History without Chronology

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CHAPTER THREE

HETEROGENEOUS PASTS

*The supposed unity of time projected by capital and nation-state is a masquerade that invariably fails to conceal the ceaseless confrontation of different times.*

—Harry Harootunian (2015: 23)

*Variety and possibility are inherent in the human sensorium—and are indeed the key to man’s most noble flights—because variety and possibility belong to the very structure of the human organism.*

—Norbert Wiener (1950: 52)

*The most fundamental feature of history is not the unity, uniformity, and homogeneity of Newtonian or Hegelian time, but indeed the plurality, multiplicity, and heterogeneity of socially and historically conditioned temporalities.*

—Helge Jordheim (2014: 505)

The epigraphs above from Wiener and Jordheim emphasize that heterogeneity is inherent to life—biologically and conceptually—but, as Harootunian points out, for centuries we have accepted a myth or masquerade that has (imperfectly) hidden this essence
for a fictive unity, a unity rooted in chronological time. My goal of this chapter is to explore the possibility of heterogeneity serving as the basis for historical inquiry where difference does not become an unintended outcome, a good that serves as ornamentation, or a place/idea/person needing correction.

The difficulty of any discussion on the heterogeneity of time is the inclusion of difference within absolute time. Different times are hidden in plain sight as the unevenness that makes up linear time. I differentiate this form of variation as unevenness rather than heterogeneity.¹ The ubiquity of absolute time throughout our knowledge system makes confusion easy. The increasingly common phrase “multiple temporalities” is often a part, not a critique, of absolute time. Althusser and Balibar describe the problem: “We should indeed be relapsing into the ideology of a homogeneous-continuous/self-contemporaneous time if we related the different temporalities I have just discussed to this single, identical time, as so many discontinuities in its continuity; these temporalities would then be thought as the backwardnesses, forwardnesses, survivals or unevennesses of development that can be assigned to this time” (1970: 106). Critique—discontinuities in its continuity—remains beholden to absolute time and the Hegelian system. This conflation of difference into unevenness is a part of the masquerade; it compounds the difficulty of discussing and rendering understandable times where absolute time is not the standard.

My effort to formulate an understanding of pasts through a different epistemology of time is to turn to recent science, the “new,” and to pasts, the “old.” Much of what I call the “new” has been around for more than one hundred years. It is from the physics of special relativity, thermodynamics, quantum time, and now complex systems; it is also from the greater understanding of biological processes that became common in the mid-twentieth century. It would be a contradiction in an essay that argues for heterogeneity to call for the replacement of these “new” concepts over the old, classical time. That would invoke the gesture of exclusion. It is
possible for these times to coexist. Like our use of Newtonian time, there is not a direct application or transfer of physical or biological times to social forms. My hope, though, is that we see that the disciplines are not as distinct as our practices suggest and that the adaptation of this “new” can help us extend historical thinking into the twentieth century. Scholars such as William Connolly, Barbara Stafford, and Helga Nowotny have already shown the potential ideas from the neurosciences or physical sciences for broadening our understanding of the humanities; history can too. The disguise or masquerade is being exposed.

This is also an opportunity to revisit the “old,” but I run the risk of invoking the ancient/modern dichotomy or a “golden age.” So be it, but without a chronological metric, the “old” and “new” can suggest an isomorphism rather than difference where neither the new nor the old is better. For example, Bertalanffy locates the origins of General System Theory in the ideas of Nicholas de Cusa, a sixteenth-century mystic. Bertalanffy rightly points to de Cusa’s notion of “learned ignorance,” the impossibility of knowing the absolute truth, and “coincidence of opposites,” or that every reality is manifold and depends on perspective (Bertalanffy 1968: 11, 248; Certeau 2015: 23–70). Increasingly, scholars are recognizing the ways that pre-Enlightenment figures sought to deal with information inflation, the decline of the church, the expanding world and its many locals, and the quest for some universalism. Fasolt shows the situatedness of Hermann Conring’s texts, and Jordheim points out the more sophisticated understanding of times among eighteenth-century historians, such as Johan Christoph Gatterer (Fasolt 2004; Jordheim 2017). To argue for relational notions of space-time, David Harvey draws on Leibnitz, who criticized Newton’s absolute time and space and argued that time has no independent existence (Harvey 1996: 250–64; see also Hölscher 1997). Interestingly, the ideas of such “old” early modern scholars compare well with recent scholarship, including on chronobiology and digital media. The old and new sandwich absolute time.
Perhaps it is absolute time and our understanding built on it that is the anomaly.

I have increasingly wondered why histories of human activity follow a mechanistic, physical time to understand organisms and organic processes. The use of biological times rather than classical time to order history was also a possibility in the late eighteenth century. Herder, who was influenced by Comte de Buffon’s *Histoire naturelle* refused to separate the natural sciences from a history of man and raised similar doubts about what would become world history. He writes the following, pulling no punches in his criticism of the Eurocentrism of history based on absolute time (Iggers 1968: 35; Zammito 2009: 67):

“How foolish [it would be] for you to tarnish this ignorance and admiration, this imagination and reverence, this enthusiasm and child-sense with the blackest devilry of your age, with fraud and stupidity, superstition and slavery—to fabricate for yourself an army of priest-devils and tyrant-ghosts that exist only in your soul! A thousand times more foolish [still] for you magnanimously to bestow upon a child your philosophical deism, your aesthetic virtue and honor, your universal love of all peoples full of tolerant subjugation, blood-sucking, and enlightenment according to the high taste of your time!” (Herder 2004: 11).

Herder also has received renewed attention, possibly overcoming criticism for his emphasis on nation and race (as if nineteenth- and twentieth-century internationalism does not deploy racial hierarchies!), denial of objective criteria (Iggers 1968: 35), or “loose and hasty [thought]” (Collingwood 1994: 90). Perhaps such dismissal of the nonmodern makes sense in an understanding of history that is filled with the superiority of the West, mechanistic desires, and notions of progress. Must we continue this masquerade?

