Time

A Vocabulary of the Present

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6

Clock / Lived

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Almost nobody noticed. On New Year's Day 1972, every second of every official clock was "shortened" by a small but significant amount. The velocity of planet earth was slowing, and scientists needed clock time to reflect this delay. By the last decades of the twentieth century, atomic clocks had improved so much that the scientific community in charge of timekeeping felt confident to base time measurements on them. In consequence, they authorized a change in the length of every subsequent second till kingdom come.

The solution appeared simple enough, and by all accounts the new system matched better with "time itself"—except for one problem. We were used to telling time according to the earth's movement through the solar system. The length of the day and night and the regularity of the seasons depended on the earth's rotational and orbital velocity. By marking time by reference to atoms, instead of to astronomy, we risked losing the tight connection of time to daylight and to the seasons. In thirty-seven thousand years from that New Year's Day 1972, we would be a day out of phase with the calendar. Eventually we would celebrate the dawn of the new year in the middle of summer. Perhaps the calendar could be readjusted. After all, Europe had adopted the Gregorian calendar only in the sixteenth century. But another solution appeared to be much simpler. Just skip over a certain length of time that was too short for anyone to notice. So it was decided that, every year, scientists would deftly and quietly "leap" over a single second.[1]

The idea of changing the calendar or adjusting time units was not new. In the aftermath of the French Revolution, for example, scientists and political reformers concocted a brilliant plan to convert hours, minutes, and seconds to the decimal system: they built clocks based on the number ten instead of the number twelve. The usual way of dividing

a day into twenty-four hours, an hour into sixty minutes, and a minute into sixty seconds had been inherited from the ancient Egyptians. Forward-looking reformers wanted a better, more rational system. Like many of the utopian ideas of that era, this one did not last long. But it threw into relief the question of just how "natural" time standards really were.

We usually think of clocks as instruments that help us count and divide days, roughly defined as intervals between one sunrise and the next. But from the nineteenth century onward, time as ascertained by clocks became more important than time as determined by daily routines. A new temporal awareness based on the ascendancy of clock time affected modern life and modern science (evolutionary biology, geology, astronomy, and thermodynamics). By the first decades of the twentieth century, mechanical clocks were so regular that they started rivaling astronomically determined time. "Before, it was the astronomer who surveyed the clock," explained a French astronomer. "Now, it is the clock that frequently surveys the astronomer, and rectifies his results."[2]

Clock time versus biological time. The two often did not match. What were the benefits and disadvantages of each? Which should have priority? These questions appeared in some of the most intractable scientific and philosophical discussions of the twentieth century. The very idea of "progress," and the role of technology in it, was at stake. How could a small mechanical device carried on a pocket or strapped on a wrist have such a massive effect on our understanding of the cosmos?

Clock Time

While we now believe that clocks measure universal or "real" time only imperfectly, during the first period of their development in Western Europe, clocks were symbols of a universal order maintained and set in motion by God himself. If one accidently stumbled upon a clock, so went William Paley's popular "argument from design," one would surely think of its clockmaker, and so the cosmos itself became associated with mechanistic time and clocklike regularity.[3] Paley's argument articulated often implicit eighteenth-century associations between clocks and a proportioned, lawful, and God-governed universe that had been given support by Newton's classical mechanics.

From the eighteenth century onward, the central role of clocks in modernity was frequently acknowledged. Karl Marx highlighted the clock's importance for industrial societies. "The clock was the first automatic device to be used for practical purposes, and from it the whole theory of the production of regular motion evolved," he wrote.[4] In agreement, the historian of technology Lewis Mumford stated, "The clock, not the steam engine, is the key-machine of the modern industrial age."[5] In many of these accounts, the industrialization of the modern world was described as unfurling with clocklike regularity. "It is the mechanical clock that made possible, for better or worse, a civilization attentive to the passage of time, hence to productivity and performance," explained the economist David S. Landes.[6]

