

Toward a Global History of Material Culture

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Anyone writing a global history of technology faces a number of challenges. As other contributors to this forum discuss, there is, broadly speaking, a source problem: which archives should we use, and how can voices from “ordinary people” be incorporated? Epistemologically, how could non-Western paradigms, for example, be presented to an English- or German-speaking audience?¹

Whereas these problems concern all global historians, the global historian of technology confronts at least two further but interconnected issues: what technologies should be studied? And, how could the Eurocentric bias be avoided? Global historians who have incorporated technological matters have tended to focus on those advanced technologies that contributed to what Wolfgang Schivelbusch famously called the “annihilation of space and time”: world-spanning telegraph lines and steam-ship connections, colonial railroads and other large technological systems.² In their narratives, the role of technology is often reduced to a globalizing force—one that has its roots in Europe and North America.

We argue that the concept of “technology” is part of the problem. The term “technology” has often been associated with high-tech gadgets, leaving little room for artisanal tools, homemakers’ do-it-yourself solutions, and grassroots innovations. Why not considering applying the concept of “material culture” instead of “technology?” Do the challenges imposed by global-history writing justify changing the name of our discipline from “history of technology” to “history of material culture?”

The last almost-heretic question is inspired by deliberations made by Francesca Bray in a 2016 contribution to the journal *ICON*. In her seminal article, Bray launched the concepts “technological landscape” and “technological culture” as “conceptual tools for organizing our understanding of the social-symbolic-material matrices within which individual technologies are embedded, and within and between which the flows and encounters studied

1 John Law and Wen-yuan Lin, “Provincializing STS. Postcoloniality, Symmetry, and Method”, *East Asian Science, Technology and Society* 11 (2017), 1–17.

2 Wolfgang Schivelbusch, *The Railway Journey. Trains and Travel in the 19th Century* (New York 1979) (orig. 1977); C.A. Bayly, *The Birth of the Modern World, 1780–1914. Global Connections and Comparisons* (Malden, MA and Oxford 2004); Jürgen Osterhammel, *The Transformation of the World. A Global History of the Nineteenth Century* (Princeton, NJ and Oxford 2014) (orig. 2009); Maria Paula Diogo and Dirk van Laak, *Europe Globalizing. Mapping, Exploiting, Exchanging* (Houndmills, Basingstoke 2016).

by global historians take place.”³ These two concepts enable us to keep our eyes open for any kind of material artefact and network used by people in various corners of the world to master daily life: to feed themselves, to communicate with others, to build shelter, to move about. A history of material culture in West Africa would not prioritize railroads, automobiles, and trucks, but investigate the social and economic importance of footpaths and porters, pack animals and packing techniques, as well.

Material-culture studies and anthropology provide us with further sources of inspiration. As historians Anne Gerritsen and Giorgio Riello indicate in their introduction to their anthology *Writing Material Culture History*, students of material culture tend to investigate the role of objects “in the everyday practices that shaped past lives.”⁴ Accepting Gerritsen and Riello’s main contention would help historians of technology reveal the cultural aspects of artifacts, thereby treating artifacts as windows to examining cultures—that is, “material cultures.” Actors of different kinds do not only make, use, modify, or reject artifacts; they also attribute meaning to them. What “turn[s] a house into a home”⁵ is not only culture but also the social and material contexts within which the artifacts are embedded. In a similar vein, we believe historians can productively apply the cue from anthropologists that people and things mutually constitute one another.⁶

By analyzing how material artifacts are “co-constructed” within socio-symbolic-matrices,⁷ we can avoid Western and high-tech biases in history writing and take the multiple worlds of materiality at face value. Of course, we are not the first historians who argue for the study of things in “everyday practices” in the non-Western world. In his book *Everyday Technology*, British historian of India David Arnold also traces the fate of things. However, most of the artifacts he follows are Western innovations like Singer sewing machines and typewriters.⁸ Arnold underlines how the meaning and usage of these things were re-contextualized after they arrived in India. To broaden our perspective, we propose to trace the social life of things with indigenous roots in other cultures.