For those of us who have studied the non-West through the poststructuralist and postcolonialist “turns,” Herder’s diatribe sounds familiar. Many of our historical subjects interrogated
history as, to paraphrase Wiener (1950), traces (messages) of the past to reorganize (control) their societies. They tried to write their own histories within absolute time as a way to unify their territory around the idea of a nation and simultaneously to extract themselves from the locus of inferiority to the West. This very problem is an example of Althusser and Balibar’s caution, the domestication of difference within a chronological structure that homogenizes. Many of Herder’s ideas will sound familiar to those who have been seeking some common basis for understanding the diversity of the world by grounding human activity within people rather than abstract categories. People, language, and thought, he writes, are prior to philosophers and philosophy (Zammito, Menges, and Menze 2010: 673). One can see in this emphasis on activity prior to categories a connection to *historia magistra vitae*, where his history maintained a connection to human experience.4 Herder’s history still had remnants of communication in which it was related to the “life world” and the “reproduction of the social system” (Zammito, Menges, and Menze 2010: 673). From this prioritization of human thought and action and his connection of the science of man with that of nature, he recognized that peoples (races) have different characteristics and their development is conditioned by their biology—both body and environment.5 We must ask how it is that two centuries later, Herder’s invective still resonates. Progress?

My interest is not to resuscitate these men. Like my previous chapters, I use the methods of an historian to begin with a modest suggestion: rather simply, that we use dating systems of the unit or culture. On the surface, this operation honors the time system of the unit of analysis. It moves us toward an understanding of temporalities where times are both internal and possibly external to the activities of individuals, groups, communities, nations. But like my entrance into the digital humanities, it leads one toward first principles. The masquerade of what had been “common sense” is exposed to be cultural and ideological. This initial step opens up the possibility to accomplish Certeau’s
call to dehistoricize our objects of research. We see the selection that occurred, obscuring some of the “old,” and the ignorance or dismissal of ideas from the “new” sciences. Increasingly, questions about the operations of diverse organisms, the centrality of information, the roles of observers, and the variability of pasts to understand outcomes appear in a very different light.

Historians have long endeavored to convey accurately pasts to current and future generations. This book shares this ideal but argues that it is key to avoid, not tacitly accept, the structures and limitations imposed by absolute time. History can be more than knowledge about past places; it can also be a tool for communication and understanding. I start by arguing for a shift from time to times. This shift sounds simple, but the plural is not additive; it questions the external and naturalized status of classical time. It can be the beginning of an inquiry into the very components of history—the duration, the unit of analysis, the role of the observer, and the multiple perspectives within data. No doubt there are other things we can do, but I hope to show that from this rather simple move, first principles come to light and help in the spring cleaning that Elias called for almost fifty years ago.

I end this chapter with a brief discussion of uncertainty.

INVERSION TO TIMES

A polite query to the title of this book has occasionally been, “So what is a history without time?” This conflation of time and chronology is the crux of the problem: chronology is but one form of time—in Certeau’s words, an “alibi of time.” Interestingly, a discipline that operates using time and prides itself on its ability to describe change has failed to keep abreast of changes to our understanding of time over the past century. Instead, absolute time has remained one of the most important and now an unconscious technology for communication in modern society; clock
and chronological times have become so naturalized that often we don’t realize how much it orients us to itself through synchronization and coordination rather than helping us understand organic processes. The proliferation of books on how modern society is accelerating and how to manage time (usually by becoming more efficient and thereby further burrowing oneself in mechanical time) are indications of the naturalization of chronological time. Histories without chronology, then, are not without time or order; they are accounts of pasts that recognize the times that emerge through the activity of people. The shift from time to times is an inversion of an external time and internal times. I prefer this question: What is history using times?

It doesn’t take much to show that time is multiple. Fraser (1987) discusses the times of physics, biotemporality, nootemporality, and sociotemporality. Biotemporality brings in the various rhythms of organisms and societies; again, we are reminded of Wiener’s emphasis on variety. Nootemporality is the human apprehension of time, the mental present. Fraser connects this to the umwelt, the physical and conceptual environment that makes up that mental present, and I would also include how people experience time. The idea of the umwelt underscores the situatedness of objects, people, and understanding as well as the limitations and participation of the observer. Sociotemporality is the particular system people formulate to make sense of their world. This is where I would locate chronological time; it is but one way, albeit our naturalized way, to coordinate, organize, produce, and maintain values.

The inversion of time and times exposes the problem of linearity, of the replacement of one time with another. Instead, we need to untangle both so-called natural times and human apprehensions of time; heterogeneous times help us shift from time as a metric to times as a way of understanding the how and of manifold ways of behaving; it helps us recover human activity, relationality, and experience.
Internal Times

One rather simple adjustment is to record our writings about the past in the reckoning systems of the people or society we are describing. This is especially apparent for those working on non-Western or nonmodern societies, but more broadly it signals a conceptual shift from an understanding of pasts based on external, universalistic time to a time internal to some community or activity system. Certainly, using local dating systems might be disorienting; it makes it more difficult for us to emplot those societies within our understanding of cultures and communities across the globe. That is the point: they remain alter rather than other—that is, it is more difficult to locate them using the gesture of exclusion. Peoples in the past and today often use multiple time systems simultaneously; scholars can too. Moreover, in today’s digital environment, electronic aids (such as notes, mouse overs, and so on) are rather easy to incorporate. The point here is not to sow confusion or to claim something “new,” but the disorientation suggests the extent to which the “simple” translation of dates into BC/AD and the Gregorian calendar alters understanding and relations, fostering Whitehead’s “fallacy of misplaced concreteness” (1925: 58). This disorientation inverts Foucault’s “violence of time,” where the expectation of translation and transmutation shifts to our, not their, responsibility.

