History and Theory 61, no. 3 (September 2022), 391–425 ISSN: 0018-2656
DOI: 10.1111/hith.12268

ARTICLE

NATURAL HISTORIES FOR THE ANTHROPOCENE: KOSELLECK'S THEORIES AND THE POSSIBILITY OF A HISTORY OF LIFETIMES

HELGE JORDHEIM[1]

ABSTRACT

In this article, I offer a rereading of Reinhart Koselleck that puts his work at the center of ongoing debates about how to write histories that can account for humanity's changed and changing relationship to our natural environment—or, in geological terms, to our planet. This involves engaging with the urgent realities of climate crisis and the geological agency of humans, which, in current discourse, are often designated by the concept of the Anthropocene. This article asks whether Koselleck's essays from the 1970s and after contain ideas, arguments, theories, and methods that may prove useful in collapsing "the age-old humanist distinction between natural history and human history," to use Dipesh Chakrabarty's phrase. Indeed, the unlikeliness of providing a positive answer to this question is itself an important motivation for raising it. The other motivation is the supposition that the difficulties in bridging the gap between human and natural history fundamentally has to do with time and, more specifically, with the divergent temporal frameworks governing different historiographies, which are in part practiced in natural sciences such as geology, biology, and meteorology. The first part of this article discusses what one could call Koselleck's temporal anthropocentrism, which was handed down in German historicism and hermeneutics from the eighteenth century onward in the shape of what I call the Vitruvian Man of Time. In Koselleck's work, this superimposition of the human onto the multiple lifetimes of the planet is most clearly expressed in his claim about the "denaturalization" of history at the beginning of modernity. The second part of this article observes a shift in Koselleck's engagement with nature beginning in the 1980s; this shift is presented in terms of a "renaturalization." The theoretical and methodological tool for this re-entanglement of the times of history and the times of nature is his theory of multiple times. Originally limited to the human, this theory rises to the task of including an increasing number of natural times that are no longer perceived as stable, static, and slow but as continuously accelerating due to "human use." In conclusion, this article suggests that Koselleck's work offers the framework for a theory of "lifetimes" that can replace modernist history as platform for writing new natural histories for the future.

Keywords: natural history, temporal anthropocentrism, Anthropocene, theory of multiple times, lifetimes

Events such as the COVID-19 pandemic, the melting ice caps, the sixth extinction, and the pending hunger disaster on the African continent serve as prompts for historians to write history in a different way. One question that emerges concerns *in what time* events such as these take place. Phrased in that way, this question begs a specific kind of answer, one that is based on the idea of an absolute, homogenous, Newtonian time into which all events, regardless of size and content, can be placed. An alternative way of conceiving of time is found in the works of Newton's contemporary rival Gottfried Wilhelm Leibniz, who insisted that time is a set of relations that co-emerge and coexist with the things themselves: not *in what time* certain events take place *but what kind of time emerges from these events*.[2] "History" is the name for one such set of relations that historians draw on in order to give meaning to chronologies and narratives of the past. If we accept that "history" emerges from a set of events and the relations between them, events such as pandemics and climate emergency, which stand out in complexity, scale, and magnitude, will necessarily have transformative effects on how history is structured in temporal terms. None of these events—if that is what they are[3]—fit easily onto traditional timelines, such as the ones printed at the end of history textbooks; nor can they be factored easily into cause-affect chains or historiographical narratives about progress, development, or decline. In general, these events are hard to grasp by means of historical time because no one can tell exactly when they began or ended, what they include, or what events precede and succeed them.

Let us take the sixth extinction event as an example.[4] At first glance, the numerical order implied by this term gives the impression of a homogenous, linear time into which the sixth and the five preceding extinctions can be placed. The fifth extinction event took place 66 million years ago and was caused by the impact of an asteroid; the third (and the biggest)—a volcanic eruption—happened 251 million years ago and killed 96 percent of life on Earth. The sixth is unfolding as we speak, and it was brought about by human overpopulation and overconsumption.[5]

1. A first draft of this article was given as the Koselleck-Lecture at the University of Bielefeld on 30 October 2019. I would like to thank Zoltán Boldizsár Simon and Lars Deile for making it happen, the University of Bielefeld for inviting me, and everyone in the audience for coming, asking questions, and offering comments, which were invaluable for completing the article. Special thanks to Angelika Epple, Willibald Steinmetz, Bettina Brandt, and Britta Hochkirchen for sharing their ideas on Koselleck's natural histories. Unless otherwise noted, translations are my own.

2. See *The Leibniz-Clarke Correspondence: Together with Extracts from Newton's* Principia *and* Optiks, ed. H. G. Alexander (Manchester: Manchester University Press, 1956). A recent take on this discussion is found in Lucian Hölscher, *Zeitgärten: Zeitfiguren in der Geschichte der Neuzeit* (Göttingen: Wallstein Verlag, 2020), 21–37.

3. On role of the event in historiography, see, for example, Zoltán Boldizsár Simon, *The Epochal Event: Transformations in the Entangled Human, Technological, and Natural Worlds* (London: Palgrave, 2020), especially 79–96.

4. In "World Scientists' Warning to Humanity: A Second Notice," 15,364 scientists from 184 countries issued a warning that humankind had unleashed what they referred to as a "sixth mass extinction event," wherein many current life forms could be annihilated by the end of this century; see William J. Ripple et al., "World Scientists' Warning to Humanity: A Second Notice," *BioScience* 67, no. 12 (2017), 1026–28.

5. Gerardo Ceballos, Paul R. Ehrlich, and Rodolfo Dirzo, "Biological Annihilation via the Ongoing Sixth Mass Extinction Signaled by Vertebrate Population Losses and Decline," *PNAS* 114, no. 30 (2017), E6089–E6096.

However, despite the coherent and continuous numbering, there is a striking lack of continuity between these events both on the level of agency and in their temporal and spatial configurations. Although they have occurred at the same place, cosmologically speaking, and within the same 540-million-year-long interval in the history of the planet in question, three events as diverse as the impact of an asteroid, a volcanic eruption, and human overpopulation and overconsumption do not seem to fit within the same historical narrative or to belong within the same history. In Leibnizian terms, to imagine the relations between these events appears all but impossible. Nevertheless, for historians, addressing these relational times and writing these histories is becoming increasingly urgent.[6]

This article sets out to find ways of thinking about these historiographical challenges that might facilitate histories of pandemics, species extinctions, plastic filling the oceans, and rising Earth temperatures. The contemporary historian who has most effectively considered similar concerns is Dipesh Chakrabarty, and he has done so in two essays in particular: "The Climate of History" (2009) and "Anthropocene Time" (2018).[7] Whereas the first is the most cited, the second is perhaps the most interesting. Why, Chakrabarty asks, is it so hard for historians to think and write about the Anthropocene—or, more generally, about "questions of geological time"?[8] These questions keep "fall[ing] out of view and the time of human world history comes to predominate."[9] According to Chakrabarty, "if we do not take into account Earth-history processes that outscale our very human sense of time, we do not quite see the depth of the predicament that confronts humans today."[10] Chakrabarty goes on to offer several examples of how ongoing debates about climate change and geological periodization fail to reconnect "human-centered and planet-centered" time, as he puts it, paraphrasing Jan Zalasiewicz.[11] In spite of its universalistic, planetary scope, Chakrabarty's question still comes across as too limited because it remains fully enmeshed in a particular version of geological periodization, the Anthropocene. In other words, the questions he raises engage with only one alternative time scale to human history, the geological, which reaches some 4.5 billion years (if we consider the age of the Earth) and some 13.6 billion years (if we consider the age of the universe) back in time. If we, as Chakrabarty argues in another seminal article, mobilize the planet

6. This urgency is clearly communicated in Zoltán Boldizsár Simon's *History in Times of Unprecedented Change: A Theory for the 21st Century* (London: Bloomsbury Academic, 2019). See also Juhan Hellerma's illuminating review of Simon's book: "History on the Move: Reimagining Historical Change and the (Im)possibility of Utopia in the 21st Century," *Journal of the Philosophy of History* 15, no. 2 (2020), 249–62. In the review, Hellerma examines Simon's argument regarding how modern concepts and narratives of history are inherently processual and developmental and thus unable to include (or even conceive of) something radically different and, indeed, unprecedented. Where Hellerma disagrees with Simon is in his view that the experience of loss of mastery and control connected to unprecedented change is necessarily dystopian and preclude "all purely utopian potential" (257).

7. Dipesh Chakrabarty, "The Climate of History: Four Theses," *Critical Inquiry* 35, no. 2 (2009), 197–222; Chakrabarty, "Anthropocene Time," *History and Theory* 57, no. 1 (2018), 5–32.

8. Chakrabarty, "Anthropocene Time," 6.

9. Ibid.

10. Ibid.

11. Ibid.

as "an emergent humanist category,"[12] the events that come into view are linked not by one but by several sets of temporal relations in addition to "history" and "geological time": every day, about a dozen species go extinct due to human activities, which is about one thousand times the background extinction rate. What kind of event is this and how can it be inscribed into history?

One strategy for addressing this challenge consists in adopting more flexible chronologies that allow for longer durations as well as other periodizations and intervals.[13] According to Daniel Lord Smail, historians need to escape the "grip of sacred history," a temporal straitjacket that impedes them from looking beyond the limits of historical time—6,000 years at the most, but often no more than 2,500.[14] On the contrary, to write "deep history," Smail argues elsewhere, historians are tasked with "bundling together the Paleolithic and the Neolithic with the Postlithic" and thus moving at least 2.5 million years back in time in order to produce "a seamless narrative that acknowledges the full chronology of the human past."[15] Attempts to realize this goal can be found in genres such as "deep history" and "big history."[16] Prompted by a certain skepticism regarding whether these kinds of "seamless narratives" and "full chronologies" are at all possible, or even desirable, this article will explore another strategy. Histories written in response to events such as the ones mentioned above can never achieve "seamlessness" or "fullness"; rather, they should accept as their main task the job of accounting for the multiple, entangled, but also conflicting times at work in these and similar events. All historical events are fundamentally multi-temporal in the sense that they not only unfold according to different "regimes"[17] and on different scales[18] but also form part of diverse temporal orders, rhythms, or narratives. This

12. Dipesh Chakrabarty, "The Planet: An Emergent Humanist Category," *Critical Inquiry* 46, no. 1 (2019), 1–31. This essay, along with the other two essays cited here, appears in Chakrabarty's *The Climate of History in a Planetary Age* (Chicago: University of Chicago Press, 2021). In "The Planet," Chakrabarty turns to Earth system scientists (rather than to geologists) as the main proponents of contemporary natural history. This allows for more and different times, an important expansion that aligns well with the main claims in this article.

13. For further exploration, see Helge Jordheim, "Return to Chronology," in *Rethinking Historical Time: New Approaches to Presentism*, ed. Marek Tamm and Laurent Olivier (London: Bloomsbury Academic, 2019), 43–56.

14. Daniel Lord Smail, "In the Grip of Sacred History," *American Historical Review* 110, no. 5 (2005), 1337–61.

15. Daniel Lord Smail, *On Deep History and the Brain* (Berkeley: University of California Press, 2008), 2, 3.

16. In addition to Andrew Shryock and Daniel Lord Smail, *Deep History: The Architecture of Past and Present* (Berkeley: University of California Press, 2011) and Smail, *On Deep History and the Brain*, see David Christian, *Maps of Time: An Introduction to Big History* (Berkeley: University of California Press, 2008). For further discussion, see David Armitage, "What Is the Big Idea? Intellectual History and the Longue Durée," *History of European Ideas* 38, no. 4 (2012), 493–507.

17. For discussions of temporal "regimes" in historiography and elsewhere, see François Hartog, *Régimes d'historicité: Présentisme et expériences du temps* (Paris: Seuil, 2003) and Aleida Assmann, *Ist die Zeit aus den Fugen? Aufstieg und Fall des Zeitregimes der Moderne* (Munich: Hanser, 2013).

18. The question of scale comes up, implicitly or explicitly, in works that discuss history and the *longue durée* mostly in response to the long intervals of geologic or evolutionary time, which are not easily aligned with historical or social time. These times, however, exist in a continuum with times that operate on other scales, both longer and shorter, slower and quicker. In other words, time does not only scale up to the level of the Anthropocene but also down to the fifteen-minute life cycles

is especially true, however, for events that, in different ways, are "out of sync" with human history, as it is known and practiced, because they involve forms of life that take place on other time scales than human historical time. These events in particular demand that historians embrace a more comprehensive and diverse set of historical times, not in order to create seamless narratives and full chronologies but to make visible the alternative temporalizations and historicizations that these events open up to.

