which rest the beings and things they supposedly make use of in their “history-making” quests. The current pandemic painfully reminds us that we are often the living stage in which other-than-human beings make their own histories. Negotiation calls attention to the fact that humans never get everything they want, precisely the way they want, from their relations with nonhumans. So, the only means through which they can “make history” is by compromising, in a way that humans themselves come out of the process transformed. Emergency refers to the radical geo-historicity of all earthly things, whose character is never given in advance but constituted as they make their way through the world. Even human bodies and their possibilities are shaped by the regimes of encounters they are subjected to, regimes that can have implications far beyond the immediacy of individual bodies. Enlarging the theoretical toolkit that environmental historians have at their disposal, these principles help us narrate and analyze human lives in their constitutive entanglements with other natural entities in the changing fabric of existence.

<sup>64</sup> Cronon, “A place for stories,” 1349-50.

<sup>65</sup> Donald Worster, “Appendix: Doing Environmental History,” in D. Worster, ed., *The Ends of the Earth: Perspectives on Modern Environmental History* (Cambridge: Cambridge University Press, 1989), 289.

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## Horizontalidade, Negociação e Emergência: Em Direção a uma Filosofia da História Ambiental

### Resumo

Neste artigo, eu pretendo sintetizar criativamente tanto os achados empíricos quanto as formulações teóricas apresentadas por autoproclamados historiadores ambientais, bem como pelos estudiosos que os precederam e influenciaram. Eu dialogo com o campo mais amplo das Humanidades Ambientais, sobretudo com as correntes identificadas com o Pós-Humanismo, de forma a propor três grandes princípios para a escrita das histórias ambientais: horizontalidade, negociação e emergência. A horizontalidade se refere à inexistência de um 'chão' dado e absoluto para a vida humana. Caminhamos, construímos nossas casas, ganhamos a vida e desenvolvemos ideias e culturas não em cima de um piso ontológico, mas cuidando e sendo cuidados pelos corpos que nos cercam, alguns deles animados e alguns não, alguns sólidos e alguns outros líquidos e gasosos. Habitar é colocar-se à disposição para ser habitado. A habitação mútua tece agenciamentos que são tanto o recipiente quanto o conteúdo da vida. Negociação alude à conversa humana com um mundo maior, animado e inanimado, sobre as possibilidades de coexistência. Os humanos nunca conseguem tudo o que desejam, precisamente da maneira que desejam, das suas relações com os não-humanos. A única maneira pela qual a história como a conhecemos é realmente produzida é por meio do compromisso, reconhecido ou não. Isso significa que os humanos estão ininterruptamente se tornando num contínuo devir, à medida que eles e suas atividades se acoplam às outras entidades naturais e suas atividades. A emergência, portanto, está ligada à radical geo-historicidade de todas as coisas terrenas, cujo caráter nunca é dado de antemão, mas constituído conforme elas fazem seu caminho pelo mundo.

**Palavras-chave:** Teoria da História Ambiental; Pós-Humanismo; Emaranhamentos Humanos/Não-humanos.

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