Historians have long struggled to study pasts without prejudging them, but that goal operates within a structure that already judges. Reflexivity has not sufficed. Historians do include some milieu in our work; we usually call it context. But what we call context emerged along with the birth of the past. It too is a part of the inversion that occurred to compensate for the schism that resulted when objects and happenings were filtered, abstracted, and transmuted through emplotment onto chronological time. When pasts became prior and different, the extraction of objects and documents from the milieu that had given them
meaning necessitates the application of context, the reinsertion of surroundings.13

By using the reckoning system of an activity that gives rise to happenings, documents, objects, and place, these become meaningful in the relations and connections of their specific site. This inverts emphasis to the activity, which might give rise to boundaries and meaning or the place and ideas of people. Time-reckoning systems often give us hints of the significant markers of that society—in Koselleck’s words, a “space of experience.” These systems in so-called backward places were often very sophisticated. For example, on Java, a five-day week and seven-day week operate simultaneously (Boellstorff 2007b: 238–41), and in 1900 Beirut, two systems for counting hours and several calendrical systems (Gregorian, Julian, Hijiri, and Ottoman) coexisted (Ogle 2015: 120–32). In short, these are systems (many societies had several) that help us understand the conceptual world of people, their understandings of previous happenings, and how they related to each other and to outsiders.

An implication for understanding this situatedness of pasts is evident in a story from Thomas Kuhn, recalling his effort to examine the connection of Aristotle with Galileo on mechanics. Kuhn (1977: xi–xii) reports that he was initially dumbfounded on how “simply wrong” Aristotle was on motion in comparison to his other observations, especially in biology and political behavior. Yet when he realized that Aristotle was concerned with qualities not states—that is, when he considered the conceptual understanding of Aristotle’s epistemology, the “contemporary configuration on which it is dependent”—he understood not Aristotle’s ignorance but a different way of appreciating pasts.

While my discussion of units thus far has generally followed history’s use of nation or culture, those familiar with some form of complexity theory will see in this inversion the space for the emergence of groupings from simple agents and the interaction of these groupings into larger units and eventually to nation-states and
Lefebvre describes this hierarchical relational system: “The outcome is that the living body can and must consider itself as an interaction of organs situated inside it, where each organ has its own rhythm but is subject to a spatio-temporal whole. Furthermore, this human body is the site and place of interaction between the biological, the physiological (nature) and the social (often called cultural), where each of these levels, each of these dimensions, has its own specificity, therefore its space-time: its rhythm” (2004: 81). I will discuss units of analysis more below, but here it is important to point out that focusing on activity turns attention to the ways of behaving and interaction of agents and groupings.

Histories that use time-reckoning systems, that retain “a contemporary configuration on which it is dependent,” are, interestingly, closer to pre-Newtonian chronologies (Jordheim, forthcoming) as well as to twentieth-century science, Einstein’s Eigenzeit, and Fraser’s and Bertalanffy’s umwelt. They are not the same, but they share an important principle, that time is a “local, internal feature of the system of observation, dependent on observers and their measurements” (Adam 1990: 55–56). This use of an internal time shifts the way we understand pasts from a mechanical knowledge of how places became what they are to an understanding of human activity that gives rise to places. It is also a shift that inverts the standard temporal and spatial categories of modern history—the notion of duration and the units of analysis.

**Duration**

In the introduction to their edited book, Chris Lorenz and Berber Bevernage (2013) point to a seemingly contradictory feature of modern history. As time is unified, the writing of history depends on a fragmentation of that time. Past, present, and future is one way to break up time; periodization is a form of classing the past. These are examples of how Newtonian duration—between two moments—spatializes time. It goes further; the basic
periodization—ancient, medieval, modern—also emerges with the Enlightenment. We are increasingly familiar with the performativity of such historical periodization, especially its Eurocentrism and Western frame (see, for example, Lorenz 2017; Nowotny 2016). This partitioning of time is another way that time structures and orients. Its systemic quality is backgrounded; it emphasizes the particular character of a place as it progresses, moving attention away from human activity (Lorenz 2017; Le Goff 2015). Bergson describes the way time obscures through the words that science uses: “time” and “motion,” he argues, have eliminated duration and mobility ([1913] 2001: 120). I will discuss mobility in the next chapter. The distinction, for Bergson, between time and duration is between a quantitative (measurement) and qualitative (mental synthesis) understanding of human activity. The conflation of duration with classical time is a spatialization of time, the emplotment of successive moments (necessarily spatial), bounded by dates. This is the fragmentation of time and is most evident in the historical debates over the beginning and end date of a period.

Bergsonian duration is a qualitative state in which past and present are not distinguished. He writes, “Pure duration might well be nothing but a succession of qualitative changes, which melt into and permeate one another, without precise outlines, without any tendency to externalize themselves in relation to one another, without any affiliation with number” (Bergson [1913] 2001: 104). White’s account of the Troubles in his *Remembering Ahanagran* is an example of this pure duration. Using times as an integral element of the activity of people opens up the possibility of historicizing “our research in placing it back into a contemporary configuration on which it is dependent” (Certeau 2015: 9). Technology and quantitative measures are no longer the de facto metric. Instead, this notion of duration prioritizes activity.

Fernand Braudel (1980) and more recently Koselleck have tested the limits of Newtonian duration. Both suggest layered temporalities. In Braudel’s case, it is the scales of geology and the environment
of the earth, social scales, and individual scales; Koselleck divides these temporalities into transcendent structures (recurring biological cycles), repetitive structures (social forms), and singularities (event-like happenings; Koselleck 2018: 3–9; Olsen 2012: 226–31). I will discuss the potential and limitations of these layered temporalities in the next chapter. Here, I will focus on the difficulty of conceiving of history apart from the homogenizing structure of classical time. Braudel certainly recognized the difficulty of his proposal for history: “For the historian, accepting the *longue durée* entails a readiness to change his style, his attitudes, a whole reversal in his thinking, a whole new way of conceiving of social affairs” (1980: 33). Periodization (Newtonian duration) has remained dominant, and despite the respect of historians for his work and the frequent invocation of the *longue durée*, that “whole new way” remains on the horizon.16 The uptake (or lack thereof) of this idea recalls Althusser and Balibar (1970); it shows the way that absolute time dominates and limits the historical imagination. This is evident in two recent or “new” (and important) periodizations—Big History and the Anthropocene—and two recent books that argue for a reevaluation of the boundaries of historical periods: Jacques Le Goff’s tantalizingly titled *Must We Divide History into Periods?* (2015) and Jo Guldi and David Armitage’s wonderfully provocative *The History Manifesto* (2014).

