

Rethinking Global History of Technology from Alternative Archives

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Recent shifts within global history of technology have offered means to rethink and refute innovation-centric histories. Such new approaches on “use-perspective”, instead of focusing on the early history or invention of technologies, consider the importance of the places and way technologies appear and exist amidst other technologies. This shift has resulted in global histories that engage with populaces and regions outside the places where such technologies were invented.² Situating technologies in cultures and places where they are used allows historians to challenge conceptions of innovation-centred technology transfer and diffusion and, thereby, static and linear histories of technologies spreading and unfolding towards a path determined by an inevitable Eurocentric “modernity”.³ Closer inspection, however, reveals that despite reconciling the seemingly contradictory concepts and narratives of “global” and “local”, use-centred histories are often silent about all voices and opinions except those of government officials, engineers, and promoters, and only highlight the technical and administrative structures of interests that determined the introduction and use of technologies. The “mass silence” within extant historiography can be attributed to a predominant use of governmental and official archival sources produced and preserved by dominant groups.⁴

As the authors of “Toward a Global History of Material Culture” in this volume argue, critical histories of technology-in-use can be written by introducing nuances of material culture and examining the social and material perspectives and practices of understudied social groups and actors as they interacted with technological objects within the wider world. One of the ways historians can approach wider, yet deeper global histories of technologies is

- 1 All authors work in the ERC project “A Global History of Technology, 1850–2000 (GLOBAL-HOT)” at the Technical University in Darmstadt and the examples in the following text all stem from their individual research projects. See https://www.tu-darmstadt.de/global-hot/the_project_global_hot/index.de.jsp [accessed 4.1.2021].
- 2 David Edgerton, *The Shock of the Old. Technology and Global History since 1900* (Oxford 2007).
- 3 David Arnold, *Everyday Technology. Machines and the Making of India’s Modernity* (Chicago and London 2013); Nira Wickramasinghe, *Metallic Modern. Everyday Technologies in Colonial Sri Lanka* (Oxford 2014).
- 4 We borrow the term “mass silence” from Mi Gyung Kim’s exploration of silent actors and subjugated knowledges in her critical history of ballooning in late-eighteenth and early nineteenth century France. See Mi Gyung Kim, *The Imagined Empire. Balloon Enlightenments in Revolutionary Europe* (Pittsburgh 2016).

to scrutinise the structures and contents of “archives” and unearth the diverse voices that shaped the introduction and use of technologies in distinct cultural and political contexts. In this paper, we propose three “alternative” approaches to archival explorations. The term “alternative” here is used in three distinct ways; first, histories of technologies written from a perspective of “alternative” examination of existing official archives; secondly, an approach that calls for a deeper examination of official sources while also paying attention to diverse and unexplored “alternative” archives; and finally, reconstructing histories of technologies from archival absences and the curation of “alternative” sources. Overall, all three approaches, in providing different ways of analysing archives and archival material, help us to challenge, assimilate and enrich global histories of technologies, letting marginalised actors speak on the one hand, and repositioning the role of social groups and actors in the Global South within the global history of technology on the other.

Our first intervention extends an ongoing scholarly discussion on critically analysing the content of official and, majorly, colonial archives.⁵ Re-reading colonial records allows historians to uncover the voices of silenced and marginalised actors within existing archives. We argue that the historian must not only, although rightfully so, criticise colonial records for what they are, but must also try and widen the analytical horizon by re-reading such documents to extract different views and narratives and to illustrate the role of people from the Global South in the history of technology. Thus, although not entirely new, we regard the critical re-reading of colonial records to be an important means of writing a global history of technology informed by narratives beyond traditional dichotomies of old and new, modern and traditional, or local and global. Applying such content analysis in a research project on the technological forest landscape in early colonial Ivory Coast in West Africa, for example, is both a challenge and an important step towards a nuanced picture of French colonialism in West Africa, and the histories of material culture and everyday life.⁶ Reassessing reports of French engineers shows the extent to which the colonial administration depended on the local knowledge—of recurring weather patterns and climatic conditions—possessed by the colonised, especially in the construction of railway bridges.⁷ Botanical studies by French botanists

5 For an analysis of a lack of, for example, person-related documents in the National Archive in Namibia, see Ellen Ndeshi Namhila, “Content and use of colonial archives. An under-researched issue”, *Archival Science* 16, No. 2 (2016), 111–123.