In historiography, the most significant theorist of multiple times is the German social and intellectual historian Reinhart Koselleck, who, in 1972, announced that history can exist as a discipline only if it is capable of developing *eine Theorie der geschichtlichen Zeiten* (a theory of historical times).[19] Koselleck spent the next thirty years developing this idea.[20] At present, this claim has taken on a somewhat different meaning than it had fifty years ago, mostly because historical events themselves have gained additional complexity due to not only shifting theoretical and historiographical perspectives that were spearheaded by environmental history, decolonization struggles, and multispecies approaches but also broader trends such as the history of knowledge and media history.[21] The multiple times Koselleck addressed are mostly inherent to modern European political and intellectual history, and they are not the multiple times that pose the most urgent challenges to contemporary historians. However, if we accept, as scholars increasingly do, that Koselleck's work was never intended to be approached as a set of conclusions about a certain segment of history, then other forms of engagement with his work open up. In this article, I will approach Koselleck's contribution to the theory of history and historiography more like a quarry in which we can work, rummage, examine, and dig and from which we can break loose pieces that we can put to work in our own historiographies.

One important, although somewhat improbable, way to engage with Koselleck's writings has to do with the broad amorphous field often referred to as "natural history." In one of the most famous quotes from "The Climate of History," Chakrabarty addresses the need to "collapse . . . the age-old humanist distinction between natural history and human history."[22] Rather than discussing what "natural history" could mean in this and in similar quotes from texts about topics ranging from eighteenth-century scholarly practices and modern natural sciences, including biology and geology, to the history of the Earth *tout court*, this

---

of microbes or the femtosecond pulse of a laser beam. See Andrea Westermann and Sabine Höhler, "Writing History in the Anthropocene: Scaling, Accountability, and Accumulation," *Geschichte und Gesellschaft* 46, no. 4 (2020), 579–605, especially 587–93.

19. Reinhart Koselleck, "Über die Theoriebedürftigkeit der Geschichtswissenschaft," in *Zeitschichten: Studien zur Historik* (Frankfurt: Suhrkamp, 2003), 302.

20. See John Zammito, "Koselleck's Philosophy of Historical Time(s) and the Practice of History," *History and Theory* 43, no. 1 (2004), 124–35, and Helge Jordheim, "Against Periodization: Koselleck's Theory of Multiple Temporalities," *History and Theory* 51, no. 2 (2012), 151–71.

21. Indeed, some would claim that we live in a "crisis of time." See Hartog, *Régimes d'historicité*, 27; Assmann, *Ist die Zeit aus den Fugen?* 131–208; Helge Jordheim and Einar Wigen, "Conceptual Synchronisation: From Progress to Crisis," *Millennium* 46, no. 3 (2018), 421–39; and Juhan Hellerma, "Negotiating Presentism: Toward a Renewed Understanding of Historical Change," *Rethinking History* 24, no. 3–4 (2020), 442–64.

22. Chakrabarty, "The Climate of History," 201.

article will conceive of this relationship less as a "distinction" and more as a multi-temporal field of entanglements, exchanges, tensions, and conflicts. Guided by the key analytic terms "denaturalization" and "renaturalization," I will follow the meanderings between anthropocentric, humanistic, biocentric, and naturalist positions and arguments. In that way, I hope to reconstruct some of the striking dynamisms that characterize Koselleck's work with the multiple times of human history and natural history. Furthermore, assuming the existence of multiple times enables us to move beyond the ubiquitous claims about the "crisis of time" or "the end of the modern temporal regime."[23] By engaging with natural history and its role in Koselleck's works, this article sets out to develop an alternative view of the temporal order of history, a view in which the linear, homogenous times of modernization are challenged by a multiplicity of rhythms, speeds, and durations that are unfolding on and in the planet.

KOSELLECK'S ANTHROPOCENTRISM: THE VITRUVIAN MAN OF HISTORY

As I will show, Koselleck's work does not adhere to the dichotomy between human history and natural history; even so, his writings are imbued with a strong, theoretically motivated, and methodologically implemented anthropocentrism. At first glance, Koselleck's anthropocentrism is probably one of the least surprising things one can criticize about his work; after all, his primary focus was humans as political and social agents, either individually or collectively. In order to understand how Koselleck's theory of multiple times destabilizes the relationship between human history and natural history, we first need to map the temporal implications of his undeniable anthropocentricism.

Trained in German social history, political history, and hermeneutics as well as in an anthropologically informed theory of history, Koselleck placed humans squarely at the center of his historical thinking and writing.[24] In his essays, humans emerge as historical agents through their actions and, even more importantly, through their experiences, which are shared among humans of the same groups or generations and which crystallize in key concepts, *Grundbegriffe*.[25] In this sense, Koselleck participated in the German historicist tradition that was launched by Johann Christoph Gatterer and August Ludwig von Schlözer at the University of Göttingen in the final third of the eighteenth century and that was epitomized in the works of Leopold von Ranke, Johann Gustav Droysen, and Friedrich Meinecke.[26] These historians, together with non-German predecessors, contemporaries, and successors, such as Giambattista Vico, Jules Michelet, and R. G. Collingwood, made "man . . . the measure of all things" (to borrow a statement

23. Other ways of achieving this are discussed in Hellerma, "Negotiating Presentism."

24. For a detailed presentation of Koselleck's academic background, see Niklas Olsen, *History in the Plural: An Introduction to the Work of Reinhart Koselleck* (New York: Berghahn Books, 2012).

25. Reinhart Koselleck, "Introduction and Prefaces to the *Geschichtliche Grundbegriffe*," transl. Michaela Richter, *Contributions to the History of Concepts* 6, no. 1 (2011), 1–37.

26. For the first phase, see Ulrich Muhlack, *Geschichtswissenschaft im Humanismus und in der Aufklärung: Die Vorgeschichte des Historismus* (Munich: Beck, 1991); for what follows, see Georg G. Iggers, *The German Conception of History: The National Tradition of Historical Thought from Herder to the Present* (Middletown, CT: Wesleyan University Press, 1968).

from Protagoras) in historiography.[27] Prior to the eighteenth century, history had several measures, scales, and standards, including Providence, the genealogies of biblical history, accounts of the mostly catastrophic events of natural history (such as the Flood, volcanic eruptions, and earthquakes), and the dynastic histories of rulers, empires, and kingdoms.[28] Biblical history, natural history, and political history did not exist as separate historiographical genres or disciplines; rather, they entered into shifting combinations in works ranging from the universal histories of Eusebius and Polybius and Pliny's *Naturalis Historia* to Bede's history of the English people and Machiavelli's books about the life and reign of Livy, to mention only a few examples.[29]

There are countless narratives of how the modern discipline of history, and the modern tradition of historiography, formed from this heterogeneous, entangled field due to secularization (Karl Löwith), methodologization (Ulrich Muhlack), zoning (Clifford Siskin), temporalization (Koselleck), et cetera.[30] My contribution is to suggest a model for thinking about the human's role in this process—that is, as a measure for everything that is and for everything that happens. The most famous illustration of this idea, although produced in a different context, is undoubtedly Leonardo da Vinci's *Vitruvian Man* drawing, which is dated to around 1490 (Figure 1). Inscribed around Leonardo's drawing of a naked man, who is situated within a concentric circle and square, are notes from the Roman architect Vitruvius's *De architectura*, especially from book 3, in which Vitruvius describes how the proportions of the human body fit exactly into the two most fundamental and perfect geometrical shapes—the circle and the square. Momentarily ignoring the context and the origin of the drawing, I want to use it as a model for thinking about history in general and the "modern regime of historicity," to use François Hartog's term, in particular.[31] In Leonardo's drawing, one dimension of reality is subjected to the standard of the human: space, measured and mapped out according to the proportions of the human body. In his notes at the top of the drawing, Leonardo paraphrases Vitruvius:

27. For an attack on the anthropocentrism of historiography in the context of the Anthropocene, see Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene* (London: Verso 2016). For a broader view of history and the human, see "Historical Thinking and the Human," ed. Marek Tamm and Zoltán Boldizsár Simon, special issue, *Journal of the Philosophy of History* 14, no. 3 (2020).

28. For a discussion of the different chronologies involved in early modern historiography, see Anthony Grafton, "Dating History: The Renaissance and the Reformation of Chronology," *Dædalus* 132, no. 2 (2003), 74–85, and Helge Jordheim, "Synchronizing the World: Synchronism as Historiographical Practice, Then and Now," *History of the Present* 7, no. 1 (2017), 59–95.

29. Overviews of some of these historiographical practices can be found in *Universal History and the Making of the Global*, ed. Hall Bjørnstad, Helge Jordheim, and Anne Régent-Susini (London: Routledge, 2019); *Historiae Mundi: Studies in Universal History*, ed. Peter Liddel and Andrew Fear (London: Bloomsbury, 2010); and *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: MIT Press, 2005).

30. Karl Löwith, *Meaning in History: The Theological Implications of the Philosophy of History* (Chicago: University of Chicago Press, 1949); Muhlack, *Geschichtswissenschaft*; Clifford Siskin, *System: The Shaping of Modern Knowledge* (Cambridge, MA: MIT Press, 2016); Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time*, transl. Keith Tribe (New York: Columbia University Press, 2004).

31. Hartog, *Régimes d'historicité*.

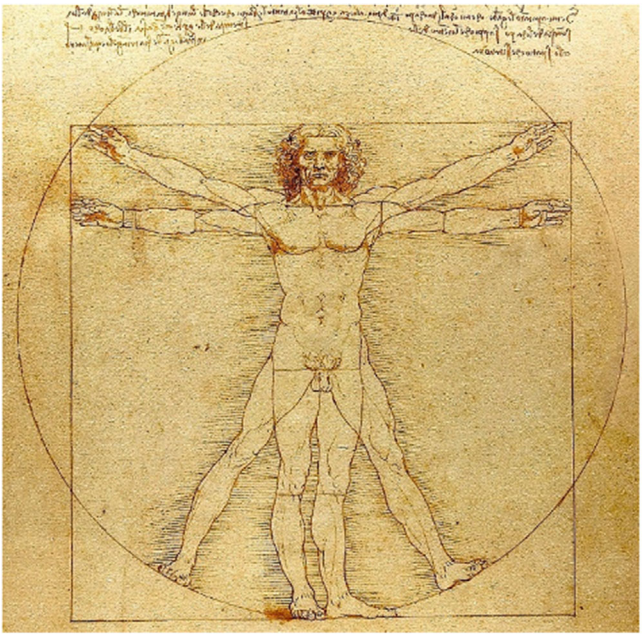

FIGURE 1. Leonardo da Vinci, *The Vitruvian Man* (ca. 1490). Wikimedia Commons.

Vitruvius, the architect, says in his work on architecture that the measurements of the human body are distributed by Nature as follows: that is that 4 fingers make 1 palm, and 4 palms make 1 foot, 6 palms make 1 cubit; 4 cubits make a man's height. And 4 cubits make one pace and 24 palms make a man; and these measures he used in his buildings. If you open your legs so much as to decrease your height 1/14 and spread and raise your arms till your middle fingers touch the level of the top of your head you must know that the centre of the outspreads limbs will be in the navel and the space between the legs will be an equilateral triangle.[32]

According to Leonardo's quite faithful rendering of Vitruvius, buildings and geometry itself (the square, the circle, and the equilateral triangle) correspond to human proportions, and this is what the drawing is supposed to illustrate. This leads to my question here: Doesn't history operate in the same way as architecture, except that, in history, the dimension of the real onto which the figure of the human is superimposed is not space but time? To understand what was happening to "history" when Leonardo made his drawing, let us imagine another Vitruvian Man projected not into geometrical space but into chronological time. Of course, this man would not be Vitruvian at all, but he may be Viconian, Leibnizian, or even, somewhat later, Herderian. Furthermore, the proportions would be those not of the human body but of human life. Instead of measuring fingers, palms, feet, arms, and legs, history measures time according to proportions of human life. These proportions belong to different orders of the real: ontological, in terms

32. *The Notebooks of Leonardo da Vinci*, ed. Jean Paul Richter, 2 vols. (London: Dover, 1970), 1:182. For an inspiring and playful take on Leonardo da Vinci's Vitruvian Man, see Donna J. Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 7–8.

of birth, death, life stages, and generational shifts; phenomenological, in terms of experiences, expectations, memory, and trauma; and pragmatic, in terms of actions and events. In other words, whereas Leonardo's drawing inserts the human body into geometrical space as the ultimate measure for everything spatial, a similar figure of human life (although one that is somewhat harder to visualize) is inserted into chronological time as the ultimate measure for everything temporal. The name for this particular Vitruvian Man, the Vitruvian Man of Time, would be History—more precisely, the modern concept and experience of history, history with a capital *H*, or, in Koselleck's terms, history as *Kollektivsingular*.[33]

One obvious example of how human life is superimposed onto time is Johann Gottfried Herder's philosophy of history, which he pioneered in his long essay titled *Auch eine Philosophie der Geschichte zur Bildung der Menschheit* (This Too a Philosophy of History for the Formation of Humanity; 1774). In this text and elsewhere, Herder organizes and periodizes history according to the ages of humans. Humankind, Herder argues, lived its early childhood in the Far Orient, its later childhood in the Near Orient, its youth in ancient Greece, and its maturity in Rome.[34] In this way, the scope, structure, and rhythm of a human life is superimposed onto the entirety of humanity's existence via an analogy between phylogenesis and ontogenesis. The proportions of history are understood as human proportions, time spans, rhythms, and tempi.