New periodization holds out a hope to alter how we understand pasts. Periodization, however, is a common way that chronological time has been “broken up” (Lorenz and Bevernage 2013). Each of the above ideas and scholars makes a proposal that is important to broadening the understanding and use of time in history, and each shows the powerful hold of chronological time. Big History alters our historical horizon by extending history backward to the Big Bang; it shows how minute human, let alone modern, history is. Classical time is still the basis, now extended backward.17 The Anthropocene is a proposal to recognize a new geological period, and its potential is to reintegrate recent human activity
with natural history, especially geologic changes (Zalasiewicz et al. 2011; Steffen et al. 2011; and Chakrabarty 2009). The potential of the Anthropocene is to change the subject from human-centered to earth-centered history. One can imagine two times or histories, the earth’s and humanity’s, that are parallel, maybe even converging. Yet for many, the Anthropocene claims status by merging these two histories. As Chakrabarty notes in discussions of this era, especially in the social sciences and humanities, “world time” (what I call chronological time) prevails. He writes, “It is clear why it happens, for the science of Earth systems history has been made possible by the same technologies that have also produced, mapped, and measured the deleterious impact on the biosphere of the complex of species and life-forms represented by humans, their dependent or co-evolving living entities, and their technology” (2018: 25). This reminds me of Althusser and Balibar’s criticism (1970).

The power of chronological time is also evident in efforts to revise history. Le Goff’s essay follows more traditional historical methods, raising questions about the boundaries of periods. He has traces of sympathy for Bergson’s duration when he argues that the medieval and early modern periods are filled with areas where there is an interpenetration of inherited and new forms and that the two periods should be merged. However, he is reluctant to relinquish the homogenizing order of absolute time (Le Goff 2015: 113–16); the chronological system remains, as does the gesture of exclusion, though the boundary between new and old shifts. Guldi and Armitage invoke Braudel’s longue durée to point to new interpretive possibilities available in the digital technologies. In particular, they argue that data intensive tools can be used to process large databases that might excavate new patterns of past activity that have been obscured in traditional time units. An example (but not based on Big Data) of the potential of an extended time unit, what Braudel calls the social scale, is Marilyn Young’s (2012) recent suggestion that twentieth-century US history
is but one long war. Each proposal is important in getting us to think about time beyond the chronological periods common to history, yet each shows the hold of the time of Newton and Hegel; the masquerade, the naturalization of time into a classified world system, remains powerful.

As Chakrabarty (2018) suggests, adjustments will be partial at best; it is important to move beyond classical physics toward a time as a part of life processes (this is the earth-centered approach proposed by Zalasiewicz et al. 2011). This shift from the physical to the biological is the potential of Anthropocene time, and it recalls Fraser’s statement in the epigraph of the introduction: “[Time] has its origins in the life process” (1987: 4). Even though it has been difficult to escape these confines of absolute time, Whitehead suggests that it might not be as hard as we think—we already practice it:

Every location involves an aspect of itself in every other location. Thus every spatiotemporal standpoint mirrors the world.

If you try to imagine this doctrine in terms of our conventional views of space and time, which presuppose simple location, it is a great paradox. But if you think of it in terms of our naive experience, it is a mere transcript of the obvious facts. You are in a certain place perceiving things. Your perception takes place where you are, and is entirely dependent on how your body is functioning. But this functioning of the body in one place, exhibits for your cognition an aspect of the distant environment, fading away into the general knowledge that there are things beyond (1925: 91–92).

Whitehead is describing the situatedness of our lives. We can also apply embeddedness to historical inquiry, but to do so, we need to unlearn (dehistoricize) our current structures. Historians can learn from work on cognition. For example, Connolly writes, “Human thinking in general involves complex culture/body/brain networks, and each level in this layered, tripartite assemblage is marked by specific capacities of speed, reception, and enactment”
This approach is consistent with recent scholarship on cognition and learning. In psychology, Lev Vygotsky wrote about the “zone of proximal development” and proposed a “culturo-historical activity theory” (1978: 19–57, 84–91) as a conception of learning that is social; it considers the level of the learner, the social and cultural environment, and the particular conditions in which interaction occurs. In the cognitive sciences, Edwin Hutchins (1995) has argued that cognition is “distributed”—that is, cognitive acts involve a distribution of signals from the brain, from the environment, from other people, and from mnemonics. In anthropology, Dorothy Holland (1998) has proposed “figured worlds” as a way to think of the interaction between environment and individuals in cognitive processes. These and more show the complex relations in any single event, record, or observer: that reading, memory, orality, learning, and indeed, communication are conditioned by the social and physical environment and media as well as the mental state of individuals.

For a more prosaic (historical) example, we can turn to Carlo Levi’s exile to southern Italy in 1935. It is an account of exile of a doctor from Milan (Levi [1947] 2006) and his interaction with its rural inhabitants who had not yet been integrated into the time-order of modern society. We see that the past is not separate but repeats as a part of the present; what had happened is meaningful not because it is past but because it is a recurring part of life. One can read these encounters as modern sensibilities confronting people who will eventually “catch up.” Yet as the story continues, it is unclear who is more advanced during 1930s Italy. The story becomes less about Levi than the community into which he was exiled.