A historically important change in timekeeping practices came at the end of the nineteenth century, with the development of new networks of electrically coordinated clocks. These networks expanded quickly after the Great War with the spread of radio-based wireless technologies. For example, civilian use of wireless time signals emanating from the Eiffel Tower became common in Paris after 1910. With the invention of the triode (three-electrode lamp), transmission improved so much that by the early 1920s it was possible to reach the North and South Poles and even intercept the waves in Australia. To manage this new distribution of time in the post-WWI era, the International Time Commission (ITC) was organized. The bulk of its work was carried out by the Paris-based International Time Bureau (ITB) located at the Paris Observatory.[7] The Paris facility received time signals from international observatories worldwide, "harmonized" them with their own, and sent them back to the world as "universal time."[8] Efficient time determination and distribution was considered a contribution to—and, in some instances, even a prerequisite for—world peace. Because uncertainties in the determination of time led to uncertainties in the determination of longitude, the transmission and standardization of time had clear geopolitical consequences not only for mapmaking but for the determination and maintenance of national borders. Settling border disputes was a pressing need during the century, particularly in reference to the border in Morocco between France and Spain, the Congo-Cameroon border disputed by France and Germany, and the territorial disputes in Tunisia between France and Italy. Regularizing clock time was necessary for maintaining a peaceful world order.

Wristwatches started to become common in the 1920s, when the general public adopted the fashion of soldiers who had found the old pocket models too cumbersome, and yet philosophers, for the most part, ignored the profound changes in the culture of timekeeping taking place around them. There were exceptions, as I discuss below. Phenomenology, from Husserl to Merleau-Ponty, stressed closer links to life and the living than to the mechanical and clocklike. Martin Heidegger's work started as part of a broader initiative aimed at recovering "lived time" and restoring its importance vis-à-vis "clock time." His project involved editing and publishing Husserl's *Vorlesungen zur Phänomenologie des inneren Zeitbewusstseins* (in 1928). Bergson, Husserl, and Heidegger became key references for subsequent explorations of "lived time."

During the 1960s one of the most important changes in our understanding of time took place. In 1959 scientists at the National Physical Laboratory in charge of the Standards Division of the United Kingdom explained to readers of the *General Science Journal* the revolution that was about to take place: "During the next few years there is every prospect that new definitions of the metre and the second will become adopted which will be expressed in terms of certain fundamental characteristics of the atom."[9] The change in how standards of time were defined had been brewing since the first decade of the century, but deficiencies in the current system were now too apparent to be ignored. "Existing definitions," of the second of time, explained the authors, "are now in question."[10] On October 14, 1960, at the 11th General Conference on Weights and Measures in Paris the wavelength of Krypton-86 orange light was adopted as the new international standard on which all length measurements would be based. While most historians have focused on the implications of this new definition for standards of length, it is important to remember that it was also used for standards "of frequency (or [for] its inverse, [the] time-interval)."[11] How did this new definition affect our general understanding of time? While ostensibly tucked away in national laboratories, the new definition of time set in the 1960s—one which continues to be valid today—affected not only how time was thought of, used, and experienced, but more importantly, it reflected profound transformations in the role of scientific authority and expertise, and privacy and intimacy in social and civic life.

In industrialized nations over the course of the twentieth century, then, time supplanted space as the very backbone of science, public life, community, and global sociability. Indeed, by the late twentieth century—with the sprawl of cities worldwide and the growth of a range of communication and transportation technologies—meetings among individuals could be more efficiently arranged on the basis of time rather than place (such as the coffee shop), as individuals arranged to meet or talk *then*, rather than to simply meet *there*.