A more phenomenological version of this superimposition features prominently in Koselleck's work. In his (probably) most famous essay, "'Erfahrungsraum' und 'Erwartungshorizont': Zwei historische Kategorien" ("Space of Experience" and "Horizon of Expectation": Two Historical Categories), he completes a phenomenological and anthropological turn by which the temporal dimensions of past and future are replaced by their phenomenological equivalents: the past by *Erfahrungsraum* (space of experience) and the future by *Erwartungshorizont* (horizon of expectation).[35] Augustine anticipates this turn in book 11 of his *Confessions*, where he insists that time exists in the human mind only as memory, contemplation, and expectation.[36] However, whereas Augustine frames his temporal deduction with the history of Genesis, Koselleck does not allow for any temporal dimension beyond event and experience. As a result, time itself is absolutely absorbed into the anthropological, into the world of the human. Whereas the concepts of past and future could leave room for durations and speeds that are nonproportional with the human, "space of experience" and "horizon of expectation" subject all of history to human standards (in a Kantian sense). All of the past

33. Koselleck, "Introduction and Prefaces," 13. See also Koselleck, "Geschichte, Historie," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland*, ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, vol. 2 (Stuttgart: Klett-Cotta, 1975), 593–717, especially 647–58.

34. Johann Gottfried Herder, "Auch eine Philosophie der Geschichte zur Bildung der Menschheit," in *Schriften zu Philosophie, Literatur, Kunst und Altertum, 1774–1787* (Frankfurt: Deutscher Klassiker, 1994).

35. Reinhart Koselleck, "'Space of Experience' and 'Horizon of Expectation': Two Historical Categories," in *Futures Past*, 255–76.

36. Saint Augustine, *Confessions*, transl. J. G. Pilkington, book XI, chapter 28, http://www.logoslibrary.org/augustine/confessions/1127.html.

FIGURE 2. Illustration of Janus, the Roman god, in Sebastian Münster, *Cosmographia* (Basle: Heinrich Petri, 1550). Wikimedia Commons.

is predicated on experience; all of the future is predicated on expectation. According to Koselleck, "there is no history which could be constituted independently of the experiences and expectations of active human agents."[37] "Accordingly," he explains, "these two categories are indicative of a general human condition; one could say that they indicate an anthropological condition without which history is neither possible nor conceivable."[38] He continues: "The conditions of possibility of real history are, at the same time, conditions of its cognition. . . . [E]xperience and expectation are two categories appropriate for the treatment of historical time because of the way that they embody past and future."[39] In this way, Koselleck superimposes human life (in an ontological, phenomenological, and pragmatic sense) onto the entangled, heterogeneous web of time in order to turn it into history. In the introduction to the multivolume lexicon of *Begriffgeschichte*, which was published just a few years earlier, he even suggests a figure that could rival Leonardo's Vitruvian Man: Janus, the Roman god of time, beginnings, endings, transitions, and passages who features in frames, gates, and doorways and is recognizable by his two faces, each of which points in a different direction (Figure 2). According to Koselleck, at the threshold to modernity, when "the past was gradually transformed into the present," "concepts . . . became 'Janus-faced': facing backwards, they pointed to social and political realities no longer intelligible to us without critical commentary; facing forward to our own time, concepts have taken on meanings that may not need further explication to be directly intelligible to us."[40] For Koselleck, this split between past and present—between

37. Koselleck, "'Space of Experience' and 'Horizon of Expectation,'" 256.
38. Ibid., 257.
39. Ibid., 258.
40. Koselleck, "Introduction and Prefaces," 9.

experience and memory, on the one hand, and expectation and future-orientation, on the other—is the essence of modern history; this split is illustrated by a human face that has been superimposed not onto the circles and rectangles of geometry but onto the timeline of history.

Koselleck's work is built on a deeply anthropocentric theory of history by which time is systematically adapted to human measures and standards. Thus, for any historians operating in the Koselleckian mold, we should not be surprised that questions of geological time keep "falling out of view," to stick with Chakrabarty's phrase, since their temporal frameworks are adapted to fit human lives rather than the lives of rocks, minerals, and fossils. Far from being specific to historians in the German historicist and/or hermeneutic tradition, this form of what we could call "temporal anthropocentrism," or "chronoanthropocentrism," continues to dominate current historiography.[41] However, in Koselleck's oeuvre, this dominance of the Vitruvian Man of Time is challenged by another equally strong strand of theorization, a strand that, spurred by his life-long interest in temporality and, specifically, times in the plural, takes his work in a very different direction. In the prism of multiple times, anthropocentric time is pluralized and, at the same time, opened up to times and temporalities that are outside and beyond the human. In the following, I will explore how Koselleck reframed his temporal anthropocentrism within a broader, more comprehensive set of times, which, I suggest, can be understood best via the concept of "natural history," or, to stick with the plural, "natural histories." In Chakrabarty's use, "natural history" refers to something that is ontologically given, a part of the real, whereas the historiographical concept evokes a centuries-old knowledge tradition that dates back to the early modern era (in some sense, even to antiquity) and that describes, names, and classifies the natural surroundings at first in a synchronic way and later increasingly in a diachronic way as well.[42] In the following, I will discuss in what way Koselleck's work contains intimations for ways of writing natural histories for the Anthropocene. Before I start, I should probably clarify that the aim of this article is not to promote Koselleck as a solution to Chakrabarty's predicament. For this, many other historians would be better suited. Rather, my goal consists in probing the tensions between an adamantly, undeniably anthropocentric theory of history and an ongoing engagement with the multiple times of nature, which is in keeping with a tradition of natural history that is mostly seen to have ended in the eighteenth century.[43] In this way, I want to propose a way of engaging with Koselleck's work that can make him an even more interesting interlocutor for historians of all disciplines in the years to come.

41. Although rarely pointed out directly, this form or genre of temporality frames many of the historiographical positions and practices that are called into question in "Historical Thinking and the Human," ed. Tamm and Simon, *Journal of the Philosophy of History* 14, no. 3 (2020).

42. For overviews of the various traditions of natural history, see *Cultures of Natural History*, ed. N. Jardine, J. A. Secord, and E. C. Spary (Cambridge: Cambridge University Press, 1996) and *Worlds of Natural History*, ed. H. A. Curry, N. Jardine, J. A. Secord, and E. C. Spary (Cambridge: Cambridge University Press, 2018).

43. The argument for the end of natural history in the late eighteenth century is most clearly stated by Wolf Lepenies in *Das Ende der Naturgeschichte: Wandel kultureller Selbstverständlichkeiten in den Wissenschaften des 18. und 19. Jahrhunderts* (Munich: Hanser, 1976).

KOSELLECK'S NATURE: ROCKS AND GLACIERS

In order to avoid giving the impression that what I bring forward from Koselleck's work is in any way hidden or deep or that it depends on sophisticated reading strategies, I will begin by pointing to something that every one of Koselleck's readers—or at least those who have read his essays in their original language of German—will know. After he published his dissertation and his *Habilitation*, in more or less revised versions, in 1959 and 1967, Koselleck never wrote another monograph.[44] For the next almost thirty years, he spent his energy editing and contributing to the multi-volume lexicon of German political language, *Geschichtliche Grundbegriffe* (1972–1992), serving for most of the time as sole surviving editor. His editorial work was accompanied by a steady stream of essays, which were mostly historical and theoretical and written for specific occasions and publications. In 1979, a collection of these essays was published under the title *Vergangene Zukunft: Zur Semantik historischer Zeiten*. Then, late in Koselleck's life, his publisher Suhrkamp decided to republish the rest of his essays in several volumes, of which three have appeared so far. The two most decisive ones—*Zeitschichten: Studien zur Historik* and *Begriffsgeschichten: Studien zur Semantik und Pragmatik der politischen und sozialen Sprache*—came out in 2000 and 2006, respectively. Although the second did not come out until Koselleck had passed away, he was heavily involved in the production of both books. Among other things, he selected their covers, which will be my point of departure for the first leg of my discussion of Koselleck and natural history.

Before I begin, a couple of reminders are necessary. Firstly, as in the case of traditional history books, people and events (such as Friedrich II, Johann Gottfried Herder, Johann Wolfgang Goethe, the Reformation, the French Revolution, and the Second World War) populate Koselleck's essays. Any of these canonized figures and decisive moments could have meaningfully adorned the cover by means of a history painting or a photograph. They do not. Secondly, Koselleck was a very visually minded historian. The first essay in *Vergangene Zukunft* opens with a detailed description, almost an ekphrasis, of Albrecht Altdorfer's famous painting of the Battle of Issus (333 BC) between Alexander the Great and the Persian ruler Darius III.[45] *Ut pictura poesis* becomes *ut poesis theoria*, as Koselleck uses the analysis of the painting to develop his theories of modernity and of multiple times.[46] His attention to representation and imagery is even more prevalent in his final uncompleted project, in which he worked to develop something he referred to as a "political iconology" mainly to understand memory practices of modern societies.[47] However, Koselleck's interest in the visual and his mobilization of

44. Reinhart Koselleck, *Kritik und Krise: Eine Studie zur Pathogenese der bürgerlichen Welt* (Munich: Karl Alber, 1959); Koselleck, *Preußen zwischen Reform und Revolution: Allgemeines Landrecht, Verwaltung und soziale Bewegung von 1791 bis 1848* (Stuttgart: Ernst Klett, 1967).

45. See Reinhart Koselleck, "Modernity and the Planes of Historicity," in *Futures Past*, 9–17.

46. For a further discussion of Koselleck's Altdorfer exegesis, see Jordheim, "Against Periodization."

47. See *Der politische Totenkult: Kriegerdenkmäler in der Moderne*, ed. Reinhart Koselleck and Michael Jeismann (Munich: Fink, 1994) and *Reinhart Koselleck und die Politische Ikonologie*, ed. Hubert Locher and Adriana Markantonatos (Berlin: Deutscher Kunstverlag, 2012).

images as tools for thinking ran even deeper than this. Any colleague who invited him to give a guest lecture in a city he had never before visited became acquainted with his passion for photography, which produced constant new additions to the impressive collection of photos that accrued in the cellar of his villa in Bielefeld. After his death, Koselleck's huge photographic *Nachlass* was transferred to the art history archive in Marburg, Germany, and has since received attention from several brilliant scholars who have interpreted and exhibited them. Most recently, the Bielefelder historians Bettina Brandt and Britta Hochkirchen curated an exhibition titled *Koselleck und das Bild* (Koselleck and the Image), which was dedicated to three topics from Koselleck's visual work: "layers of time," "sluices of memory," and "political sensibility."[48] In the volume that accompanied the exhibition, a number of scholars discuss the centrality of images to Koselleck's thinking. In other words, when the cover photos for his essay collections were selected, Koselleck was already used to thinking about his ideas and arguments in visual terms. In this light, the selected motifs—a rock face and a glacier—are even more striking and, indeed, revealing.