In Levi and this community, we witness the conjunction of these different time scales (using Braudel’s or Koselleck’s layers, I see those of the earth and environment, social times, and various individual times); they conjoin in the moments of police action, immigration, and Levi’s forced encounter with their daily life. The
focus is on activity, relationships, and adjustments; perspective and expectations are highlighted. In the duration of the community, we see the specificity—the conditions, sensibilities, and limitations—of the lives of people prior to any determination of value. It gives us a sense of the different flows, the segmentation (not disconnection) of communities in fascist Italy, and a disconnect that is almost autonomy in a totalitarian system. In the places of conjunction, we see the repetitive dynamics of a people seeking to maintain equilibrium—the stability of the community. Change takes many forms beyond the forward motion of progress; change is evident in deviations from repetition. The layering of times in this passage helps us approach Braudel’s proposal of a longue durée. This layering will be discussed in the following chapter.

Units of Analysis

The standard unit for segmenting pasts in classical time has been the nation-state. As I have shown in chapter 2, this form of historical understanding itself is historical, a rather recent way of ordering the globe. But just as a different notion of duration inverts our attention to activity, internal temporalities increase the possibility of units of analysis based on activity, not places. Jean Lave and Etienne Wenger have proposed “communities of practice,” especially related to learning activities (1991: 98–100). Tim Ingold calls this the “taskscape,” where action and interaction make up what he calls a “landscape” (1993: 163–64). In second-order cybernetics or complex systems, this is the self-organizing system or emergent form. In geography, this can be the notion of place, as opposed to a more abstract space. Each is rooted in some coalescence of activity of people rather than the geocultural units that make up the world. Many places might (and indeed do) interact to compose a nation-state, but they might also be autonomous from it, and they need not be a physical place (e.g., the virtual communities on the web). In history, a fine example is Paul Glennie and Nigel Thrift’s (2009)
focus on practices in their rich archival study *Shaping the Day*, an account of the reckoning of time in England and Wales between 1300 and 1800. They show how communities of practice, where people communicate information, share material and tools, and foster change or technological development are effective units for historical inquiry. Repetition and positive (or negative) feedback can lead to growth (or decline), a new direction, or improvements in the practice. Glennie and Thrift identify such communities in the family (organizing family and household labor), market (determining the trading period in the market and setting curfew for tapsters and innkeepers in medieval Bristol), the city (opening the gate and scheduling meeting times), a particular knowledge (such as clock making), or an occupation (such as on a ship).

From this approach, Glennie and Thrift show how chronological accounts skew history toward the technological. They argue against E. P. Thompson’s classic essay (1967) on industrial time and show that clock time as a means of regulating work was not new with industrialization but developed slowly over a long period from the fourteenth century. They also deemphasize the “genius” inventor and focus on the social processes by which ideas circulate as a key factor in invention and innovation. In their chapter on John Harrison, the winner of the Longitude Prize, Glennie and Thrift argue that he was less a “lone genius” than a person who combined several communities of practice: knowledge of general science and technology circulating in his region; a community circulating knowledge—manuscripts, texts, lectures—about clocks, craft, and theory of clock making; and connections to key figures (Glennie and Thrift 2009: chap. 10). This argument does not detract from the inventor, but it does caution us against fetishizing the new, “neophilia.” When we think of practice and use, we might instead see the ubiquity and importance of “old” technologies, despite the attention to the “new” (Edgerton 2007). Finally, Glennie and Thrift show the importance of considering earlier “medieval” society on its own terms, rather than as a lack (gesture of exclusion) of
the modern. Even though these communities did not practice time as we do, they were often keenly concerned about time and timekeeping. To translate these out of history occults the ethical thinking that is so much a part of the human experience in favor of mechanical processes.

The simple adjustment to dates that use the time-reckoning system of record begins an inversion of our understanding of time and human activities. It brings out a lesson I learned from the digital humanities—to adapt Jerome McGann (2001), it exposes the imprecision in our thinking using chronological time. From this recognition, history shifts from a knowledge of the past as a part of productive systems to an inquiry into human activity as a way to understand relations, processes, and experience. Paradoxically, this understanding of times as internal to activities strike me as closer to Ranke’s wie es eigentlich gewesen (as it actually was).

APPROPRIATION: OBSERVERS, INFORMATION, AND STORIES

When invoking this phrase from Ranke, the neutral, perhaps even omniscient, position of the historian comes to mind. But this understanding of the situatedness of pasts moves us to another first principle; it makes the observer an integral, not external, part of any process—the source from which “facts” emerge as well as the scholar making sense of pasts. Objectivity cannot exist. Again, this is not new—Nietzsche’s “On the Uses and Disadvantages of History for Life” (1983) comes to mind. This is an issue where history must decide if it is to work with contemporary understandings of time or remain in classical time. The question of the observer was, of course, raised by Einstein—measurement and observation is relative to the observer. Most historians acknowledge the limitation of objectivity in private but are especially troubled when the methodologies that rely on it are called into question. Fears of subjectivity and relativism arise. But before knees jerk, a caution
is in order: Bertalanffy, citing Einstein’s special relativity, writes, “The absolutistic conception of earlier times and of classical physics is replaced by a scientific relativism” (1968: 227). Relativity is not countered by objectivity; it is the norm.

Special relativity is at odds with the monological framework and perspective of chronological history. It recognizes situatedness as well as heterogeneity. An approach that incorporates this variability is proposed by Certeau in the second volume of *The Mystic Fables*. He proposes appropriation as the central mechanism in an encounter between an inherited knowledge (tradition) and a present (2015: 98). Appropriation focuses on information—not facts—to discern how people used, interpreted, and understood things; it is an act of reading and interpretation. Heterogeneity is presumed; change (no matter how small or major) is built in. In every act of appropriation, there is a variation from what preceded. Appropriation recognizes sequence, but it is not necessarily linear. It is not characterized by replacement, from primitive to complex or old to new. Recursivity and feedback loops are just as possible as forward movement. If every reading is a question of how information is used, the question shifts toward how people build from, on, or against inherited forms of knowledge and practice. In appropriation, “history” takes on an additional significance beyond a description of how people acted. It is an actant itself; it is a part of the inherited forms of practice and understanding that filter how people receive information. We bring back historical understanding, not just of a past but also as a form of knowledge and understanding that is a part of the events of history.27

