

# The Rhythms Behind Change

## Historiography and the Temporality of Non-Western Technological Landscapes

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For the residents of precolonial and colonial Calcutta, the tides of the Hooghly river structured much of their economic and spiritual life. In a recent article, Debjani Bhattacharyya examines the visual representation of these tides in historical maps drawn by the British. There is none. The tidal spaces, (*bhatir desh* in Bengali) are virtually absent from colonial maps which therefore entirely “erase seasonality, temporality, and the tidal nature of moving land-water-scapes in this region”.<sup>1</sup> Bhattacharyya draws on the impossibility of capturing these tidal temporalities in maps to critically reflect our spatial fixities and “decolonize our visual literacy”.<sup>2</sup> Instead of maps, she recommends looking at historical almanacs both as sources and for conceptual inspiration. These almanacs were “based on the phases of the moon, [...] seasons, movements of the sun, wind, and tides guiding the farmer, sailor, pastor, and a whole host of people in their trades.”<sup>3</sup>

Bhattacharyya’s case study holds some important lessons for those of us who consider the current “global turn” in technological historiography as a question of spatial orientation and geography. Considering the recent interest in technology in the “non-West”, the world map of technological historiography is set to become more colorful and more detailed both in its depiction of local environments and global connections. While fully embracing this prospect, I would like to point out to one of its potential pitfalls, namely that “a map-mindedness governs the visual framing of spaces.”<sup>4</sup> Like the non-extant tides on the colonial maps, our representation of the technological landscape might miss out some of its vital temporalities.

Before delving deeper into this argument, we need to briefly revisit the concept of the technological landscape. Franscesca Bray defined it as “the repertoire and distribution of skilled material practices and technical arte-

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1 Debjani Bhattacharyya, *Almanac of a Tide Country*, <https://items.ssrc.org/ways-of-water/almanac-of-a-tide-country/> [accessed 6.1.2021]. Bhattacharyya is the author of *Debjani Bhattacharyya, Empire and Ecology in the Bengal Delta. The Making of Calcutta* (Cambridge 2018).

2 See Bhattacharyya, *Almanac*.

3 *Ibid.*

4 *Ibid.*

facts that a society draws upon to function.”<sup>5</sup> For long, the discussion on the temporality of this landscape largely revolved around questions of historical change. Bray criticised the discipline’s preoccupation with technologies that are associated with “the accelerator” of history, while neglecting those identified with the “brakes” of history, however rich in symbolic meaning these technologies might be. In his 1994 essay, Svante Lindqvist asked why we only look at “the signs of swift action and the direction in which they point” and made the case for the study of longevity and continuity in the technological landscape.<sup>6</sup>

Recent years have seen a renewed interest in the technological landscape, along with other “scapes”. This comeback is closely related with the growing critique of a bias towards movement, mobility, and change that the history of technology shares with Global History. Together with the team of the “cropscares” project, Bray has made a forceful argument for bringing back the places themselves into the global study of technology, specifically by focusing on the “complex material-cultural embeddedness” of things. Across different branches of history, scholars have set out to map different “scapes”, by producing multivocal and multifocal analyses of the dense webs of places, things, and people around a specific commodity or technology.<sup>7</sup> With few exceptions, however, the material and cultural dimensions of these “scapes” have received much more attention than place-based temporalities so far.<sup>8</sup> To make sense of these temporalities, we might turn to neighboring disciplines for inspiration.

At about the same time as Lindqvist, the anthropologist Tim Ingold suggested a fundamentally different understanding of the temporality of the landscape. Ingold described the landscape as being constituted as an enduring record of various *processes*, such as human practices, natural cycles, and material transformations. Ingold’s landscape is perpetually in the making, an embodied form of what he called the “taskscape”. He draws an analogy between the taskscape and an orchestral performance (a jam session might be the better analogy, since there is no conductor).<sup>9</sup> This metaphor, I argue, holds great heuristic potential for temporalizing our rather “flat, linear and

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5 Francesca Bray, “Flows and Matrices, Landscapes and Cultures”, *Icon* 22 (2016), 8.

6 Svante Lindqvist, *Changes in the Technological Landscape. Essays in the History of Science and Technology* (Sagamore Beach, Mass. 2011 [1994]), 4.

7 Francesca Bray, Barbara Hahn, John Bosco Lourdusamy and Tiago Saraiva, “Cropscares and History”, *Transfers* 9, No. 1 (2019), 20–41.

8 Bray herself is an exception though. In her recent Da Vinci Medal Address she reflected on the plural temporalities of the agricultural practices she studied in her earlier works. See Francesca Bray, “The Craft of Mud-Making. Cropscares, Time, and History”, *Technology and Culture* 61, No. 2 (2020), 645–661.