To represent his collected essays, Koselleck selected cover images that are seemingly far removed from the contents of the books. A selection of essays about language, people, and events is represented by an image of a natural phenomenon—one that most of his readers would recognize, although only vaguely and superficially. Both cover photographs are close-ups of details, parts of a whole, which makes it even harder to ascertain what exactly they depict. In one image, one can identify the contours of a glacier against a grayish, monochrome sky; in the other, a brownish rock face has been photographed at such close proximity that only a mere fraction of its surface is depicted. In both cases, readers encounter a strange, ungraspable materiality that is at the same time tactile and abstract, almost geometric. The photos were taken by Bernhard Edmaier, one of Germany's most famous natural photographers. Edmaier was educated as a geologist and has become famous for taking spectacular aerial photos of the surface of the Earth. The Paris edition of the magazine *Geo* described his photos as "the print of time on the skin of the earth," and the German *Der Spiegel* lauded how he "freezes the movements which have continued for millions and millions of years."[49] Both descriptions echo Koselleck's theory of history. For him, the Altdorfer painting presents a similar example of a frozen historical moment—that is, the moment when Darius takes flight and Alexander goes after him on horseback.[50] The time scale, however, is different. The Battle of Issus evokes a mere few thousand years of human history, whereas the rocks and glaciers have formed over thousands and millions of years in the history of the Earth. Edmaier's most famous book, *Earthsong* (2004), documents the Earth and its morphology based

48. *Reinhart Koselleck und das Bild*, ed. Bettina Brandt and Britta Hochkirchen (Bielefeld: Bielefeld University Press, 2021).

49. Quoted in the "Press Comments" section on Bernhard Edmaier's personal website, https://www.bernhard-edmaier.de/en.

50. For more on Koselleck's discussion of Altdorfer and the freezing (*Stilllegung*) of history, see Jordheim, "Against Periodization," 158–59.

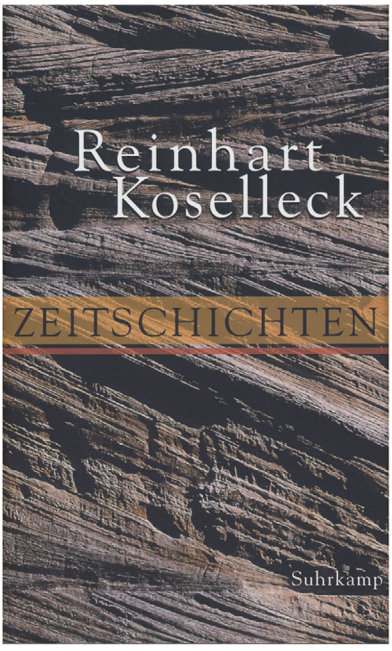

FIGURE 3. Cover of Reinhart Koselleck, *Zeitschichten: Studien zur Historik* (Frankfurt: Suhrkamp, 2000). Used with permission.

on pattern recognition.[51] These morphological patterns on the surface of the Earth overlap with what Koselleck called *Wiederholungsstrukturen* (structures of repetition), which I will return to later in this article, only at a different temporal and spatial scale.[52]

The most significant overlap between an image on a book's cover and that book's contents is found in the collection *Zeitschichten*, or "layers of time," which was recently translated by Sean Franzel and Stefan-Ludwig Hoffmann as "sediments of time," thus emphasizing even more clearly the geological origin of the title's metaphor.[53] The cover image depicts rock layers, which, upon closer inspection, prove to belong to a mountain surface that has been depicted in such a way as to give the impression of horizontality and layering (Figure 3). The book's title, the cover image, and the title of the first chapter all form a close-knit semiotic network that was designed to bring out the main theoretical idea of the book: that human experiences, concepts, and events are made up of different layers that each have their own durations, rhythms, and speeds. Although ideas of

51. Bernhard Edmaier, *Earthsong* (New York: Phaidon Press, 2004).

52. See Reinhart Koselleck, "Structures of Repetition in Language and History," in *Sediments of Time: On Possible Histories*, transl. and ed. Sean Franzel and Stefan-Ludwig Hoffmann (Stanford: Stanford University Press, 2018), 158–74.

53. See Stefan-Ludwig Hoffmann and Sean Franzel, "Introduction: Translating Koselleck," in *Sediments of Time*, ix–xxxi.

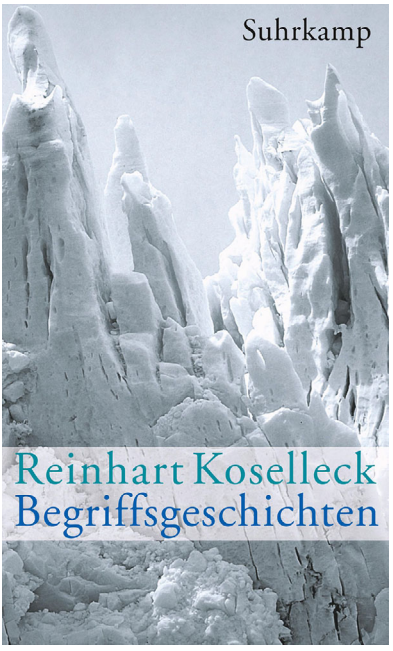

FIGURE 4. Cover of Reinhart Koselleck, *Begriffsgeschichten: Studien zur Semantik und Pragmatik der politischen und sozialen Sprache* (Frankfurt: Suhrkamp, 2006). Used with permission.

depth and layering had long appeared in Koselleck's work,[54] this 2000 volume brings these ideas to the foreground, and even onto the book's cover, at the same time that it makes explicit the metaphor's geological origins. It is less clear how the towering alpine ice shapes depicted in Edmaier's photo of the Perito Moreno Glacier in the Argentine Patagonia relate to the contents of *Begriffsgeschichten* (2006) (Figure 4). Rather than illustrating the book's title, this image might suggest an interpretation: concepts and their histories are not fleeting, "pointillistic" moments, as speech act theory (adapted to historiography by Quentin Skinner and others) would have it,[55] but are instead stable, lasting structures that tower above the people who use and pass through them.

The point of my argument here is not to explore the precise relationships between books and their covers. I acknowledge the need to emphasize the visual element in Koselleck's thinking about time, especially in the wake of the path-breaking work by Brandt, Hochkirchen, and others. Koselleck himself often commented on the impossibility of avoiding metaphors and spatial imagery when talking about time and the temporal.[56] My point here, however, is to call attention to the tension between human history and natural history in Koselleck's work. One

54. In his introduction to the *Geschichtliche Grundbegriffe*, Koselleck introduces the idea of *geschichtliche Tiefe* (historical depth) that is manifest in the historical key concepts; see Koselleck, "Introduction and Prefaces," 18.

55. Quentin Skinner, "Rhetoric and Conceptual Change," *Finnish Yearbook of Political Thought* 3, no. 1 (1999), 65.

56. See, for example, Koselleck, introduction to *Zeitschichten*, 9.

of the best examples of how he experienced this tension is his selection of cover images for the last two essay collections he edited: *Zeitschichten* and *Begriffsgeschichten*. In the rest of this article, I will argue that some of the texts contained in these volumes, as well as other texts by Koselleck, are also about nature in specific and historically precise ways.

FROM HISTORIK TO NATURGESCHICHTE

As a first step, I will clarify what I mean when I refer to "nature" in Koselleck's works. By "nature," I do not mean the existential, anthropological constants—the *Grundbestimmungen*—that Koselleck adopted mainly from Martin Heidegger's analytics of *Dasein* and that he invested with an understanding of tension and conflict that he inherited from his other teacher, Carl Schmitt.[57] These *Grundbestimmungen* appear in different versions throughout Koselleck's works, but they mostly include the dichotomies *Früher-Später* (sooner-later), *Oben-Unten* (above-below), and *Innen-Außen* (inside-outside).[58] Together, these dichotomies make up what Koselleck refers to as "conditions for possible histories," which, again, form the core of his historical ontology, or what he, in reference to his predecessor Droysen, terms his *Historik*. These oppositions have received much attention in scholarship on Koselleck—maybe too much attention, especially since they might, in the end, be little more than Koselleck's attempt at wriggling himself loose from what he perceived to be the looming presence of Gadamerian hermeneutics and the 1980s version of the so-called linguistic turn.[59] Even if we were to take on board his idea of something prelinguistic, prephenomenological, and *pre-evenementielle*, to adapt Fernand Braudel's term, something prior to historical events, this would not be of much help for understanding the entanglements of human history and natural history. What these dichotomies amount to, in the end, is an anthropology, an analytics of human finitude, of *Dasein*.[60] Hence, they contribute to keeping time enclosed within the framework of the human. In an innovative essay, Angelika Epple argues that Koselleck's attempt at making "natural time" the basis of his *Historik* was doomed to fail because natural time, as such, is not accessible to human experience; in the moment natural time becomes manifest in calendars and clocks, it is no longer natural but human and cultural.[61] As a critique of Koselleck's anthropology, Epple's analysis is on point. In the Heideggerian version, his historical ontology

57. This is most clearly evident in Koselleck's engagement with Hans-Georg Gadamer's hermeneutics; see Koselleck, "*Historik* and Hermeneutics," in *Sediments of Time*, 41–59.

58. See also Reinhart Koselleck, "Linguistic Change and the History of Events," in *Sediments of Time*, 137–57, especially 138–41. For an in-depth discussion of Koselleck's *Grundbestimmungen*, see Stefan-Ludwig Hoffmann, "Koselleck, Arendt, and the Anthropology of Historical Experience," transl. Tom Lampert, *History and Theory* 49, no. 2 (2010), 212–36.

59. Koselleck, "*Historik* and Hermeneutics," 42–43.

60. At several occasions, Koselleck refers to his *Historik* as a "historical anthropology"; see Koselleck, "*Historik* and Hermeneutics," 45–46, 50. Accordingly, Hoffmann labels Koselleck's theory of the "conditions for possible histories" an "Anthropology of Historical Experience" (Hoffmann, "Koselleck, Arendt, and the Anthropology of Historical Experience").

61. Angelika Epple, "Natura Magistra Historiae? Reinhart Kosellecks transzendentale Historik," *Geschichte und Gesellschaft* 32, no. 2 (2006), 201–13, especially 206–7.

never reaches beyond the limits of human existence and finitude. If we want to understand what role natural time and natural history play in Koselleck's theory of history, we need to look elsewhere. This anthropological aspect of his work deals solely with nature as *nomos*, as law and custom, or as metaphysics (in the Aristotelian sense), whereas the entanglements between natural history and human history take place in the realm of *physis*, of actual, material, and, indeed, physical nature—rocks and glaciers.

The most precise term to characterize Koselleck's engagement with the natural surroundings of human life is not *Historik* but "natural history." As Brian W. Ogilvie convincingly argues, this knowledge field, discourse, or tradition took shape during the Renaissance and drew on works from Greek and Roman antiquity, such as Aristotle's *Physics* and Pliny's *Natural History*, in which an encyclopedic view of knowledge was established.[62] Natural history based its knowledge claims on the practices of observing, collecting, and describing external objects, and it aimed to produce an account of the Earth and its life forms, their origins, and their characteristics.[63] These knowledge practices found their most famous expression in Georges-Louis Leclerc, Comte de Buffon's sixteen-volume *Histoire Naturelle* (1749–1789). In his entry in the *Encyclopédie*, Denis Diderot offers a comprehensive, almost syllogistic definition of natural history. According to Diderot, "*natural history* is as vast as nature: it includes all beings that live on the earth, that fly in the air, or that dwell in the depths of the waters; all the beings that cover the face of the earth; and all those hidden in its deepest recesses."[64] *Historia naturalis*, which, in the eighteenth century, entered the vernaculars as *histoire naturelle*, *natural history*, and *Naturgeschichte*, did not originally aim to produce knowledge about the past or about historical changes in particular, except in terms of explaining present phenomena, such as rock formations or fossils.[65] In the late seventeenth and early eighteenth centuries, however, this was about to change, as I will discuss in some detail below. Following the "end of natural history" in the late eighteenth century,[66] knowledge about the infinitely complex object of nature was distributed across a wide range of disciplines, including biology, geology, chemistry, and physics, but also history and anthropology.[67] In order to understand how Koselleck engages with nature in his essays about history, politics, and time, we need to allow the full "vastness" and richness of these eighteenth-century definitions of natural history to guide our steps.

62. Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006).

63. John V. Pickstone, *Ways of Knowing: A New History of Science, Technology, and Medicine* (Manchester: Manchester University Press, 2000), 60–82.