Lived Time

In the last decades of the twentieth century, clock time and lived time also appeared more distant than ever. The standard account of their separation is traced back to the 1830s discovery of the "personal equation," which described the difference between time assessed by a person and time marked by a machine. When compared to automatic inscription devices, human assessments of rapid, fleeting events were found to have idiosyncratic variations and a lag time of about a tenth of a second. Experimental psychologists blamed these delays on the speed of "reaction time," part of which was due to the surprisingly slow "speed of thought."[12] While the personal equation had been a problem for scientists, by the 1930s it also became a problem for philosophers and sociologists. The sociologist Robert K. Merton cited it to show how politics or individual biases could enter into science, affecting its purported "objectivity."[13]

Clock time and lived time were often associated with other binary oppositions such as machine-human, matter-mind, objective-subjective, physical-psychological, public-private, outer-inner. The first of the binary terms was usually understood by reference to a homogeneous notion of time and causal effects, while the second term was attached to living beings, salient moments, and a sense of indeterminacy and heterogeneity. At different moments in history, these oppositions obtained specifically gendered and hierarchical valances, as they were applied to different referents.[14]

The roots of the modern conflict between "lived time" and "clock time" were deeply immersed in a longer philosophical tradition, where the works of Parmenides and Heraclitus, Aristotle and Augustine were

central. In the twentieth century, this conflict resurfaced in a famous debate about time between Albert Einstein and Henri Bergson that exploded when Einstein visited Paris in 1922.[15] Bergson had the opportunity to express his views directly to the physicist. He found Einstein's tackling of time solely by reference to clocks completely aberrant. In contrast, Bergson argued for the need to deal with time—and particularly "lived time"—philosophically, stating, "The time that the astronomer uses in his formulas, the time that clocks divide in equal parts, that time, one can say, is something else."[16] Bergson controversially claimed that Einstein's theory of relativity was undergirded by a more basic sense of simultaneity that would explain why clocks were invented in the first place. That certain correspondences between events could be significant for us, while most others were not, explained why our intuition of this simultaneity remained relevant.

Likewise, when the physicist Paul Langevin declared to a room full of philosophers in 1911, "But we are ourselves clocks," he strove to defend the value of Einstein's theory of relativity.[17] The audience protested, unconvinced by Langevin's call to understand humans as clocks, a philosophical stance connected to the modern rationalism and secular materialism he defended as a scientist. We are *not* clocks, retorted the philosopher Léon Brunschvicg, we are clock *makers*.[18] The assertion that "we are ourselves clocks" seemed tightly connected to a philosophical materialism that was amply debated. Decades later, in 1949, the philosopher Gilbert Ryle would argue that if scientists adopted this materialistic stance and eliminated the concept of the "soul," they would leave behind an even stranger "dogma of the ghost in the machine."[19]

At the end of the twentieth century, the philosopher Hans Blumenberg returned to the "personal equation" as a classic case for understanding the separation between "world time" and "lived time" and how the latter appeared to have a certain "granularity" at its most basic level, related to the "tenth of a second."[20] In Blumenberg's account, the personal equation appeared as one episode of the seemingly intransigent divide between people and things, and thus was at the root of some of the most difficult questions about the nature of the world and human consciousness in it.

Indeed, in the post-WWII period a growing number of historians started focusing in this way on the history of chronology and of timekeeping (from sundials to clocks). Their insights brought new lessons that reflected back on the discipline of history. In twentieth-century political philosophy, there were, for instance, new perspectives on the history of time emerging from the Marxist tradition. Marx had not only considered clocks to be essential for the establishment of new production methods; he also fought against nonchronological explanations in historical writing.[21] Yet he could not have anticipated the extent to which the post-WWII era depended on organizing time on a standard "timeline" using fixed intervals extrapolated backward and forward in history. The "timeline" was so perfect that by the 1950s it permitted the historian Fernand Braudel to consider it *as independent from history* and disconnected from the politics of his time. He started advocating a particular way of writing history at a level "where its time does not match our traditional measures."[22] The historical method he advocated was based on a timeline that was so long that the scale of historical narratives had little to do with the scale of mortals.