Appropriation coincides with recent studies on cognition that demonstrate how reading, memory, learning, and indeed, communication are conditioned by the social, cultural, historical, and physical environment, as well as the mental state of individuals. In my text, I call this situatedness. I have already mentioned Vygotsky’s culturo-historical activity theory, Hutchins’s distributed cognition, and Holland’s figured worlds. In psychology, Maryanne Wolf
describes recent research on reading that shows the importance of environment, preconceptions, and current thinking in how a text is read: “Reading is a neuronally and intellectually circuitous act, enriched as much by the unpredictable directions of a reader’s inferences and thoughts, as by the direct message to the eye from the text” (2008: 16). If every reading—those of our historical figures as well as current historians—reuses the text, the application of facile anachronistic categories too must be interrogated as historical, not assumed. The past, tradition, habits, culture, and historical knowledge are all agents in the filtering and acquisition of information. In this sense, the past is not distant and different but a part of the present and changes depending on the understanding of the actors at that moment. History moves beyond a form of knowledge to also emphasize relations and communication.

Reading, situatedness, and distributed cognition all raise questions about the neutrality of the observer. This issue was evident in the discussions at the Macy Conferences even though it was rarely directly discussed.28 The participants focused on human activity, especially interpretation, learning, perception, and semiotics. Some of the papers touched on perception, both psychological and physiological (through the frog’s eyes), language and symbolism, humor, emotions, and communication patterns in humans and animals. In the end, the variation of such human activity was a big hurdle, and participants could not merge humans and machines into a new epistemology.

The observer reappears in cybernetics when von Foerster, a member of the conference, founded second-order cybernetics. In a later reminiscence, he describes this issue in a rather matter of fact but powerful phrase: “Anything said is said by an observer.” He calls this Humberto Maturana’s Theorem Number One and follows it with Heinz von Foerster’s Corollary Number One: “Anything said is said to an observer” (von Foerster [1979] 2003: 283). In short, the observer is an actant, participant, and reporter. Here, I return to the significance of Fraser’s nootemporality or Einstein’s
*Eigenzeit*, the physical and conceptual environment that makes up that mental present, or proper time. The observer, the understanding during the moment of eruption, the language of bodies, the places of writing, and, of course, the moment of interaction all affect meaning. Bertalanffy, invoking the *umwelt*, writes, “It essentially amounts to the statement that, from the great cake of reality, every living organism cuts a slice, which it can perceive and to which it can react owing to its psycho-physical organization” (1968: 227). The psycho-physical organization is the cultural-historical understanding, cognitive state, and material conditions of the perceiving person. It is, perhaps, reappearing. Recent musing about the direction of artificial intelligence sounds eerily similar to this gap that opened up in the latter part of the Macy Conferences. For example, Gary Marcus sees the AI strength in closed-end classification problems, but among its struggles are open-ended inference, commonsense reasoning, and a nonstable environment (2018).

In an appraisal of AI, the computer scientist Michael I. Jordan argued for the need of what he calls provenance—“Where did the data arise, what inferences were drawn from the data, and how relevant are those inferences to the present situation?” (2018).

In a sense, these questions are a part of the historian’s toolkit, but they also push history beyond context to the situatedness of information. This mode of analysis not only builds from but also alters the role of the historian; in my mind, it makes that role more important. This situatedness also alters how we approach evidence. Documents and recorded happenings were and are not as fixed as we tend to think; they are composed through their surroundings—they are situated. This recognizes a fundamental difference in understanding between recent and classical science—the impossibility of complete knowledge. For example, Bertalanffy writes, “All our knowledge, even if de-anthropomorphized (abstracted as ‘fact’ or data), only mirrors certain aspects of reality. . . . Any statement holds from a certain viewpoint only, has only relative validity, and must be supplemented by antithetic
statements from opposite points of view” (1968: 248). The rise of digital media, especially through the rise of databases and the isolation of bits of information, is increasingly showing the need for this relationality of the document: “Every document, every moment in every document, conceals (or reveals) an indeterminate set of interfaces that open into alternate spaces and temporal relations” (McGann 2001: 181). Interpretation and variation of understanding of events is the norm; whether events happened or not is not questioned.

I would argue that events gain stability when the document is recognized as a part of a network of appropriation. Sources, or “facts,” are no longer objects that exist, isolated from the milieu of their becoming. Historical arguments become less about which fact is correct and should be emphasized or ignored and more about what the relationships and meanings are that emerge in the use of information. This is relevant for historical objects and events as well as for the historian. People then used information embedded in documents in their interpretations, decisions, and actions. Historians do the same. This is where Certeau’s argument that texts and documents constitute a theater is especially relevant. When documents are considered as a theater or nodes of activity, they occur among different actors with varying inscriptions and differing forms. We have heard this before—for example, from Bakhtin; it bears repeating, not forgetting or exorcising through claims to disciplinary purity. This variability of interpretations of the same event was brilliantly depicted in Akira Kurosawa’s well-known movie Rashomon (1950). He shows how individuals appropriate what they see, and this differs depending on the past and experience of each person. We open the possibility of extending history beyond what is, to how people communicate and ways of behaving.

Appropriation also facilitates the opening up of the past, closed off by focus on the document, to include traces of relations, ideas,
and sensibilities of various peoples. Here historians need to ask whether disregarding pasts that don’t have evidence based on documents and “simple location” has turned attention away from experience and relations and consequently restricts history’s significance, even more in a more interactive, electronically interconnected world. For example, the life-history approach in archaeology is an example of how fixed or “dead” artifacts change through appropriation. Cornelius Holtorf (1996) has shown how peoples at different times make sense of megaliths. These monuments are not static (people destroy, move, repurpose, historicize, and display them), and their meanings often shift depending on the community at a particular time. In this case, appropriation uses the time system of the unit—that is, the contemporary society—rather than some external temporality. Unlike the case of Rashomon, where there are multiple interpretations of a singular event, heterogeneity is in the variation of meanings (or forgettings) that are attributed to this site as a part (perhaps but not necessarily a past) of the present.