64. Denis Diderot, "Natural History," in *The Encyclopedia of Diderot & d'Alembert Collaborative Translation Project*, transl. Marc Olivier and Valerie Mariana (Ann Arbor: Michigan Publishing, University of Michigan Library, 2015), http://hdl.handle.net/2027/spo.did2222.0000.189. This piece was originally published as "Histoire naturelle," in *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*, vol. 8 (Paris, 1765), 225–30.

65. This argument has been made most systematically in Gianni Pomata and Nancy D. Siraisi, introduction to *Historia*, 1–38.

66. Lepenies, *Das Ende der Naturgeschichte*.

67. This splitting-up is described in several of the chapters in the third section of Jardin, Secord, and Spary, *Cultures of Natural History*, 249–446.

My point of departure for this reading of Koselleck's work will be a term he uses at several occasions with a more or less precise and consistent meaning: *Denaturalisierung*, or "denaturalization."[68] From there, I will move, dialectically, as it were, to that term's opposite or counterpoint: "renaturalization." As I touched upon earlier in this article, we are currently experiencing a "renaturalization" of history and historiography that has formed in response to the ongoing climate crisis and that has been framed by the periodizing concept of the Anthropocene. In what follows, I will argue that Koselleck anticipated this "renaturalization" as a historiographical possibility—albeit in less explicit, but no less pervasive, terms than "denaturalization."

DENATURALIZATION

My discussion begins with *Vergangene Zukunft*, which was first published in 1979 and which collected essays from the preceding decade that were composed in response to Koselleck's ongoing work with *Geschichtliche Grundbegriffe*. In these essays, "denaturalization" operates on a historiographical and a theoretical level. As a habit, Koselleck's essays blur the boundaries between historiography and theory of history, continuously oscillating between studies of the emergence of the modern paradigm of history and theoretical interventions into the same. As I proceed, I will trace these oscillations and try to introduce the necessary distinctions, but, in many cases, it is also necessary to adopt Koselleck's own slippages in order to see where they take us.

In his preface to *Vergangene Zukunft*, nature emerges as a blind spot in Koselleck's work. He describes how historical time splits up in different social and political actions, or "units of action" (*Handlungseinheiten*, as he calls them), that are "bound up with . . . particular acting and suffering human beings and their institutions and organizations."[69] Following in the tradition of Leibniz and Herder, he argues that "all these . . . [units of action] have definite, internalized forms of conduct [*Vollzugweisen*], each with a peculiar temporal rhythm."[70] As examples, he lists public holidays, festivals, working hours, et cetera. He concludes, "what follows will therefore seek to speak, not of one historical time, but rather of many forms of time superimposed one upon the other."[71] To support his claim, he quotes what he refers to as "the emphatic words that Herder aimed at Kant":[72]

> In reality, every mutable thing has within itself the measure of its time; this persists even in the absence of any other; no two worldly things have the same measure of time . . . . There are therefore (to be precise and audacious) at any one time in the Universe infinitely many times.[73]

68. See, for example, Koselleck, "Über die Theoriebedürftigkeit der Geschichtswissenschaft," 303.
69. Reinhart Koselleck, preface to *Futures Past*, 2.
70. Ibid.
71. Ibid.
72. Ibid.
73. Johann Gottfried Herder, *Metakritik zur Kritik der reinen Vernunft* (1799; Berlin: Aufbau, 1955), 68, quoted in Koselleck, preface to *Futures Past*, 2.

Many will recognize this quote from Herder's 1799 *Metakritik* of Kant's critical philosophy in which the theologian-philosopher-critic attacks Kant's idea of time and space as forms of *Anschauung* (human intuition) that have been projected onto the world. In Herder's view, time is neither a property of human reason nor, as Newton had argued a century earlier, an entity, or a dimension in its own right, that exists independently of all other entities. To Herder, time is inherent in things and processes, which have their own durations, speeds, and rhythms. That Koselleck agreed with this claim as well as with Herder's criticism of Kant is apparent in his earlier arguments about the inherent rhythms in units of action, institutions, and organizations. However, the striking thing at this point is not so much what he included but what he omitted from Herder's original passage—that is, what is hidden behind the ellipsis that appears halfway through the quote. Herder's complete passage reads as follows:

> In reality, every mutable thing has its own inherent measure of time; this would persist even if no other were there; never do two things in the world have the same measure of time. My pulse, my step, or the flight of my thoughts is not a temporal measure for others; the flow of a river, the growth of a tree cannot be the measure time for all rivers, trees, and plants. Lifetimes of elephants and of the most ephemeral are very different from each other, and how different are not the temporal measures on all planets? In other words, there are (one can say it earnestly and courageously) in the universe at any one time innumerable different times.[74]

Citing Herder to support his idea of a shift from "time" (singular) to "times" (plural), Koselleck explicitly brackets and omits nature—not just a part of nature but nature in its entirety. By contrast, the original Herder quote includes a range of natural phenomena (similar to a "great chain of being") that extends from the small to the large, from the slow to the fast, from the durable to the ephemeral. Beginning with "my pulse" and ending with "all planets," Herder's three sentences cover nearly the entire *scala naturae*, including the mineral kingdom of the rivers, the plant kingdom of trees, and the animal kingdom of the elephants (and humans).[75] All of these kingdoms are conceived in terms of relative differences on a scale—or, rather, on two scales: the life scale (the *scala naturae*) and a time scale that spans from short to long, from fast to slow. In combination, time scales and life forms give shape to what I, with a quote from the same Herder passage, will call "lifetimes." I will return to this quote toward the end of the article. At this point, Koselleck's manipulation of Herder's passage serves to illustrate, in a simplified, philological manner, how "historical time" is brought into existence by means of bracketing and omitting nature (in all its manifestations) and thus "denaturalizing" history. To Koselleck, however, this denaturalization is not only,

74. Johann Gottfried Herder, "Eine Metakritik zur Kritik der reinen Vernunft," in *Schriften zur Literatur und Philosophie, 1792–1800* (Berlin: Deutscher Klassiker, 1998), 360.

75. For more on the *scala naturae* and the kingdoms of the Earth, see Nicholas Jardine, "*Naturphilosophie* and the Kingdoms of Nature," in Jardine, Secord, and Spary, *Cultures of Natural History*, 230–48. Another term for the same natural order is "the great chain of being," which Arthur O. Lovejoy famously discusses in *The Great Chain of Being* (Cambridge, MA: Harvard University Press, 1976).

not even primarily, a theoretical procedure; rather, it is a historical process, and he described and analyzed it in many of his writings.

In his essay on the need for theory in history, "Über die Theoriebedürftigkeit der Geschichtswissenschaft" (On the Need for Theory of History; 1972), Koselleck traces how a "denaturalization" of historical time and a "destruction of natural chronology" took place at the end of the eighteenth century.[76] Prior to this, he argues, the process of history was organized according to "natural" categories: the rising and setting of the sun and the moon, the changing of seasons, and the births and deaths of the members of the ruling dynasties. From the late eighteenth century onward, however, historical experience and historiography were reconfigured according to categories that had been obtained from history itself—that is, categories that had been derived directly from historical events, experiences, and expectations. In another essay from the same year, he lists a set of these denaturalized historical categories, which, today, are well known from his work: "progress, decadence, acceleration, or delay, the 'not yet' and the 'no longer,' the 'earlier' or 'later than,' the 'too early' and the 'too late,' situation and duration."[77]

Different versions of this process of "denaturalization" come to the fore in different parts of Koselleck's work; they are distributed mainly around three topics and as part of three distinct but interrelated narratives. In the historiographical version, Koselleck describes how the genre of *historia naturalis* collapsed and was supplanted by less comprehensive forms of history writing at the same time that nature itself was temporalized and equipped with histories of its own: the history of the Earth, the history of the universe, and the histories of different species.[78] In the conceptual version, Koselleck analyzes how concepts such as *Geschichte* (history), *Fortschritt* (progress), and *Neuzeit* (modernity) came to replace cosmological, seasonal, and generational chronologies as organizing tropes for historical time.[79] Finally, in the third, ontological version, Koselleck asks what happened to time itself in the moment when history broke free of the static and stable confines of nature and became a free-wheeling, self-sustaining movement that is capable of producing, speeding up, or occasionally slowing down events by virtue of nothing but itself.[80]

Probably the most systematic discussion about how historical times and natural times became disentangled in modernity is found in a 1976 essay titled "Gibt es eine Beschleunigung der Geschichte?" (Does History Accelerate?). "My thesis," Koselleck states, "is that acceleration corresponds to a denaturalization of the hitherto traditional experience of time."[81] In this essay, Koselleck begins with the assumption that the human experience of time used to be largely dependent on nature—either cosmological nature, in terms of the movements of the stars and the planets, or biological nature, in terms of the human life-span, from birth to death, as well as the succession of generations. In the *Sattelzeit*, however,

76. Koselleck, "Über die Theoriebedürftigkeit der Geschichtswissenschaft," 303, 306.
77. Reinhart Koselleck, "History, Histories, and Formal Time Structures," in *Futures Past*, 95.
78. Koselleck, "Geschichte, Historie," 678–82.
79. Koselleck, "Über die Theoriebedürftigkeit der Geschichtswissenschaft," 302–14.
80. Reinhart Koselleck, "Does History Accelerate?" in *Sediments of Time*, 79–99.
81. Ibid., 81.

factors were introduced into the human experience of time and history that gave it, in Koselleck's words, "a relatively larger independence from nature."[82] He explains: "If we may characterize progress as the first genuinely historical category of time . . . , then acceleration is a specific variety of this progress."[83] Due to technology-driven acceleration processes in politics as well as in communication, "rhythms and processes of time are articulated that can no longer be derived from [any] . . . natural time" or "any sequence of generations."[84] Everything changes at a faster pace than one would imagine or has become used to. Events and experiences stack up in ever-shorter temporal intervals. By contrast, natural time, according to Koselleck, remains the same; it follows the same stable rhythm. Natural chronologies, cosmological or biological, emerge from repetitive movements: the revolution of the planets, the changing of the seasons, the eternal circle of life and death, generational succession. Historical time liberates itself from natural time in two ways: historically, natural time is associated with traditional, premodern societies, which, from the *Sattelzeit* onward, were superseded by the technological and civilizational development of Western modernity; ontologically, natural time is part of what Koselleck refers to as "conditions for possible histories," which affect historical changes but which themselves remain unchanged. Thus, nature and natural time also play central roles in Koselleck's theory of *Ungleichzeitigkeit* (nonsynchronicity) and the *Gleichzeitigkeit des Ungleichzeitigen*, which has led Achim Landwehr and others to label Koselleck a Eurocentrist.[85] In this perspective, symmetries between natural and historical time give rise to what Johannes Fabian calls the "denial of coevalness," by which primitive societies are placed in a different time than the societies of those who study them, a time that is indeed stable, immutable, nature-based, as opposed to the denaturalized accelerating times of Western civilization and progress.[86]

In Koselleck's studies of the concepts of progress, history, *Neuzeit*, *Bildung*, revolution, and others, this process of "denaturalization" repeats itself. Natural times make room for other genuinely historical times, for which these and other concepts are both "indicators" and "factors."[87] They constitute linguistic and semantic symptoms of changing experiences of time, but they are also part of this change in the way they reconceptualize and thus restructure time and the temporal. For instance, the concept of progress equips historical time with a kind of linearity and homogeneity, and even a sense of direction, that it did not previously have.[88] The short version of Koselleck's "denaturalization" claim is that, whereas

82. Ibid., 82.

83. Ibid., 89.

84. Ibid., 90. I have slightly amended the English translation, which had "the natural time of any sequence of generation," whereas the original German reads, "aus keiner Naturzeit und aus keiner Generationsabfolge" (Koselleck, "Gibt es eine Beschleunigung der Geschichte?" in *Zeitschichten*, 164). The difference is that Koselleck accounts for natural times other than only generational sequences.

85. Achim Landwehr, "Von der 'Gleichzeitigkeit des Ungleichzeitigen,'" *Historische Zeitschrift* 295 (August 2012), 19–20.

86. Johannes Fabian, *Time and the Other: How Anthropology Makes Its Object* (New York: Columbia University Press, 1983), 31.

87. Koselleck, "Introduction and Prefaces," 8.

88. Reinhart Koselleck and Christian Meier, "Fortschritt," in *Geschichtliche Grundbegriffe*, 2:351–424, especially 372–407.

nature remains stable and static, history starts changing at an accelerating pace and, hence, disconnects itself from its natural preconditions. History with a capital *H*, history as *Kollektivsingular*, frees itself from nature and becomes a force of its own, moving from the past, though the present, and into an unknown future, increasingly picking up speed. At the same time, it shakes off all the other forms of life belonging in the Aristotelian *historia* and becomes a history of humans, and humans only, a history that is linked to human hopes, memories, and actions, or, if you like, human experiences and expectations.

