Conclusion

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Fernand Braudel maintained that historians can never get away from the issue of time: it sticks to the historian's thinking "like soil to a gardener's spade." Looking back on the gloomy circumstances in which he finished his masterpiece on the Mediterranean world in the era of Phillip II—imprisoned during World War II and trying to escape from the pressures of event time—he concluded that "it is not so much time which is the creation of our own minds, as the way in which we break it up." The different layers and rhythms of time that he discovered through his isolated writing were all interdependent and "measured on the same scale." The *longue durée*, conjuncture, and event fitted neatly into each other, he continued, and "to be able to achieve an imaginative understanding of one of these time spans is to be able to understand them all." Together, they formed an impression of the "weight of historical time," which distinguished the historian's work from that of sociologists and philosophers.[1]

In this volume, we have worked from a shared sense of the importance of addressing the "weight of historical time" in the present. This precisely involves the need to understand the relationship between different time spans that Braudel pointed to, but the conditions for the encounter with issues of historical and natural times have changed. Braudel was writing in the beginning of a period in Western history that has later been referred to as the Great Acceleration, and where he identified slow and unchanging patterns of repetition, we now see disruptive events and challenging patterns of intertemporal dependence.[2] At the same time as this volume has argued for the importance of taking a long perspective on the history of scaling, dividing, measuring, and visualizing times in history and nature, our approach to these issues was necessarily shaped by ongoing processes of temporalization that impinge on global society. As we write, the present displays increasing links between different temporal frames and durations, including altered divisions between natural and historical times. Ideas of a malleable future are increasingly

challenged, and different eras open up to each other into what we might, with Rita Felski, call "temporal turbulence."[3]

The main contribution of this volume to the history of knowledge has been to explore the divides between times in history and times in nature since the eighteenth century. Moreover, we have opened multiple timescales and rhythms to historical understanding. While we wish to point to a multitude rather than to some coherent temporal regime, there emerges contours of a synthesis from the chapters. In particular, several contributors corroborate the overall trajectory of three eras of major temporal recalibration. A recurring feature in all these periods was the intensified efforts to display and organize time. Indeed, synchronization, coordination, and creation of common times stand out as crucial. What we in the introduction, with Harold Innis, called time-binding techniques are what divided, assembled, or organized timescales of natural and human history.

The first era of synchronization took place in the eighteenth century as time frames expanded and global histories of the earth appeared. Stratigraphy and notions of "layers" developed as a way of drawing together and eventually creating disciplinary divides between geological and phenomenological timescales, which were potentially in conflict (Chapter 1 by Jordheim, Chapter 3 by Sörlin). The second era of synchronization—illustrated in Chapter 2 by Holmberg and Chapter 4 by Nordblad—saw the emergence of national and international institutions that created infrastructures of timekeeping, ultimately on a global scale. In this era, organizations assumed responsibility for both the long-term and the short-term. Within nation states, crucial functions and even the lives of individuals were synchronized, resulting in a fine-grained ordering of time. The varying functions of the nation had to be on time and coordinated across regional and national borders (Chapter 2 by Holmberg). The third era of synchronization brings us into the twentieth century and the emergence of "environmental times." Long timescales of nature and culture were increasingly discussed in terms of climatic changes. Indeed, the environment as a concept gained traction throughout the twentieth century and had integrative qualities in terms of understanding temporality (Chapter 3 by Sörlin). Eventually, supported by increasingly interconnected public and scientific records and monitoring of anthropogenic climate change, the concern with climate change temporalities entered the mainstream of global news and public discourse around the turn of the twenty-first century (Chapter 12 by Ekström).

Actors in the first era drew heavily on geological metaphors like "layers" to describe times past and present. Actors in the second era built political institutions to govern social communities. Yet since at least the nineteenth century, dividing and assembling times have also included considerations of the history and future of multiple life-forms. Biocultural times have been

crucial, set at the intersection of biology and culture. Biocultural times, moreover, have often been underpinned by political considerations concerning the long-term of species and the short-term of industry, markets, and individuals. The temporal character of plants, forests, or species threatened with extinction have resulted in vexing political questions about responsibilities across generations and epochs, as well as the need to create sustenance in the now. In that sense, notions of time have for long been fraught with controversy and differing visions of society. The past and the future of nature and biodiversity relate to how timescales have been formulated and governed in political contexts where time-binding techniques served as crucial backdrops (Chapter 4 by Nordblad and Chapter 5 by Bjærke). Organisms and organic material have multiple rhythms, and throughout the nineteenth and twentieth centuries they could scarcely be separated from the rhythm of human societies. Today, more than ever, cultural heritage and path dependency in industrial production rub against the long-term of nature and climate. The oil resting in the ground for millions of years, for instance, has been aligned with the times of industry and culture, and summoned into temporal concentrations with a bearing on national identities. Durations of earthly, industrial, and cultural temporalities have been arranged to make each other meaningful and comprehensible (Chapter 6 by Ruud).