Stories, we should remember, were expunged from the archive as history and literature were defined, and historians have since worked to recover bits and pieces. In his famous essay “The Storyteller,” Benjamin laments a result of this shift, the decline of storytelling: “It is as if something that seemed inalienable to us, the securest among our possessions, were taken from us: the ability to exchange experiences” (1968a: 83). There have been periodic attempts to reintegrate the everyday into history; two notable efforts are the AHA presidential addresses of Carl Becker (1932) and William Cronon (2013). Much of Certeau’s The Mystic Fable engages with evidence that has been relegated to the margins or beyond of history—storytelling, oral transmissions, visuality, the body, and the senses. Each is an important mode of communication that leaves traces for thinking about relations, transmission, interaction, and transmutation among people. The purpose of the story, Benjamin writes, “is not concerned with an accurate concatenation
of definite events, but with the way these are embedded in the
great inscrutable course of the world” (1968a: 96).

For my purpose, attention to storytelling goes beyond gripping accounts of past events and people. Stories are also a way to bring together varying accounts and perspectives. David Herman points out how storytelling, particularly through embedded narratives, involves several voices and perspectives that encourage sense-making. It “affords structure for human understanding—
more specifically, for the distribution of mind across time frames, spatial locales, and contexts of social interaction” (2013: 271). Har-
old Innis reminds us of the connection of the book and the essay to
classical time: “The use of a medium of communication over a long
period will to some extent determine the character of knowledge
to be communicated” (1951: 34). In other words, perhaps the long-
form print narrative has locked history into a classical time that
abstracts our accounts of people beyond recognizable experience.

Print media are certainly not dead; they have certain afford-
dances. Now we have tools to also “write” history differently, and this can impact how we understand pasts and history. This
potential was suggested by Fasolt, who differentiates the thinking
of Bartolus of Sassoferrato from modern history. The modern is
categorical and singular while “for Bartolus it was but the general
form of distinctions dividing the commonwealth into a manifold
of subordinated spheres of thought and action . . . all of them were
held together by a fine-grained structure of differentiation and relation” (2004: 203). This recalls Lefebvre’s _Rhythmanalysis_ (2004).
The affordances of new media for writing what Bakhtin might call
a dialogic history can help us think and write history using multi-
ple, not just one, distinction(s).

The graphic novel, for example, offers the simultaneity of dif-
ferent perspectives—narrative and experiential—that complement
and challenge historical forms like chronology, causality, and lin-
earity.32 Individual cells of the comic often contain multiple per-
spectives and motion; multiple voices that visualize experience,
verbal and embodied; pages that depict multiple and layered temporalities; and varied pacing. For history, they also offer the possibility of combining “major events” with the activity of people operating among those events, and Hillary Chute argues that comics are a growing and well-suited genre for the documentary of trauma (2016: 14). Chute turns to remarkably powerful works like Art Spiegelman’s *Maus*, Keiji Nakazawa’s oeuvre on the Hiroshima atomic bombing, and the reporting of Joe Sacco in his *Palestine*. Mizuki Shigeru’s four-volume *History of Showa* is both history and autobiography; it offers a “normal” history of Japan from 1926 to 1989 and his life experience as a youth in the 1930s, a foot soldier in Papua-New Guinea, an overworked laborer during the postwar period, and finally a celebrated author. The “facts” of Japanese history look different when situated within these experiences than in the standard histories; the story questions imperialism, violence of officers toward soldiers, and the anomie of the postwar years (reminiscent of Robert Musil’s *The Man without Qualities*). Divisions between the historical and fiction are blurred. Spiegelman challenged the categorization of *Maus* as fiction; he raises the possibility that something is “historically true in essence, but not strictly factual” (Toni Morrison, quoted in H. White 2014: 22). The historian William Steele, who possesses an encyclopedic understanding of popular material in nineteenth-century Japan, wrote an account of Goemon during the events of the Meiji *ishin*. Goemon did not exist, but his activity is based on an extensive reading of the broadsheets circulating at the time. Is this fiction? Nakazawa’s manga on Hiroshima and the atomic bomb, Spiegelman’s *Maus*, the reporting of Joe Sacco, and other media broaden pasts that fill our understanding of our present. These raise questions about the historical.

Stories are a way to confront history, to reengage parts of experience that have been marginalized. Benjamin writes, “The wisest thing—so the fairy tale taught mankind in olden times, and teaches children to this day—is to meet the forces of the mythical
world with cunning and with high spirits. . . . The liberating magic which the fairy tale has at its disposal does not bring nature into play in a mythical way, but points to its complicity with liberated man” (1968a: 102). The mythical world that stories confront can be history as myth. I read the complicity of nature and the liberated man as a disavowal of the various dichotomies that constitute modern society. I return to the mechanical or quantitative bias of absolute time and the need for biological times. Nature is not separate (so that it can be exploited or used to disparage as primitive) from humans. When the boundary between past and present becomes blurred, the various specters and ghosts of the past (those entombed) can raise questions about the binaries—past/present, tradition/modern, old/new—on which the modern depends. For Benjamin, stories operate apart from the gesture of exclusion.