However, a counter-narrative to this mainly theoretically driven narrative, which is told and retold in so many of Koselleck's essays from the 1970s, exists, and it emerged—albeit in a rudimentary form—from the historical material with which he was engaged. A key early text is his entry on *Geschichte* (history) in the *Geschichtliche Grundbegriffe* and, in particular, the section in which he analyzes the shift from *historia naturalis* to *Naturgeschichte* (natural history) in the second half of the eighteenth century.[89] In this section, Koselleck notes how, in parallel to and, indeed, in step with human history, nature is also temporalized, invested with a time and a history of its own, and linked to genesis, transformation, and persistence. What, for Koselleck, at this point was just a passing observation has been a central topic for later historians. Historians of science Rhoda Rappaport and Martin J. S. Rudwick have scrutinized how, at the end of the eighteenth century, natural history also went through a process of temporalization.[90] Before that, *historia* (in the Aristotelian tradition) meant little more than empirical knowledge, or knowledge about particulars, that had been gained through induction. Neither *historia naturalis* nor *historia litteraria* involved any specific ambition to arrive at a general principle or law; hence, neither the temporal distinction between past and present nor the natural distinction between human and nonhuman was especially significant.[91] From the mid-eighteenth century onward, this changed. At the same time as both natural and human *historia* were temporalized, they also parted ways. Temporalization of nature found its primary disciplinary form in geology, which organized itself around a deep and multilayered time. By contrast, the temporalization of the human opted for the singular, homogenous, Newtonian time of progress. They also differed in their view of the forces driving processes of historical change. In geology, Neptunists and Plutonists respectively gave priority to water and fire, whereas modern historians went searching for nations, cultures, and outstanding individuals.

Despite his insights into the changes taking place within *historia naturalis*, insights that later became foundational for historians of science, and despite the overlap with the period that he identified as the *Sattelzeit*, Koselleck did not make the co-temporalization of human history and natural history in the late eighteenth

89. Koselleck, "Geschichte, Historie," 678–82.

90. Rhoda Rappaport, *When Geologists Were Historians, 1665–1750* (Ithaca, NY: Cornell University Press, 1997); Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: University of Chicago Press, 2005).

91. Pomata and Siraisi, introduction to *Historia*. See also Gérard Ferreyrolles, "On the History of Universal History," in Bjørnstad, Jordheim, and Régent-Susini, *Universal History and the Making of the Global*, 12–24.

and early nineteenth centuries the foundation of his theory of history—at least, he didn't do so at this point in his career (that is, in the 1970s).[92] Like the middle part of the Herder quote that I discussed above, this account is also omitted from the unfolding of Koselleck's general historiographical argument and replaced with a theory of denaturalization. Koselleck appears to have ignored the fact that his disciplines of choice, history and politics, exist within a larger order of knowledge that also took shape during the *Sattelzeit* and that includes other distinctly historical knowledge projects, such as geology, biology, and cosmology. These are exactly the knowledge projects that we now need to recombine in order to write the histories of the Anthropocene as well as other natural histories of the future.

To conclude the first part of my argument, then, I contend that, in Koselleck's writings (especially his writings from the 1970s), history in the modern sense emerges due to a "denaturalization" of time. Historical time, in both singular and plural forms, comes into being when concepts of progress, future, civilization, and others replace planetary rhythms, seasonal changes, and generational succession as the main organizing principles for social and collective processes. Whereas history starts moving, nature remains static and stable. Time is superimposed onto the Janus-faced figure of experience and expectation. However, to stick with Janus for a moment, what I have just described is only half of the face that Koselleck's works present to us with respect to historical and natural times. I will now turn to the other half, which I have tentatively labeled *renaturalization* and which became more dominant in Koselleck's work beginning in the mid-1980s.

RENATURALIZATION

At present, historians are beginning to reintegrate and re-entangle the times of nature and the times of history under headings such as environmental history, deep history, big history, posthuman history, and multispecies history. They are following various theoretical or methodological strategies to overcome the disentanglement of history from nature. For instance, environmental historians are adopting statistical methods from the natural sciences in order to analyze the impact of climate change on human societies in the past, such as in what some scholars call the "little ice age,"[93] and posthumanist historians are deconstructing the category of the human to rediscover *Homo sapiens* "entangled in interspecies and environmental relations."[94] If we wish to group all of these reorientations in history under a single category, we might call them "natural histories for the Anthropocene." How these emerging forms of history writing are becoming institutionalized can be seen from the attempts to work backward from the present to find predecessors in early modern natural histories and in the criticism of event-driven history and

92. Koselleck, "Introduction and Prefaces," 9.

93. See Morgan Kelly and Cormac Ó. Gráda, "The Waning of the Little Ice Age: Climate Change in Early Modern Europe," *Journal of Interdisciplinary History* 44, no. 3 (2014), 301–25.

94. Ewa Domańska, "Posthumanist History," in *Debating New Approaches to History*, ed. Marek Tamm and Peter Burke (London: Bloomsbury Academic, 2018), 328.

the turn to long-term structural patterns in the *Annales* school.[95] In the present moment, the most successful natural historians are those who aim to construct large comprehensive narratives of the history of humankind, such as Yuval Noah Harari's *Sapiens: A Brief History of Humankind* and *Homo Deus: A Brief History of Tomorrow*; texts such as these are "seamless," to use Smail's term.[96]

Koselleck was not an author of seamless narratives, and he never showed any interest in statistical methods, not even in his twenty years as editor of the *Geschichtliche Grundbegriffe*. Beginning in the 1980s, however, he embarked on a project to re-entangle history with nature—or, as I will put it here, in symmetry with his own concept of "denaturalization," to *renaturalize* history. Koselleck's main instrument to achieve this renaturalization is not statistics, brain chemistry, or a return to the grand narratives; rather, it is his own theory of multiple times, which he had been developing since the 1970s. Since this theory was "rediscovered" following the publication of *Zeitschichten* in 2000, Koselleck's times in the plural have received a great deal of attention among scholars.[97] However, despite Koselleck's own attempts to gesture in this direction, this theory's potential to re-entangle historical and natural times has been lost on his supporters and critics alike.[98]

If a renewed engagement of historiography with the natural is to take place, nature—whatever we take that to mean—cannot be reduced to a stable, all-but-immutable backdrop to historical events. On the contrary, a reintegration of history and nature would mean engaging with the plurality of natural times, alongside and in addition to the plurality of historical times, and questioning the distinctions between the two. As I mentioned earlier in this article, the times of nature unfold across innumerable scales that range from the billions of years of Earth's history to the firing rates of neurons in the human brain, which has been stipulated to between 0.29 and 1.82 per second. These time scales combine with an equally innumerable set of life forms that range from the smallest to largest, from the simplest to the most complex. Instead of operating with two kinds of time, and thus two kinds of history (that is, one inhabited by humans and the other inhabited by all other life forms), Koselleck's theory of multiple times invites us to think about a continuum of lifetimes that combine and converge, entangle and come into conflict. These lifetimes produce rhythms, durations, and speeds that

95. See Georges-Louis Leclerc, Comte de Buffon, *The Epochs of Nature*, transl. and ed. Jan Zalasiewicz, Anne-Sophie Milon, and Mateusz Zalasiewicz (Chicago: University of Chicago Press, 2018). See also Sverker Sörlin, "Environmental Times: Synchronizing Human-Earth Temporalities from *Annales* to Anthropocene, 1920s–2020s," in *Times of History, Times of Nature: Temporalization and the Limits of Modern Knowledge*, ed. Anders Ekström and Staffan Bergwik (New York: Berghahn Books, 2022).

96. Smail, *On Deep History and the Brain*, 3.

97. See Zammito, "Koselleck's Philosophy of Historical Time(s)" and Jordheim, "Against Periodization."

98. One important exception to this rule is the Swedish historian of technology Erik Isberg, who, in a review essay in *Geschichte und Gesellschaft*, offers several important suggestions for how Koselleck's theory of multiple times can be mobilized to think about and, indeed, write history in the Anthropocene; see his "Multiple Temporalities in a New Geological Age: Revisiting Reinhart Koselleck's *Zeitschichten*," *Geschichte und Gesellschaft* 46, no. 4 (2020), 729–35.

need to be accounted for if we want to write natural histories for the Anthropocene. In other words, "history" (made up of social and political, individual and collective times) should be reconnected with other lifetimes that are distributed across this temporal continuum.

A CONTINUUM OF NATURAL AND HISTORICAL TIMES

A tentative description of this continuum of natural and historical times appears in Koselleck's entry in *Lexikon Geschichtswissenschaft: Hundert Grundbegriffe* (2003), a small collection of basic concepts in the discipline of history that was edited by Stefan Jordan and that is directed mainly at students.[99] The title of Koselleck's entry is simply "Zeit" (Time), and it—along with *Zeitschichten*, the title of the essay collection that was published only three years earlier—indicates Koselleck's desire to draw his reader's attention to the theory of historical times as his main theoretical concern. Given the ninety-nine other key historiographical concepts that are covered in *Lexikon Geschichtswissenschaft*, one might have expected Koselleck to stick to "historical time" and emphasize periodization, ideas of progress, modernity and modernization, events, et cetera. Instead, he takes a step back and offers a much more comprehensive and general overview.

Most of Koselleck's five-page entry amounts to a rather traditional summary of the distinction between internal, experienced, phenomenological time, on the one hand, and external, cosmological, geophysical, and biological time, on the other. Introduced in book 11 of Augustine's *Confessions*, this dichotomy influenced most, if not all, subsequent discussions of time before it found its institutional, disciplinary form in the early twentieth-century face-off between the philosopher Henri Bergson and the physicist Albert Einstein.[100] According to Koselleck, however, this dichotomy cannot be upheld because natural times are registered, represented, and deployed in different ways in different cultures, which thus invests them with a social and cultural dimension. In time research, this is still very familiar terrain. Koselleck then turns to a somewhat less predictable, but still not very surprising, dichotomy between directional and repetitive time. As we will see shortly, this notion of repetition became increasingly important to Koselleck in the later years of his life, and it opened his work to a different engagement with natural times. His earlier texts on progress, modernity, and future emphasize the linearity and directionality of time, always pointing into the future and bringing about something new and unexpected; as a result, the gap between "space of experience" and "horizon of expectation" continued to widen. By contrast, in his later works, he exhibits a growing fascination with the element of repetition—and thus with another set of temporal rhythms, one in which natural times play a much

99. Reinhart Koselleck, "Zeit," in *Lexikon Geschichtswissenschaft: Hundert Grundbegriffe*, ed. Stefan Jordan (Stuttgart: Reclam, 2003), 331–35. I am grateful to Bernard Eric Jensen for alerting me to this text.

100. See Jimena Canales, *The Physicist and the Philosopher: Einstein, Bergson, and the Debate That Changed Our Understanding of Time* (Princeton: Princeton University Press, 2015).

bigger part. Koselleck increasingly came to see time as made up by repetitions (in longer or shorter loops or intervals). In this context, he offered his (perhaps) most succinct formulation of the continuum of natural and historical times:

> In nature and history, times pluralize themselves, attributed to cosmic, or social and political systems, which each lay claim to their own time. Different systems bring forth different times at the same time: the synchronicity of the non-synchronous. These temporal determinations are dependent on the position of the observer—both in the natural and in the historical sciences: they cannot be reduced to a common denominator without contradiction.[101]

Here, Koselleck offers the simplest possible representation of an alternative theory of historical times, which opens up to a re-entanglement of natural and historical times, as a framework for writing history. What he means by "system" in this context is not entirely clear, except that he uses it to align "cosmic," "social," and "political" conditions before then pointing to how they embody different times. No single universal time coordinates these various sets of processes that unfold alongside each other in the history of the Earth. Whether they appear in or out of sync with each other depends entirely "on the position of the observer," as shown in Einstein's famous example with the trains. At this point, Koselleck also reintroduces and recontextualizes one of his more controversial tropes, *die Gleichzeitigkeit des Ungleichzeitigen*, which is commonly translated as "the synchronicity of the nonsynchronous" or "the contemporaneity of the noncontemporaneous" and which harkens back to the works of Wilhelm Pinder, Ernst Bloch, and Karl Mannheim.[102] Rather than interpreting this trope as a feature of Western modernity, thus relegating other cultures to a distant past, Koselleck here reinterprets it as the temporal condition of all life and existence. In this passage, *die Gleichzeitigkeit des Ungleichzeitigen* envisions a plurality of times that extends beyond differences of culture, language, and class and includes questions of natural history. More specifically, he sketches a temporal framework for asking questions about how the long-term geological time of the Anthropocene relates to the ever-accelerating times of local and global politics, to the rhythms of the everyday lives of people all around the globe, or to the swiftly changing traveling patterns of migratory birds. However, this shift in Koselleck's thinking, a shift that involved both a retemporalization of nature and a renaturalization of history, did not originate in this rather short didactic text; this is simply where it appears in its most condensed and effective form. The trajectories leading into this passage, and the concept and arguments invested in it, take us back to Koselleck's theoretical work from the mid-1980s.