Central to the volume has also been the argument that a history of dividing times is ultimately a history of knowledge. Displaying, coordinating, and synchronizing time depended upon time-binding knowledges and visual genres. Since the eighteenth century, practices, tools, media, and metaphors have been used to study, conceptualize, and display timescales and rhythms. Timelines, chronologies, and graphs connected and visualized frames, layers, and durations of time; both text and visual signs pinned down abstract time into legible products. The timeline, the year, and the archive were interfaces and visual spaces to capture different, yet related, rhythms and directions, e.g., nature's cyclical time and the linear time of history. The chronological timeline emerged as a narrative and textual element—or as a visual representation—to organize documents and the past. Moreover, narrative and visual time-binding techniques included universally acknowledged signs to display features of the human and natural world with a deep temporality (Chapter 8 by Hagström Molin; Chapter 9 by Bergwik; Chapter 7 by Wickberg; Chapter 12 by Ekström).

The time-binding knowledges and visual genres display a long history and a remarkable path dependence. They are certainly still in play. Nevertheless, important disruptions occurred in the twentieth century, during the third era of synchronization, with the emergence of environmental times. Clearly an innovation, the temperature target of 2°C is a political goal resting on efforts to record and envision the past and future climate of the earth. Yet, the way it

is recorded and discussed builds on a plethora of measurements, models, and documents assembled into timelines that compress complex data on temperatures, climatic shifts, and CO_2-levels into "records" that speak to the past and the future. The assembling of geophysical, biological, and historical timescales has ushered in political debates and cultural perceptions of a distant past and a turbulent present. Recording the climate through time-binding techniques displays how temporality and the political context of global governance are profoundly entwined (Chapter 11 by Wormbs; Chapter 10 by Paglia and Isberg; Chapter 12 by Ekström).

A final overarching theme that emerges from the chapters in this volume is how dividing times was a product of, and had repercussions on, the modern organization of knowledge. The division of knowledge conditioned methods to understand and describe time frames and historical durations. While much research in the history of the sciences have rightly discussed the emerging academic disciplines in the nineteenth century, such classifications can be revisited with the issue of temporal knowledge as a critical lens. Throughout the eighteenth and nineteenth centuries, temporal knowledge was produced in ways preceding and transcending modern branches of knowledge making. Influential natural philosophers and whole areas of study spanned timescales and boundaries of natural and cultural history. They encapsulated deep time, natural history, and human history, as well as environmental and social sciences. *Historia naturalis* was part of a longer history where geological time was played out against knowledge about human history. Moreover, writing in the nineteenth century could still be deeply affected by the relations to the geosciences, or shaped by the perception of geohistorial time in the context of earthquakes and volcanic eruptions (Chapter 1 by Jordheim; Chapter 7 by Wickberg; Chapter 8 by Hagström Molin; Chapter 12 by Ekström).

Nevertheless, starting in the nineteenth century there was an overall process of branching out temporal knowledge into scholarly disciplines. Increasingly, scholarly fields were restricted to studying either the rhythms of nature or the rhythms of culture. Even fields of knowledge which envisioned a unified history of nature and culture failed to find purchase in academic history writing as the divides between natural and cultural history became increasingly fixed (Chapter 9 by Bergwik). The overall twentieth-century trend towards scientific specialization compartmentalized time knowledge. Nevertheless, there are examples of scholarship that sought a synchronization of cultural, social, and political temporalities in conceptualizations like "earth," "environment," "geography," or "climate." Work on environmental time however, gradually moved into the natural sciences with historians seeking other routes to understanding the past. Environmental time became the concern of disciplines like ecology, geography, and, from the 1980s, Earth System Science (Chapter 3 by Sörlin).

Our conclusion then, is one of multiple times coexisting, yet also with ongoing efforts to divide, assemble, and balance timescales since the eighteenth century. The overarching processes include the eras of intensified temporal recalibrations and the increasing branching out of temporal knowledge. However, at every turn in these processes, there were contradictions and counterexamples. Accordingly, we welcome further critical discussions, taking the *longue durée* of dividing times and organizing knowledge into consideration. The current temporal thickening should inspire re-evaluations both of transtemporal history in the tradition of Febvre and Braduel, and theories of historical time from Steno to Koselleck. It should spur historians to revisit perennial questions about forms of historical narrative, periodization, presentism, and the relation between natural and historical times. When W. J. T. Mitchell, in early 2021, speaks of a "tense present" (rather than a present tense) we interpret it as a call to historians to keep returning to the past and investigate how time has been divided, assembled, mediated, pinned down, and discussed.[4]

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NOTES

1. Fernand Braudel, "History and Sociology," in *On History*, trans. Sarah Matthews (Chicago: University of Chicago Press, 1980), 77.
2. J. R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, MA: The Belknap Press of Harvard University Press, 2014).
3. Rita Felski, "Context Stinks!" *New Literary History* 42, no. 4 (2011): 576. 4.
4. W. J. T. Mitchell, "Present Tense 2020: An Iconology of the Epoch," *Critical Inquiry* 47, no. 1 (2021): 370–406.

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