To operationalize our conceptual understanding of material culture, we are driven to ask questions of methodology. Anthropologists offer multiple

3 Francesca Bray, “Flows and Matrices, Landscapes and Cultures”, *ICON. Journal of the International Committee for the History of Technology* 22 (2016), 8–19, here 8.

4 Anne Gerritsen and Giorgio Riello, “Introduction. Writing Material Culture History”, in *Writing Material Culture History*, ed. idem (London 2015), 1–13, here 4.

5 *Ibid.*, 2.

6 Marcel Vellinga, “Review Essay: Anthropology and Materiality of Architecture”, *American Ethnologist* 34, No. 4 (2007), 756–766.

7 Nelly Oudshoorn and Trevor Pinch (eds.), *How Users Matter. The Co-Construction of Users and Technology* (Cambridge, MA 2003).

8 David Arnold, *Everyday Technology. Machines and the Making of India’s Modernity* (Chicago, IL 2013).

pathways to researching the cultural meanings people give the objects they produce and use. We find Igor Kopytoff's biographical method particularly promising in this regard. What if we contemplate things in a similar way we do people? Kopytoff argues that an object's biography can give us insights into the culture of the societies in which it "lives" or travels through:

Where does the thing come from and who made it? What has been its career so far, and what do people consider to be an ideal career for such things? What are the recognized "ages" or periods in the thing's "life," and what are the cultural markers for them? How does the thing's use change with its age, and what happens to it when it reaches the end of its usefulness?⁹

While Kopytoff himself is primarily interested in commodification processes and a "culturally informed economic biography," an adaptation of his perspective enables us to tell different stories about technologies in different parts of the world. What can the biography of certain things or clusters of objects tell us about the technological cultures and technological landscapes in which they were embedded or between which they traveled? Tracing the "social life" of a thing reveals how its use and meanings were embedded and rooted within historical layers and matrices that take us beyond standard Western categories and periodizations. For example, if we adopt the biographical approach in writing a history of textile manufacturing in India, the Singer sewing machine would be but *one* artifact coexisting with a variety of local and regional devices in different Indian settings. Instead of limiting our focus to the moments when Western technologies arrived in distant lands as a point of departure, the biographical approach would embrace multiple ranges in time and space.

A biography of *ondol*, a Korean hypocaust heating system, illustrates how a technical system contributed to the co-construction of people's daily lives within a matrix of social, symbolic, and material factors. Based on thermal conduction through thick granitic floors, similar to the Chinese *kang* bedstove, *ondol* has been a constituent of the Korean technological landscape since the seventeenth century. Although the making of *ondol* floors and chimneys in palaces and official buildings was assigned to state artisans, most home *ondols* were built and maintained by residents themselves.¹⁰ The *kang* is understood to have reflected and reinforced a gendered social order in Chinese households and society, where construction was delegated to men and maintenance to women.¹¹ A biographical approach to *ondol*, similarly, reveals how this artefact

9 Igor Kopytoff, "The Cultural Biography of Things. Commoditization as Process", in *The Social Life of Things. Commodities in Cultural Perspective*, ed. Arjun Appadurai (Cambridge 1986), 64–91, here 66.

10 Kyujanggak Institute for Korean Studies, Chosŏn Chŏnmun'gaui Ilsaeng [The Life of Experts in Chosŏn Korea] (Paju 2010).

11 Mareile Flitsch, "Knowledge, Embodiment, Skill and Risk. Anthropological Perspectives on Women's Everyday Technologies in Rural Northern China", *East Asian Science, Technology and Society* 2, No. 2 (2008), 265–288.

factored in the reproduction of the order of seniority in a Confucian-based hierarchy in Korea. The elderly, being at the top of the generational hierarchy, occupied the warmest spot on the floor closest to the fireplace.¹² This delicate thermal arrangement would remind the occupants of the room of the prevailing social order—during eating, sitting, and sleeping.

Entrenched in cultural dynamics, the usage and appropriation of *ondol* persisted in Korean daily life even after the middle class began to move into large apartment complexes in the 1970s. Engineers connected it to boilers and applied new fuels such as petroleum and electricity instead of wood and coal.¹³ Over time, the artifact acquired an epistemological layer, where the term “ondol” refers to any underfloor heating system regardless of the materiality of its construction. Nowadays, Koreans continue to eat and sleep on the “modified” *ondol*—an integral part of South Korea’s technological landscape.