9 Tim Ingold, “The Temporality of the Landscape”, *World Archaeology* 25, No. 2 (1993), 152–174, here 160f.

inert” images of the technological landscape.<sup>10</sup> The bulk of historical studies on technology in the non-Western world are about the orchestra as we can *see* it. Mostly based on colonial archives, they are mainly concerned with changes in the orchestra’s visible composition. Which instruments have been added to the picture, which ones vanished? How do these instruments change their forms and shapes when transferred to other locales, and who plays them? Many of these studies offer detailed accounts of the introduction of new (Western) instruments. In doing so, they largely follow Western ideas of what qualifies as an instrument while often remaining ignorant of the orchestral performance as a whole and the rhythmic movements that structure it.

At the same time, studies on the temporality of the technological landscape can draw on a growing literature on rhythmic phenomena in the history of science and technology. Historical studies of agriculture have long factored in the change of seasons, the life cycles of different crops, or the seasonal fluctuations in labor demand, food supplies and market prices.<sup>11</sup> One ongoing research project focuses on the management of bodily rhythms, for example of bovine, for approaching notions of time.<sup>12</sup> Other scholars ask how the change of season has impacted urban life throughout history, an aspect that has been almost ignored in existing literature.<sup>13</sup> Historians of technology increasingly call for taking the *full* life cycle of artefacts into account, including their afterlife, and turned to related practices of re-use, repair, unmaking, ruination or disposal and their role in shaping the technological landscape.<sup>14</sup> Others have examined specifically the rhythms that infrastructures inhere, the interaction between these rhythms and the challenge to transform and synchronize them.<sup>15</sup> These studies highlight some of many entry points for complementing the increasingly thick depictions of different “scapes” with equally thick accounts of their respective temporalities.

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10 Quote in Pamela H. Smith, *Nodes of Convergence, Material Complexes, and Entangled Itineraries*, in *Entangled Itineraries. Materials, Practices, and Knowledge Across Eurasia*, ed. Pamela H. Smith (Pittsburgh 2019), 5–24, here 11. Naturally, the orchestral performance is a very considerable simplification “since it involves only one sensory register (the auditory), and its rhythms are fewer and more tightly controlled.” See Ingold, *The Temporality of the Landscape*, 160.

11 See for example Francesca Bray, *The Rice Economies. Technology and Development in Asian Societies* (Berkeley 1994).

12 This is the goal of the working group “Out of Place, Out of Time” at Max Planck Institute for the History of Science in Berlin, <https://www.mpiwg-berlin.mpg.de/research/projects/out-place-out-time> [accessed 6.1.2021].

13 This is the guiding question for the DFG Project “City Seasons: On the Nature of Change in Urban Space” at the Technical University of Berlin. <https://gepris.dfg.de/gepris/projekt/409051717> [accessed 6.1.2021].

14 See for example Stefan Krebs u. Heike Weber (Hg.), *Histories of Technology’s Persistence. Repair, Reuse and Disposal* (Bielefeld 2021).

15 See for example Jens I. Engels, “Infrastrukturen als Produkte und Produzenten von Zeit”, *NTM Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin* 28 (2020), 69–90.

In our current research on the transformation of the cityscape of Samarkand, a medium sized city in Uzbekistan, we attempt to make Ingold's processual perspective on the landscape productive for understanding urban change at the former Soviet periphery.<sup>16</sup> This perspective is a departure from standard architectural and construction history, which follows linear narratives of how spaces and material configurations change, not seldomly along tidy timelines of planning, building, and housing. Most of historical research on Central Asian cities traces how Soviet planners gradually turned old Islamic cities into planned, socialist cities, mostly through the prism of discourses and meanings, plans and policies, and less so through that of practices and technologies.

In our analysis, we attempt to decenter planning and building from the institutions and professional communities that were officially tasked with it. Instead, we have turned to the processes that usually remain hidden in the plans, models and maps (published articles and written policies) produced by them (and account for the bulk of historical sources). Our study focuses on the interwoven processes of planning, construction, repair, renovation, adjustment and appropriation, repurposing and relates them to some of the city's temporalities, including the life cycles of its dwellers, seasonal changes, administrative cycles, or the timelines of material decay. The transformation of space, we argue, cannot be understood without reference to temporalities embedded in the landscape.

Among these temporalities, the life cycles of different members of extended families that typically constitute a Central Asian household, proved to be of key importance. These life cycles necessitate not only fairly big houses or apartments, but also the flexibility to adjust them to the family's changing composition and its housing requirements—a fact that helps to explain the high degree of self-help construction in the city under Soviet rule. In many of these houses, a substantial part of building activities continued long *after* residents had moved in and were executed mostly in anticipation of future life-cycle events. By building extensions, residents gradually transformed the standardized, detached single-family houses, which they had officially been permitted to build, into courtyard houses. These largely unregulated modifications were also a strategy to address seasonal change, as courtyards offered enclosed outdoor living space in the hot summer months. The perpetual transformation of houses was facilitated by the material properties of adobe, the construction material for almost all private housing, and its temporal implications. Unlike industrially manufactured materials, adobe was abundantly