The use of timelines as a way to represent a chronological sequence of events was hardly new.[23] But in the 1950s Braudel could think of a timeline on which to map historical events that were not brought about by humans, promoting instead "anonymous" *longue durée* history characterized by slow environmental and socioeconomic changes that he contrasted to the deceptive history of events (*histoire événementielle*) of identifiable, named individuals. Braudel forcefully rebelled against the method associated with Heinrich von Treitschke that "men made history," adopting instead a scale that surpassed that of the lives of men and came closer to the astronomical scales of the earth and planetary sciences. The later *Annales* historians started to consider the role of timekeeping technologies, noticing an important historical transformation that was brought about by the introduction of clocks. Jacques Le Goff saw the medieval conflict between the time of the church (with its tolling of bells) and the time of merchants (based on the clock) as one of the major events of the mental history of those centuries. Le Goff soon had to ask more complicated questions about our sense of historical time and had to find alternative ways for understanding chronology in communities that were not ruled by clocks—for example, by tracing how different epochs could be determined by how confession manuals defined and categorized sins.

Working from a tradition that increasingly wanted to recover the contributions of the working classes and other neglected historical actors, the historian E. P. Thompson similarly became interested in the history of timekeeping. In his magisterial essay "Time, Work-Discipline, and Industrial Capitalism" (1967), Thompson contrasted the "clock" time of the industrial capitalist against the "natural" rhythms of craft workers, which he associated with women and children. But "history from below," as work on the working class, women, and other groups became known, would not adopt time from below. Social history, for decades to come, adhered strictly to the chronological sequences demanded by Marx himself.

What did historians learn about history once they included clocks in their accounts? As they delved into the history of time, thinking of it in relation to particular devices, the question of the temporal structure of historical writing itself became ever more pressing. In France, the philosopher Paul Ricoeur, for example, was intrigued by how *Annales* historians in the 1970s focused on "the representation of time" of different eras. It was "amusing" to read their accounts and see how they failed to notice that the temporal structure used to organize *their* narratives was similarly dependent on a particular conception of time characteristic of *their* own historical situation.[24] Ricoeur conceived of a solution for restoring to "historical time" its "scientific ambition" while reconciling it with our sense of lived time.[25] Historical narratives gained meaning only because they "derived" from a certain sense of temporal experience, agency, and causal efficacy. These conditions were what linked the intrigue of a historical account with its historical referent, and why its structure remained different from fictional narratives. Ricoeur liked to focus on how historians frequently "shortened" episodes that "mutated" too slowly. Their job was not unlike that of a film editor, who cut episodes "by an effect of cinematographic acceleration."[26]

The German historian Reinhart Koselleck similarly analyzed the relation between historiographical traditions and particular chronometric practices.[27] Koselleck argued that "clock time" was itself a historical event: "The mechanical clock, once it had been invented, descended from the church tower to town and city halls, then moved into the living rooms of the wealthy and the bourgeoisie, and finally found its way into watch pockets."[28] The role played by timekeeping instruments in the construction of history itself, which had been kept aside in the early literature on the topic, entered with full force. Each historical epoch had a certain way of conceiving its own temporality, and this particular perspective affected the historical narratives of that time. The reign of "clock time" appeared as a short episode that fell within the longer reign of "natural time" that was "physically or astronomically processed" and that could be traced further back, to the invention of the sundial.