101. Koselleck, "Zeit," 334.

102. See Helge Jordheim, "Die 'Gleichzeitigkeit des Ungleichzeitigen' als Konvergenzpunkt von Zeitlichkeit und Sprachlichkeit: Zu einem Topos aus dem Werk Reinhart Kosellecks," *Divinatio* 22 (2005), 77–90, and Jordheim, "'Unzählbar viele Zeiten': Die Sattelzeit im Spiegel der Gleichzeitigkeit des Ungleichzeitigen," in *Begriffene Geschichte: Beiträge zum Werk Reinhart Kosellecks*, ed. Hans Joas and Peter Vogt (Frankfurt: Suhrkamp, 2010), 449–80.

TEMPORALIZATION OF NATURE

Koselleck's renaturalization of history has a somewhat unexpected origin, since it requires us to return to a text that deals not with time, at least not explicitly, but with space. In October 1986, just a few months after the Chernobyl nuclear disaster, Koselleck gave the concluding lecture at the *Historikertag* in Trier; the lecture was not published until 2000, when it appeared in *Zeitschichten* with the title "Raum und Geschichte" (Space and History).[103] The essay is interesting for several reasons. That Koselleck's hitherto most systematic engagement with nature takes place in an essay dedicated to space, not time, should not come as a complete surprise. On the contrary, it confirms Koselleck's place in the tradition from the French *Annales* school, a tradition that culminated in the works of Braudel, but also in the more contentious tradition of German *Strukturgeschichte*, which was spearheaded by Koselleck's teachers and coeditors of the *Geschichtliche Grundbegriffe*, Otto Brunner and Werner Conze, and strongly supported by the National Socialists.[104] Drawing on, but also distancing himself from, his German predecessors, Koselleck begins this essay by considering natural space, "natural spatial pregivens" (*Vorgaben*), as a backdrop or a stage for history. Against this backdrop, he offers a sharp critique of the naive spatial determinism that was inherent in the *Geopolitik* project, which could not be disentangled from the political uses it was put to during the Nazi period.[105]

At the beginning of "Space and History," Koselleck returns to the point where he had ended his discussion of the shift from *historia naturalis* to *Naturgeschichte* in his entry in the *Geschichtliche Grundbegriffe*. However, the critical edge of his argument has shifted. He again observes how nature is temporalized, but he then adds that "a questionable opposition thus emerges between nature and history, one that still occupies us today, perhaps now more than ever in light of the various ecological challenges that we face."[106] Thirty years later, in his essay on "Anthropocene Time," Chakrabarty makes the same claim. Rather than attempting to pay politically correct lip service to the German historical community, Koselleck

103. Luckily (or, rather, thanks to Franzel and Hoffmann), this essay was included in *Sediments of Time*. It is also at the center of Isberg's review essay on this volume; see Isberg, "Multiple Temporalities in a New Geological Age." Furthermore, this essay prompted Olsen's eye-opening essay titled "Spatial Aspects in the Work of Reinhart Koselleck," in which he discusses to what extent Koselleck can be considered a main contributor to, or even a leading thinker of, "the spatial turn." Unlike Isberg and myself, Olsen attributes to Koselleck an almost exclusively anthropocentric concept of space that was folded into anthropology ("anthropological condition"), sociology ("social dynamics"), phenomenology, and linguistics. Even geography is considered only to the extent that it gives rise to "geopolitics." See Olsen, "Spatial Aspects in the Work of Reinhart Koselleck," *History of European Ideas* (June 2021), 1–16.

104. On Koselleck and Braudel, see Dale Tomich, "The Order of Historical Time: The *Longue Durée* and Micro-History," *Almanack* 2 (July/December 2011), 52–65; on *Begriffsgeschicte* and *Strukturgeschichte*, see James Van Horn Melton, "Otto Brunner and the Ideological Origins of *Begriffsgeschichte*," in *The Meaning of Historical Terms and Concepts: New Studies on Begriffsgeschichte*, ed. Hartmut Lehmann and Melvin Richter (Washington, DC: German Historical Institute, 1996), 21–34.

105. Reinhart Koselleck, "Space and History," in *Sediments of Time*, 28–33.

106. Ibid., 25.

articulates an argument here that appears in different permutations throughout his entire essay. After having explained how nature and climate serve as "the pregivens of possible histories that escape human control but not human use," he states:

> In our century, like it or not, the climate has entered the realm of possible human control, just as for millennia the world of plants and increasingly animals became subject to human control. Our globe might soon be transformed into a single zoo, though one might well ask who holds whom captive, the animals or the humans. Limits on the control and use of resources have shifted enormously over the course of human history, and it would be an exciting story to account for this process—as a contribution to the ecology of the present—as a common undertaking, from the perspectives both of natural science and of political and social history.[107]

Today, these are well-known phrases, and they would not have been radical in the mid-1980s. However, in an essay by a German social and political historian who had been schooled in hermeneutics and historicism and for whom nature meant either the static conditions for the unfolding of human history or *Geopolitik*, the references to the "ecology of the present" and history as a "common undertaking" between natural science and political and social history are striking. With the exception of works by a few singular authors with backgrounds in the natural sciences who have ventured into writing history as popular science, this "common undertaking" has not yet been realized. At present, however, new institutional frameworks are finally beginning to appear, suggesting that something like this might be possible in the not-so-distant future. Before this can happen, however, a set of theoretical, methodological, and empirical questions need to be confronted head-on. This is what Koselleck does in this essay. "Theoretically," he explains, "this would entail asking where the metahistorical pregivens of the human *Lebensraum* shift and are transformed into historical pregivens that humans can influence, master, and exploit."[108] We would be hard-pressed to find a more precise formulation of anthropogenic environmental change.

Koselleck offers his own contribution to this theorization in the second part of the essay, where he, in his own words, "attempt[s] to correlate our question about spatial, metahistorical, and historical conditions temporally."[109] It follows a three-phase version of that long-term historical transformation that, three years later, in *The Condition of Postmodernity* (1989), the geographer David Harvey calls the "space-time compression."[110] In this version, the theory of the shrinking world is expanded by Koselleck's own theory of acceleration, according to which the transformation of "spatio-temporal relations" takes place in ever-shorter intervals. Nevertheless, he starts with the long-term. The first phase began ten million years ago, when the first humanoids appeared on Earth; the second phase comprises the thirty thousand years following the invention of technology; and the

107. Ibid., 29.
108. Ibid.
109. Ibid., 34.
110. David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge, MA: Blackwell, 1990), 240–41.

third phase includes the two hundred years of modernity. Since 1986, these kinds of long-term summaries of the history of humankind have become one of the most popular genres of history generally, although this genre is rarely practiced by historians. (More often, biologists and cosmologists write such texts.) In my reading of Koselleck, however, the decisive element is not the periodization of human history but rather the temporalization of natural space and time as conditions for human life. This reading is confirmed by his main empirical examples: water and air. In this process of space-time compression, Koselleck argues, "the historical quality of the elements has changed."[111] Due to different forms of resource management, water has become increasingly "territorialized,"[112] whereas the air reminds us of "the unity of our living space"—even more so, he adds, since it has become "the carrier of our contemporary communication system."[113] Again, like Chakrabarty, Koselleck anticipates much later contributions to historical understanding; in this case, for instance, he anticipates John Durham Peters's work on the concept of communication and his more recent theory of "elemental media."[114] "Space and History" concludes with a plea for a new form of natural history: "But recalling the fact that natural pregivens of our lives may have longer or shorter durations takes us back to the teachings of history writing of old, which used to view nature and the human world as a single entity."[115]

RHYTHMS: STRUCTURES OF REPEATABILITY AND SINGULARITY

How do we write the history of the "natural pregivens" of human lives—which, today, are mostly referred to via the term "the environment"[116]—in a way that accounts for their "longer or shorter" durations as well as their inherent rhythms? Unlike their early modern namesakes, present natural histories can come into being only by reassembling and re-entangling natural and historical times while at the same time incorporating ideas about multiplicity, coexistence, and scale. Koselleck's final essay, "Wiederholungsstrukturen in Sprache und Geschichte" (Structures of Repetition in Language and History), represents a decisive step in this direction. This essay was first published in *Saeculum* in 2006 and then in the German newspaper *FAZ*; due to his death that year, this essay has gained an almost testamentary quality. In my opinion, this essay took his thinking to a new level of complexity, particularly in the way it manages to expand his theory of times (in the plural) to integrate natural times.

In this text, Koselleck's thinking about nature and natural times comes full circle. That is, it returns to where we started, in the preface to *Vergangene Zukuft*, in

111. Koselleck, "Space and History," 38.

112. Ibid.

113. Ibid., 39.

114. See John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015). Furthermore, Koselleck's argument about the air prefigures Peters's earlier book, *Speaking into the Air: A History of the Idea of Communication* (Chicago: University of Chicago Press, 1999).

115. Koselleck, "Space and History," 40.

116. Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Baltimore: Johns Hopkins University Press, 2021).

a way that fully illustrates the change his thinking had undergone in the interim. More specifically, in "Structures of Repetition in Language and History," Koselleck returns to the edited Herder quote, the one from the *Metakritik* that had all the references to nature omitted and that had figured so prominently in his 1979 collection. Returning to Herder's attack on Kant after almost thirty years, Koselleck restores Herder's original references to the human body (pulse, steps, and thoughts) and to the natural surroundings (streams, trees, and plants).[117] One may interpret this second version of Herder's quote as Koselleck including everything that fits into the concept of the "environment," which meant an operationalization of nature from the perspective of humans and which, by then, had become the mobilizing concept for a new science and politics of nature. By contrast, he omits the phrase "lifetimes of elephants and the most ephemeral" as well as the reference to extraterrestrial beings, which were clearly less integral to his more recent and more dynamic concept of nature. Even more illuminating than Koselleck's citation practices, however, is the radically changed textual context of the Herder quote; this new context evokes the transformation of "the temporal status of all the natural sciences investigating the cosmos."[118] According to Koselleck, even the natural laws themselves "have come to be located on a continuum between their beginning and possible end."[119] He continues: "Cosmology, physics, chemistry, biology, and likewise anthropology all need their own theories of time."[120] Then, in direct reference to the citation, he adds: "In the meantime, Herder's metacritique of Kant's formal conception of time as a non-empirical precondition of all experience has expanded its reach to apply to all sciences."[121] Although it is the same quote, its meaning and function in Koselleck's text have changed radically, as illustrated by what has been included and what has been omitted. In the preface to *Vergangene Zukunft*, Koselleck uses the Herder quote to argue for the plurality of historical times, which had been unleashed by the advent of Western modernity. Thirty years later, in "Structures of Repetition in Language and History," Koselleck uses the same quote (albeit with different elements included and omitted) to envision a plurality of all times, both historical and natural. What follows in Koselleck's 2006 essay is no less than a new theoretical grounding for both human and natural history:

> The relativity of time within the spectrum of multiple times requires new and unique definitions of the relation between repeatability and singularity for each realm of knowledge and experience, in order to be able to analyze processes that in each case are different from each other, even if they depend upon each other.[122]

It is difficult to imagine a more efficient and straightforward description of what a multiple-times approach to natural history for the Anthropocene could look like. Starting from the relativity principle, Koselleck moves on to state that time is not

117. Koselleck, "Structures of Repetition in Language and History," 163–64.
118. Ibid., 163.
119. Ibid.
120. Ibid.
121. Ibid.
122. Ibid., 164.

just relative but multiple and that these multiple times are tied to realms of knowledge and experience and thus gain historical reality in their own right. As he puts it in "'Space of Experience' and 'Horizon of Expectation,'" "the conditions of possibility of real history are, at the same time, conditions of its cognition."[123] In this way, he offers an epistemological and phenomenological answer to Herder's ontological challenge. In order to address the retemporalization of nature and the renaturalization of history, all historical sciences (including biology, geology, and chemistry) must find ways to discuss the interrelations and interdependences of the times of nature and the times of history.