The heating device known as *sandali* in Central Asia and Afghanistan, *kotatsu* in Japan, and *kursi* in Iran and Caucasus provides another glance into the floating genealogy of things. The materiality of this artefact is very simple; it consists of a heating source, a bowl holding coal which is placed in a small pit under a calf-length table covered by a large tablecloth or blanket. Soviet ethnographers claimed that this heating technique become popular in different regions of Central Asia at the end of the nineteenth century.¹⁴ Enhancing intimacy and communality, *sandali* became the place where family members gathered and socialized. Although *sandali* became a target of “modernization” propaganda in favor of Russian or European types of stoves in the Soviet era,¹⁵ it is an exemplary case for continuities in material practices. This was especially the case in the rural areas of Uzbekistan and Tajikistan where state-provided heating and electricity infrastructures proved inefficient or non-extant.¹⁶ In Iran and Japan, the traditional heater was modified with different designs and new fuels which transported a certain contemporary, cozy look.

As these biographies of heating devices indicate, things transcend the boundary between premodern and modern during their lifespan, thereby challenging Western periodization. Similarly, local designers and users of

12 Dukkyung Choi, “Ondolüi küjo min pogüpkwa saenghwalmunhwae kkich’in yŏngnyang” [Spread and Structure of Ondol and Influence in Koreans’ Life Culture], *Nongöpsa yŏn’gu* [Korean Journal of Agricultural History] 7, No. 2 (2008), 33–67.

13 Keunsung Lee, “Han’gung hyöndae ap’at’ü ondorüi hyöngsöng” [Modern Korea Apartment Ondol Formation], Master’s Thesis (Seoul National University 2011).

14 Antonina Pisarchik, “Traditsionnye sposoby otopleniya zhilishch osedlogo naseleniya Srednei Azii v XIX-XX vekakh”, in *Zhilishche narodov Srednei Azii i Kazakhstana*, ed. Elena Nerazik and Alina Zhilina (Moscow 1982), 69–110, here 79.

15 The propaganda was also conveyed through children’s books and poetry: Quddus Mukhammad, *Sandal i pechka* (Tashkent 1963), <https://kid-book-museum.livejournal.com/535010.html> [accessed 5.1.2021].

16 Tadzhiiki vspomnili o traditsionnykh pechakh – sandali, <https://theopenasia.net/ru/post/tadzhiiki-vspomnili-o-starinnykh-pechakh-sandali> [accessed 5.1.2021].

ondol and *kotatsu* entwined these material cultures with so-called “modern” or “industrialized” technologies rooted in the West, and in doing so, they blurred such perceived boundaries and dichotomies. Arriving at a history of *material culture* through tracing the biographies of things would entail treating artifacts as elements that co-construct people’s daily lives. Such a methodology allows us to investigate basic human activities, such as heating, maintenance, eating, and moving across different localities in the world.

We arrive at the final riddle: where is the global? How can we apply the biographical approach in the study of technological landscapes and cultures on a global scale? Traditionally, global historians have been preoccupied with notions of “connectivity,” “circulation,” and “linkages.” In our brief case studies of heating artefacts, the “global” reveals itself in the incorporation of electric systems to run contemporary *ondol* and *kotatsu* systems. We could also assume there were some kind of exchange of technological knowledge and practices between regions with similar heating devices such as *kotatsu* and *sandali* or *kang* and *ondol*. However, even if we could document direct connections between different regions, such linkages should not sit at the core of writing global histories. Although most global histories of technology tend to favor the investigation of transnational or transregional circulation and exchange, things acquire meaning in their specific contexts. Rather than taking connectivity and circulation for granted, we believe our approach can shed light on previously invisible areas where the tentacles of globalization might have had unintended consequences, or areas which were not strongly connected to the West.

The local is but a microcosm reflective of broader patterns. By narrating different local biographies of things, we can piece together a mosaic that allows us capture fresh, riveting, and unanticipated answers to questions of global material cultures.

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