The discipline of history, according to Koselleck, depended on the idea that certain chronologies were nearly "absolute" and independent of history: "To make meaningful statements, we need to tie each of our relative chronologies back to a chronology that is as 'absolute' as possible and independent of history."[29] But because no chronological method could be absolutely independent of history, Koselleck chose instead to see history in connection to changes in our sense of *acceleration and surprise*. If historians could not free themselves from understanding the past in terms of their own senses of time, they could become more explicit about their biases by thinking about "historicity" in terms of the more general categories of *experience and expectation*. While some historians strove to fill out sequences of events and place them in chronological order, Koselleck insisted that these compilations could never amount to a meaningful historical account. The practice of history was notably different from that of the "Ideal Chronicler" described by the philosopher Arthur C. Danto.[30]

While philosophers and historians worked on the long-term dynamics of lived time, anthropologists were confronting its political implications. They had a long history to work upon. In the seventeenth century, for instance, Father Matteo Ricci told the story of the Jesuits bringing a mechanical clock to the Imperial Palace in Beijing, to the amusement of the Chinese emperor, who was not unfamiliar with the device. This has remained one of the exemplary narratives about the role of technology in colonial encounters. Historians were quick to notice that clock time in such instances was tightly coupled with the notion of "civilization," thus bringing questions about the role of modern machinery in industrialization to the fore. But through such examples, anthropological studies of time were making the case that clocks were "little boxes that measured not merely time, but men; and which were always wound up to do battle on foreign shores."[31] These *agonistic machines* measured the

temporal distance between modernity and the dark ages only by positing an analogous distance between moderns and other people.[32] They represented conflict rather than progress, denigrating the "Other" in colonialized territories because of how modernity appeared at the head of a long, teleological, progressive narrative of events, places, and people. A technologically determined "now" is always at the head of the race, peeking out from the crowd and heading for the finish line. The philosopher Michel Serres has argued that just as the ancients used to "place the Earth at the center of everything," a merely cursory analysis reveals how moderns see themselves as living within a teleological progression heading toward the very summit of time. This high-altitude position comes with epistemological benefits, which scientists, in particular, have efficiently harvested. "It follows that we are always right, for the simple banal, and naïve reason that we are living in the present moment," he stated.[33]

Laboratories work efficiently on the past. With up-to-date measuring techniques, science changes our understanding of the deep past, yet it does so by taking for granted a progressive model of culture that lends it historical authority. Historians and anthropologists of science consider changes in our redefinition of past events as intimately tied to present advances in scientific practices and technologies. The philosopher and anthropologist of science Bruno Latour has stressed this dependency. Ramses II, he argues, "fell ill three thousand years *after his death*," since the effects of tuberculosis on the ruler technically occurred when scientists brought his mummy to Paris and determined he had been infected.[34] For Latour, the fiction of "time advancing clockwise" is only maintained thanks to an armamentarium of brick-and-mortar institutions—of networks—that protect a Kafkaesque castle of simple "inscription" techniques and devices that include those of clock time. In consequence, he exposes the fragility of so many of those universalist claims that have characterized modernity in its bureaucratic splendor. While anthropologists had previously considered the difference between mythical cultures and historical civilizations in terms of essential cognitive divisions and technological prowess, by tracing what sustains "clock time," Latour shows how these divisions arise in connection to particular forms of social and material organization. The empire of time—with its divide between moderns and primitives—has no clothes.

Yet if some anthropologists successfully put clock time back into its case and coat pocket, crushing its hopes for universality or its bestowing of laurels upon only a few "modern" societies, sociologists go further by highlighting the connection between the modern notion of time and particular technologies and practices, not all of which are favorable to civic life.[35] The role of the clock in factory organization from the Industrial Revolution to Taylorism, for example, was debated as historians and economists placed differing levels of importance on "technological" versus "social" progress. Thinkers started considering the concept of "efficiency" not only as quantitatively determinable via clock time, but also in terms of "human" costs in terms of lived time.