This is an opportunity for history to add to its conceptual and practical tool kit. We must recognize that history (the discipline) is declining in attention while history (in a broad sense) is very popular in print and electronic media (de Groot 2009). I am not arguing for the popularization or massification of the historical profession—uses of the past, though, are moving to areas beyond the traditional historian’s reach. My point is that we must be aware of the confines of the Enlightenment system. For example, recent work in storytelling involves questioning both the linearity of communication from oral to written and opening the past to questions of human experience that had been denigrated. I have already discussed the latter, but the work of folklore specialist John Miles Foley (2012) suggests that we should also look for isomorphisms that have been distanced by chronology. He argues that recent digital media bear many similarities to oral traditions, especially in their topological natures. This work suggests that over a long term of different modes of communication—oral, textual, and digital—narrative print text might be the outlier.
From a perspective of orthodox history, my call for a methodology rooted in a recognition of heterogeneity seemingly weakens certitude in historical interpretation and writing. Heterogeneous times, the relationality of interaction, the malleability of texts, the position of the observer in the activity, and the variability of reading make causal and facile conclusions more difficult. Moreover a similar interaction at a different place and time can lead to different outcomes. But we know, don’t we, that history is reductive, always partial, and place does matter? Yet we adhere to our myths; and if the Anthropocene is dated from the steam engine, then these myths must be seen as an ideological foundation of the technocratic society in which we exist. I agree with Chakrabarty that the time of world history must change to tackle the problems of the climate change.

This approach, a history without chronology, does not bring greater uncertainty. I readily admit that I join Fraser (1987) in his caution about the time-compact order in the epigraph to the interlude. On the one hand, uncertainty already abounds in our current system, but it has been differentially placed in an ideology of order while blaming others for problems. But this displacement, as Harootunian suggests in the epigraph, has failed. It is time to recognize this heterogeneity that the gesture of exclusion has occulted. In one of his characteristically succinct yet playful essays, Heinz von Foerster writes, “I have no doubts that you share with me the conviction that the central problems of today are societal. On the other hand, the gigantic problem-solving conceptual apparatus that evolved in our Western culture is counter productive not only for solving but essentially for perceiving social problems.” Historians and humanists can remain smug and read von Foerster’s observation as a recognition of the limitation of science. It is, but it is more; von Foerster continues that the root cause for these “cognitive blind spots” are causation, deduction, and objectivity
These are keywords of modern historical inquiry, of historical thinking, of our modern world. We circle back to the hidden base in chronological time that facilitated causation and objectivity as fundamental components, now root causes. These blind spots are (and continue to be) a source of our failure to encompass what we think we understand. This has been true throughout the twentieth century (rebellion and revolution were a part of the colonial edifice) and is perhaps even more pressing today as technologies for communication and for killing are reaching more and more people and the earth is changing faster than our institutions and policies. The others (even more, those who act against the conceptual confines) are the numerous specters that haunt our current understanding, and they seem to increase along with the inability of current categories to make sense of (and contain) the diversity of our world.

In Certeau’s complex and remarkable study of mystics, he asks, “Out of their strangeness . . . can something be born?” (2015: 4). For Certeau, “mystics” is a stigmatized category, like inner city, immigrant, and those “behind.” He recognizes the temporal distance, yet sees a similarity, which makes sense if we accept Simmel’s separation of technological change and sociocultural stability (quoted in chapter 1). Without chronological time to measure old and new, we might learn from distant pasts as well as recent science. Serres argues for the similarity of Lucretius’s writings on the motion of atoms and that of Jean Perrin (and by extension—quantum theory; Serres with Latour 1995: 48–52). More recently, Siegfried Zielinski (2006) turns to “deep time” to look for the new in the old. Both de Cusa and Bertalanffy were writing when the prevailing knowledge system, the church and classical science, lost their power for explanation and understanding. Both sought to formulate something else rather than to reiterate some comfortable mode of knowing. It seems that we too are in a moment when the existing system, absolute time, is decreasingly able to contain the world it claims to order. This is related to our current concern of time—presentism,
fatal confusions, things out of sync, and questions about digital media. Strangeness is no longer the other; it seems to be in ourselves. What might be born is greater emphasis on qualities and relations; these are not far from Certeau’s statement that “mystics does not have its own content: it is an exercise of the other in relation to a given site; it is characterized by a set of specific ‘operations’ in a field that is not its own” (2015: 22). Heterogeneity makes more possible inquiries that ask, following von Foerster, “What are the properties of an observer?”

To consider this question, historians already use perhaps the most important tool for addressing these issues—reading. Historical thinking requires skill in finding, filtering, interpreting, and encapsulating data and narratives. These skills are more important than ever in our digital age. But I am arguing for less a reading to absorb and know than one to also appropriate, communicate, and understand. It is a form of reading that inverts practices from knowing structures within which people and objects existed to understanding the ways people make sense of and engage with their surroundings. This practice is a form of reading that seeks a “way of doing” that constitutes the text and helps us understand ways of behaving.36 Reading needs to be attuned less to the emplotment of data onto a grid of time and space and more to a recognition of the heterogeneous views of an object or event. In Practices of Everyday Life, Certeau emphasizes the variability of reading not just as information transmission but also as a way for readers to visit some other place. He writes, “The reader produces gardens that miniaturize and collate a world . . . but he, too, is ‘possessed’ by his own fooling and jesting that introduces plurality and difference into the written system of a society and a text” (1984: 173). If every reading—those of our historical figures as well as current historians—reuses the text, the application of facile anachronistic categories must be interrogated as historical, not assumed. Von Foerster’s compact distinction—“It is how you say it,” not “Say how it is”—is particularly apt (2014: 129). History can again be a form
of understanding and communication as well as bodies of know-
edge. It is by incorporating these varying views and perspectives
that I believe we have a better understanding of pasts.

Finally, up to this point, my discussion on heterogeneity has
only hinted at how these multiple units relate (or don’t). It does,
though, destabilize change as a linear description of becoming.
Bergson writes, “The point is that usually we look at change but
we do not see it. We speak of change, but we do not think about
it. We say that change exists, that everything changes, that change
is the very law of things: yes, we say it and we repeat it; but those are
only words, and we reason and philosophise as though change did
not exist. In order to think change and see it, there is a whole veil of
prejudices to brush aside” (2002: 248–49). Again, we encounter the
language of hiding—masquerade, veil, occult, and so on. This dis-
cussion on heterogeneity is important in itself, but it is necessary
for my next chapter, to think anew about change. Serres writes,