One way that Koselleck, in his late work, gives shape to this plurality of times is via the geological, stratigraphical concept of *Zeitschichten* ("layers of time," or, in the most recent translation, "sediments of time"). As an example of how theories of time generated in the natural sciences (in this case, in geology) and theories generated within the disciplines of history can be entangled in a concept, or a diagram, this is an important innovation—or, rather, it is an important revision of conceptualizations developed in works by Braudel and Krzysztof Pomian.[124] Elsewhere, scholars (including myself) have discussed how Koselleck's *Zeitschichten* allows for temporal multiplicity to emerge.[125] For this reason, and because I am not convinced that this is Koselleck's most successful way of conceptualizing multiple times, I will instead turn my attention to what I consider to be a more promising way of re-entangling natural and historical times in Koselleck's work—that is, through a concept of rhythm, a precise pattern of repetition and singularity.

In the final part of "Structures of Repetition in Language and History," Koselleck reproduces a version of Herder's continuum of lifetimes that range from the shortest to the longest, from the fastest to the slowest, or, in his own words, "structures of repetition that are staggered at various depths."[126] Again, one can identify the idea of layers, which had been a part of Koselleck's thinking since the beginning of the *Geschichtliche Grundbegriffe*, although not the specifically geological sense introduced in *Zeitschichten*. However, the idea of "layers" or "sediments" of time also rests on a highly problematic Braudelian correlation between deep down and slow, high up and fast. In this essay, Koselleck deals with five sets of structures of repetition that are distributed across the regions of mineral non-life, biological life, human collectives, future life, and, finally, life in language, "within which all previously named repetitions and repeatabilities were generated and recognized, and within which they are still generated and discovered."[127] This primacy of

123. Koselleck, "'Space of Experience' and 'Horizon of Expectation,'" 258.

124. Helge Jordheim, "Introduction: Multiple Times and the Work of Synchronization," *History and Theory* 53, no. 4 (2014), 498–518.

125. See Chris Lorenz, "Probing the Limits of Metaphor: On the Stratigraphic Model in History and Geology," in *Historical Understanding: Past, Present and Future*, ed. Zoltán Boldizsár Simon and Lars Deile (London: Bloomsbury, 2022). In part, Lorenz's essay is framed as a criticism of Helge Jordheim, "In the Layer Cake of Time: Thoughts on a Stratigraphic Model of Intellectual History," in *Ideengeschichte heute: Traditionen und Perspektiven*, ed. Timothy Goering (Bielefeld: Transcript, 2017), 195–214.

126. Koselleck, "Structures of Repetition in Language and History," 162.

127. Ibid.

language is hard to accept and deserves a larger discussion, but I cannot offer it here. Another problem is the introduction of a version of the *scala naturae*, a version in which humans, especially in their roles as language users, find themselves at the top; this is a problem that Koselleck's thinking shares with that of biologists, chemists, and medical scholars. Nevertheless, the most striking, path-breaking innovation of this essay is located elsewhere and does not really come to the fore until we take the essay's testamentary quality into account. That innovation has to do with how, in this essay, Koselleck takes stock of his entire oeuvre.

Embedded in the "structures of repetition staggered at various depths" are a range of historical topics that belong to Koselleck's life-long interests and that originated all the way back in his dissertation and first book, *Kritik und Krise*. These structures include social and political institutions (such as work, law, and politics) by which every new event, every emergency, is contained within an order of repeatability in terms of words, practices, and experiences. Another set of structures that Koselleck notes are the "futures past," which are historical forms of future-orientation and prediction (such as prophecies, prognoses, and planning) by which the radical newness of the future is pre-empted in the present. Finally, structures of repetitions are also found in language—that is, in the interplay between different linguistic functions, syntax, semantics, and pragmatics that each contribute to the specific structure of singularity and repeatability. In this essay, Koselleck recontextualizes and reformats these topics as parts of a much larger continuum that also includes what he refers to as nonhuman or biological conditions that operate at their own specific time scales and life scales. He explains:

> The more paleontology has extended back into the depths of billions of years, approaching cosmogenesis, and the more the microprocesses of biological and physical chemistry come to be imbricated, all the way to genetic engineering, the more biological, animal, and human natural history come to be intertwined with each other, however much they remain distinguishable.[128]

Koselleck then discusses the biological pregivens (*Vorgaben*) that humans share with animals. In the final pages of Koselleck's final text, however, the much-discussed "conditions for possible histories"—which are organized into three (by now) familiar dichotomies (above-below, inside-outside, and before-after)—are no longer anthropological; now, they are biological. They are, according to Koselleck, "determinations of difference that both humans and animals can intensify into radical oppositions: in their formal structures they characterize structures of self-organization and capability of action, structures that continuously repeat themselves while generating singular sequences of event."[129] Finally, then, the last part of the Herder quote, the part referring to "the lifetimes of elephants and the most ephemeral," is restored to its proper place (if not in the quote, then at least in the argument). Humans and animals share biological *Vorgaben* in terms of oppositions that can be radicalized into conflicts and that bring about temporal movement and historical change. The actual structure of these changes, and thus

128. Ibid., 164.
129. Ibid., 165.

of time itself, is decided by the specific way structures "repeat themselves while generating singular sequences of events."[130] However, as we know from other texts, this rhythm of repeatability and singularity is found not only in humans and animals but also in other nonhuman, and even nonbiological, temporal structures, as documented in cosmology and geology. "And how different are not the times on all planets!" Herder exclaims in the only part of the quote that Koselleck never really took any interest in (understandably, since all of Koselleck's concerns pertain to this world). In purely theoretical terms, however, there is no reason why he should not also think about others. Freed from the 1970s anthropocentrism, Koselleck's theory of multiple times can easily be expanded to include extraterrestrial life as long as it adheres to structures of repeatability and singularity and responds to a set of external pregivens, which, by the end of Koselleck's career, were no longer anthropological but biological and geological and, in themselves, subject to historical change. This and similar speculative or science fiction moments definitely have their place in the natural histories for the Anthropocene.[131]

CONCLUSION: NATURAL HISTORIES FOR THE ANTHROPOCENE

"History," as a temporal framework that originated in the late eighteenth century and that was adapted to human proportions, falls hopelessly short of offering a way to write the kind of histories that Chakrabarty and others have sought—that is, the kind of histories that historicize the human both temporally and spatially as an agent on a planetary scale. "History" (in the modern sense) operates on the basis of a temporal anthropocentrism—a "chronoanthropocentrism," if you like—due to which elements of the past, present, and future come into view only to the extent that they fit "human" temporal categories, as illustrated by the idea of the Vitruvian Man of Time. Anthropocentric times involve intervals, rhythms, speeds, and durations that make human experiences and actions appear meaningful—for example, in terms of causal explanations or hermeneutic interpretations. However, "chronoanthropocentrism" will never offer a viable temporal framework for writing the history of humankind as the sixth mass extinction event in a way that would span 540 million years and that would include asteroids, volcanos, and humans, together with dozens of other species, going extinct every day.

Throughout his career, Koselleck remained an anthropocentric historian (in the superficial meaning of the term); his histories were histories about humans, their actions, and their experiences. Nevertheless, in the latter half of his career, he

130. Decisive contributions to the study of historical and social rhythms include Henri Lefebvre, *Rhythmanalysis: Space, Time and Everyday Life* (London: Bloomsbury, 2013); Eviatar Zerubavel, *Hidden Rhythms: Schedules and Calendars in Social Life* (Berkeley: University of California Press, 1985); and William H. McNeill, *Keeping Together in Time: Dance and Drill in Human History* (Cambridge, MA: Harvard University Press, 1995). For a discussion of synchronization and rhythm in history, see Helge Jordheim, "In Sync/Out of Sync," in Simon and Deile, *Historical Understanding*, 45–56.

131. Indeed, some of the most path-breaking attempts at thinking about multiple futures across natural and human histories emerge in science fiction scholarship. See Bodhisattva Chattopadhyay, "The Pandemic That Was Always Here, and Afterward: From Futures to CoFutures," *Science Fiction Studies* 47, no. 3 (2020), 338–40.

turned his attention more to the natural surroundings of human life, or what we today call "the environment." The tool for this new engagement—his theory of multiple times—was already present in his work. Indeed, in several essays written after 1980, Koselleck opened his theory of historical times in the plural to include natural times that were in rapid transformation due to human impact. His object of study became the entanglements, conflicts, synchronicities, and nonsynchronicities of times that are embedded in human events and in natural processes alike. This key idea in Koselleck's work, I claim, has the potential to move history as a discipline beyond the modernist and historicist framework that was handed down from the late eighteenth century and to replace it with a diverse set of practices for writing natural histories that operate on a platform of multiple human-natural times. To move beyond "history" is to engage with a framework of multiple "lifetimes," to use Herder's term. Building on, but also going beyond, Koselleck's work, I will conclude this article by suggesting what such framework could look like.

According to J. T. Fraser's classic study *Time, the Familiar Stranger* (1987), time originated in "the life process"—or, as I argue, in *life processes* (plural).[132] Almost two hundred years before Fraser made this argument, Herder linked the plurality of times to the plurality of life forms. Multiple times imply multiple realities, or, in a more current idiom, "multiple ontologies."[133] The theory of "lifetimes" offers a multispecies and multimaterialist reconceptualization of "life" that, in combination with the pluralization of abstract singular "time," opens to a wide range of possible durations that extend beyond the human and the phenomenological. Thus, the concept of "lifetimes" developed here differs radically from the concept found both in ordinary use and in disciplines such as anthropology, sociology, and philosophy, where the term refers to an individual's life and career or, in some cases, to their individual—indeed, their personal—experience of time.[134]

Inspired by Herder and by eighteenth-century natural history, the term "lifetimes" links scales of time to scales of life. The aim is to explore not only how "lifetimes" form through the entanglement and synchronization of various time scales and life forms but also how they change our experiences, our practices, and our orders of knowledge. Thus, the distinction between natural and historical times is replaced by the continuity of scales. Scales of time span from the fifteen-minute life cycles of microbes and the four-year cycles of elections and political

132. J. T. Fraser, *Time, the Familiar Stranger* (Redmond: Tempus Books, 1987), 4. See also the illuminating discussion of Fraser in Stefan Tanaka, *History without Chronology* (Amherst, MA: Lever Press, 2019).

133. Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham: Duke University Press, 2003).

134. One of the most interesting discussions of the term "lifetimes," in terms of the German *Lebenszeiten*, was offered by the German philosopher-historian Hans Blumenberg, who attacked what he saw as Edmund Husserl's absurd combination of *Leben* and *Welt* to form *Lebenswelt*, in reference to the horizon of all our experiences. In reality, according to Blumenberg, the confusion of *Lebenszeiten* with *Weltzeiten* is what causes madness, mania, extremism, and totalitarianism. Despite his interesting twist to the phenomenology of "lifetimes," as opposed to the ontological times of the world, Blumenberg's concept lacks the fundamental ontological openness intended in the use of the concept in this article. See Blumenberg, *Lebenszeit und Weltzeit* (Frankfurt: Suhrkamp, 2001).

power through to the millions and billions of years in the geological time scale; scales of life span from the non-lives of minerals and the nonhuman lives of microbes and bacteria to human lives in societies. In general, the term "time scale" refers to durations or quantities of time, often of a specific kind. For example, the geologic time scale goes back approximately 4.6 billion years to the formation of the Earth; thus, it differs radically from the human time scale that covers periods of centuries, decades, or smaller. On the other hand, the concept of a "life scale," which was handed down from Aristotelian biology and the medieval *scala naturae*, points out the continuity of natural phenomena (from rocks and plants to humans and back), but it does so without a cut-off point after which nature no longer matters for the production of times we live by. "Lifetimes" emerge when these time scales and life forms combine to form specific temporal patterns that have their own intervals, durations, rhythms, and speeds. The entanglements of these "lifetimes" in a human-natural continuum would then replace "history" as the basis for producing new knowledge about pasts, presents, and futures, which would amount to new natural histories. This is the direction in which Koselleck's work would take history if we were to read it in the way I have suggested here.

University of Oslo