Clocking Lived Time, Living Clock Time

The tension between clock time and lived time motivated some of the most important contributions to twentieth-century philosophy. Martin Heidegger noticed something about time that neither Einstein nor Bergson had considered. "The very determining of time," he observed, "should claim as little time as possible."[36] For this very pragmatic reason, tied to their appeal and popularity, clocks were able to proliferate and conceal alternative conceptions of time. Heidegger had found a clue permitting him to move beyond ancient dichotomies. "As regards the title 'Being and time,' 'time' means neither the calculated time of the 'clock,' nor 'lived time' in the sense of Bergson and others," he explained, referring to his magnum opus, *Being and Time* (1927).[37] During those years Heidegger warned about the spread of many other new technologies, which were "intermediate" things—characteristically "modern"—that lay somewhere "between a tool and a machine." These things concealed themselves "in the midst of [their] very obtrusiveness" and "transformed the relation of Being to his essence."[38] Heidegger sought to resolve the impasse between "clock time" and "lived time," between the "rational" realm of science and the ground of lived experience that often was relegated to the realm of the "irrational." Clock time, considered alone, was a grossly inadequate concept for understanding time: "Once time has been defined as clock time then there is no hope of ever arriving at its original meaning again."[39]

Heidegger's investigations into the relation of clock time and lived time brought important insights to his philosophical understanding of technol-

ogy more generally. In later work, he explained how one could no longer "pretend as if 'technology' and 'man' were two 'masses.'" These two elements were complexly intertwined. Their interrelation was the reason why "the much discussed question of whether technology makes man its slave or whether man will be able to be the master of technology is already a superficial question." Heidegger instead expressed the need to "ponder the 'concrete' . . . and to remove the concealment thrust upon things by mere use and consumption." Categories such as "filmic time" and "literary time" emerged as potentially mediating concepts, signaling, perhaps, the slow dissolution of one of the central dichotomies of modernity.

From Bergson to Deleuze, for example, scholars have focused on filmic time to better understand the relation between temporality and technology. Picture a gun aimed at the head of a girl. She has been kidnapped and is tied up, unable to move. The gun is linked to a clock that will go off unless it is disconnected before noontime. In this scenario, time passes differently for the victim, who focuses on the countdown; for the rescuers, who are driving the action; and for the viewers of the film. This is a scene from D. W. Griffith's *The Final Hour* (1908), which showed a dramatic trope and temporal configuration that would appear in many action movies to come. Since the early days of Georges Méliès, moviemakers used scenes such as this one and techniques such as cuts and edits to speed up and slow down action. *L'Homme à la manivelle* (Pathé 1907), for example, displayed comical effects surfacing in connection to changes in the speed of hand cranking. Variable-rate hand-cranked cameras became obsolete with the introduction of sound in film in the 1920s. Once the speed of recording and projection speeds were standardized, the contrast between the clocklike regularity of the apparatus and the fluid time on the screen became evident for a growing number of viewers. For this reason, the Russian master of montage film V. I. Pudovkin extolled the benefits of "filmic time" because of how it could be liberated from "real time." Yet "cinema pur"—based on the long take and widely employed in "realistic" documentaries—shunned filmic time, and started to be defined against it. Two kinds of film techniques—one associated with lived (and narrative) time and the other with clock (and real) time—suddenly faced off.[40]

Analyses of the temporality of film were accompanied by new investigations into the time of literature. Literature and the movies introduced

a new way of thinking about clock time and lived time.[41] In a 1952 linguistic study of clock time, Thomas Storer wrote that "the description of a ticking clock as consisting of 'a tick followed by a tock followed by a tick followed by a tock followed by a tick followed by a tock' is . . . identical in structure with the ticking of a clock."[42] When spoken or written down, a "tick tock" echoes the mineral beats of the clock.[43] Yet most of language follows a temporal structure that hardly matches the enviable regularity of clocks.

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At the dawn of the 1968 protests, the time of philosophers, humanists, and artists continued to be set starkly apart from that of Cold War physicists. Scholars continued to take sides, some aligning themselves with physicists' clock time and some protesting against it, pointing out how clock time is often connected to war (agonistics), disease (parasites), noise (entropic and auditory), and the creating of a subaltern "Other." We now have the possibility of thinking about time in new ways, far from the conceptual binaries of clock time and lived time.