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16 Jonas van der Straeten and Mariya Petrova, "The Soviet City as a Landscape in the Making. Planning, Building and Appropriating Samarkand, Ca. 1960s–1980s", *Central Asian Survey* (in review). The article has been submitted as contribution to a special issue of *Central Asian Survey* on "Technology, Temporality and the Study of Central Asia", ed. by Jonas van der Straeten and Julia Obertreis.

and constantly available for subsequent activities of building and extending houses. As adobe decays relatively fast it also forced the residents to engage constantly with the upkeep of their houses.<sup>17</sup>

At the same time, social and climatic temporalities largely worked against state housing projects. The multistorey apartment buildings that had been designed in Moscow offered too little space and flexibility to cater for the requirements of extended families and proved to be ill-suited for the seasonal change in Central Asia, especially the hot summer. What was more, the ideological imperative of providing fully serviced housing at mass scale within specified time intervals (annual goals, five-year plans) presupposed the synchronization of several interdependent processes. As Khrushchev's mass housing campaign was narrowly focused on the creation of new square meters of housing, however, infrastructure provision could not keep up, sometimes leaving apartments without access to vital services for years. After completion of the buildings, the municipal agencies struggled to perform the administrative routines necessary for their repair and maintenance and to synchronize them with the temporalities of the command economy and of seasonal change. These findings show that the resilience of the traditional Central Asian neighborhood that Soviet planners had hoped to banish from the urban landscape, cannot be explained without the reference to the city's taskscape and its specific temporalities. The case of Samarkand feeds into a global story of prefabricated mass housing that goes beyond the transfer of the technology from Moscow to the "Soviet South". Central Asia served as an important testing ground for the export of the technology to socialist countries around the world, including Afghanistan, Iran, Vietnam, Cuba, or Chile, where it needed to be synchronized with other space-specific temporalities.<sup>18</sup>

On a final note, I would like to point out three ways in which the study of rhythms and circular performances can enhance our understanding of non-Western technological landscapes. First, it shifts our view from the role of technology in linear movements on the map to the temporality of this landscape itself. It acknowledges that an essential part of this temporality is intrinsically rhythmic without being metronomic (i.e. externally imposed by artificial, standardized time intervals, such as "Western" clock time).<sup>19</sup> Second, it can expand our toolset for the relational study of technology on a global scale. Concepts such as *flows* or *encounters* that global history, understood as a

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17 Jonas van der Straeten and Mariya Petrova, "Mud Bricks in a Concrete State. Building, Maintaining and Improving One's Own House in Soviet Samarkand", in Krebs/Weber, *Histories of Technology's Persistence*, 93–120.

18 See for example Hugo Palmarola and Pedro Ignacio Alonso, "Tropical Assemblage. The Soviet Large Panel in Cuba", in *Beyond Imported Magic. Essays on Science, Technology, and Society in Latin America*, ed. Christina Holmes, Eden Medina and Ivan d. C. Marques (Cambridge, Mass. 2014), 447–465; Christina Schwenkel, *Building Socialism. The Afterlife of East German Architecture in Urban Vietnam* (Durham 2021).

19 See Ingold, "The Temporality of the Landscape", 160.

history of connections, has to offer, are devoid of temporal dimensions.<sup>20</sup> The relationship between the different performances and rhythms of the orchestra do not take the form of mere encounters but are rather patterns of resonance.<sup>21</sup> The taskscape, however, “exists not just as activity but as interactivity”.<sup>22</sup> For studying the relationship between “Western” and “non-Western”, “imported” and “indigenous” technologies, the idea of resonance (or its antonym dissonance), arguably offers a temporally more sensitive metaphor than binaries of “old” and “new”, “modern” and “traditional”, or the “simultaneity of the non-simultaneous”.<sup>23</sup> The third advantage becomes evident when we translate our temporal analysis of the technological landscape back into linear historical narratives. They call us to understand persistence or continuity not as an absence of change but as strategies of keeping different rhythms in sync. Our chronologies of change, it seems, need to be complemented by *chronographies* that probe deeper into technology’s temporalities and their signatures in the landscape.<sup>24</sup>

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20 For the definition of global history as a history of connections see Roland Wenzlhuemer, *Doing Global History. An Introduction in Six Concepts* (London 2020), 160.

21 See Ingold, “The Temporality of the Landscape”, 160.

22 *Ibid.*, 163.

23 The problematic nature of juxtapositions such as “Western” and “non-Western”, “imported” and “indigenous” can only be noted but not discussed here at length.

24 Regarding the concept of chronography see Jonas van der Straeten and Heike Weber, “Technology and its Temporalities. A Global Perspective”, in *Global History of Technology (19th-21st Centuries)*, ed. Guillaume Carnino, Liliane Hilaire-Pérez, Jérôme Lamy and Larissa Zakharova, forthcoming.