Clock time and lived time overlap in the legal brief, the battle plan, the assassination plot, the successful invasion, the lethal infection, and the strategic rendezvous. Scholars today have sharpened their investigations of this overlap, of what may lie between clock time and lived time or how the two have been merging into new configurations alongside new technologies. Temporal awareness and chronologies emerge in cases when exact comparisons between "before" and "after" obtain relevance. In the twentieth century, "clocks" changed from mechanical and astronomical-based systems to electromagnetic and atomic-based ones, while "life" was increasingly studied in terms of its microbiological structure and cellular movement. These changes, sustaining the binary split of clock time/lived time, depended on particularly modern technologies—from radio to film.

Instead of attempting to map more and more detailed slices of human time on top of an ever-extending sequence of perfect clock-time intervals, we need to ask why this particular hierarchy gained such a potent force in modernity.[44] Cultural narratives and beliefs change drastically in connection to new timekeeping practices.[45] The phenomenological subject and the cosmos (against which it defines itself) are both shaped

by timing media that play an essential role in the formation of subjectivity, objectivity, *and* their historicity. Practices and technologies (some as simple as pushbuttons and triggers, doors, and ordered lists, and others as complex as a particle accelerator or large-scale telescope) create temporal asymmetries (between the past, present, and future) and irreversibilities (that is, one-way directionality). The structure of time in modernity—and its division of clock and lived time—is sustained by the understanding and experience of causality and effective agency that cuts across science, history, literature, and film, as much as through the present, the past, and the future.

NOTES

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38 Heidegger, *Parmenides*, 77.

39 Martin Heidegger, "The Concept of Time in the Science of History (1915)," trans. Harry S. Taylor, Hans W. Uffelmann, and John van Buren, in *Supplements: From the Earliest Essays to* Being and Time *and Beyond*, ed. John van Buren (Albany: State University of New York Press, 2002), 55.

40 Analyses of the temporality of film were accompanied by new investigations into the time of literature. See the classic text by Georges Poulet, *Études sur le temps humain* (Paris: Plon, 1952); Thomas Storer, "Linguistic Isomorphisms," *Philosophy of Science* 19, no. 1 (1952), 80; Hayden White, "The Narrativization of Real Events," *Critical Inquiry* 7, no. 4 (1981), and *The Content of the Form: Narrative Discourse and Historical Representation* (Baltimore and London: Johns Hopkins University Press, 1987), 5.

41 See Poulet, *Études sur le temps humain*.

42 Storer, "Linguistic Isomorphisms," 80.

43 According to *OED*, the echoic term "tick tock" arose during the mid-nineteenth century.

44 Canales, *A Tenth of a Second*.

45 Jack Goody, "The Time of Telling and the Telling of Time in Written and Oral Cultures," in *Chronotypes: The Construction of Time*, ed. John B. Bender and David E. Wellbery (Stanford, CA: Stanford University Press, 1991).

7

Synchronic / Anachronic

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The terms "synchronic" and "anac
antonymic to the eye. Both are forms
prefixes suggest that they are not si
means "together" or "with," such that s
of rhythm. And the Greek *ana-* does
Instead it means "back" or "against," su
is a matter of propulsion and sequence
is not anachrony but asynchrony, "no-
opposite of anachrony (or at least of ar
an older, often obsolete object or idea
term "prochronism," the placement of
which it was not yet invented.[1]

Nonetheless, pairing synchrony and
paradoxical power relations engaged ar
of time. Both are, in some ways, mode
particular disciplines: in linguistics si
ses focus on the state and structure of
reference to the reverberations of the p
ogy, that are part of a diachronic anal
of history warns against anachronism,
in terms only possible to think within
chronic and the anachronic can subjug
torting the past in ways that mitigate
present came to be. Additionally, synchr
a larger scheme like clock time, musica
individuals' particular temporalities.

Yet both the synchronic and the an
conceptualize freedom—and the differ