6 For this research project, French colonial documents were analysed from two main archives, the Archives Nationales de la Côte d’Ivoire (ANCI) in Abidjan, Ivory Coast and the Archives Nationales d’Outre-Mer (ANOM) in Aix-en-Provence, France.

7 See for example a report on the planning and construction of a railway viaduct: Archives Nationales d’Outre-Mer (ANOM), TP 1 Carton 1034, Dossier 4, “Rapport du Capitaine du Génie THOMASSET, Directeur p.i. relative aux ouvrages destinés au franchissement de la rivière N’Zi – kilomètre 180”, Direction temporaire des voies de pénétration, Abidjan, le 15 Janvier 1908.

who worked for the colonial administration also provide additional insights into the place of the colonised within histories of sciences and technologies.⁸ While texts produced by French botanists centred mainly on assessing the economic potential of different plant species such as palm, kola, or rubber trees, an alternative reading of such texts shows how these botanists also engaged with pre-colonial cultivations patterns. Such texts also shed light on the everyday agricultural practices of the local populace. This helps us to conclude that at the eve of colonial occupation, especially people inhabiting the forest areas in lower Ivory Coast were innovative, knowledgeable, and long experienced agriculturalists, hunters, traders, and manufacturers of a wide range of tools and everyday artefacts.

Our second scholarly intervention reveals the complex structures of social, cultural and political discussions and debates that manifested themselves in the spaces and ways in which historical actors discussed and used technologies. To achieve this, we must foreground the few extant archives and sources that lie outside the confines of the official archives. Such “alternative” archives, when studied alongside sources from official archives, are particularly valuable in challenging and extending linear historical narratives of the introduction of technologies in the colonised Global South as an imposition of a universal “modernity”.⁹ Historians of “electrification” in colonial India have long depended on official archives to write histories of “modernity” both as an inherent property and a consequence of electrification, without examining the complex dynamics between electrical technologies, social groups, and individuals.¹⁰ In order to demonstrate energy demands and transitions as contested fields of discontinuous ideas, institutions and objects rather than an imposition of “modernity,” we must, however, understand the varied views circulating in public and private spheres that engendered diverse cultural and political representations of electricity. While electrical trade journals and official sources can account for the varied responses to the introduction and use of electric supply and tech-

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- 8 Two prominent cases are the works by Auguste Chevalier and André Aubreville. See for example Auguste Chevalier, “Le *Borassus aethiopum* de l’Afrique Occidentale et son utilisation”, *Journal d’agriculture traditionnelle et de botanique appliquée* 10, No. 108 (1930), 649–655; Auguste Chevalier, “Nouvelles recherches sur les Palmiers du genre *Raphia* (Suite et fin)”, *Journal d’agriculture traditionnelle et de botanique appliquée* 12, No. 127 (1932), 198–213 or Auguste Chevalier and Ém. Perrot, *Les Kolatiers & Les Noix de Kola* (Paris 1911).
- 9 Abhijit Bhattacharya, *Archives of the Nation in Making. Public Institutions in the 19th Century and the Beginning of Modern Alternative Archives within a Contemporary Institutional Framework*, 2009, http://crossasia-repository.ub.uni-heidelberg.de/1108/1/Abhijit_Bhattacharya_Nation_and_Archive.pdf [accessed 4.1.2021]; Daniel R. Headrick, *The Tools of Empire. Technology and European Imperialism in the Nineteenth Century* (New York 1981).
- 10 Srinivasa Rao and John Lourdasamy, “Colonialism and the Development of Electricity. The Case of Madras Presidency, 1900–47”, *Science, Technology and Society* 15, No. 27 (2010), 27–54; Suvobrata Sarkar, “Domesticating Electric Power. Growth of Industry, Utilities and Research in Colonial Calcutta”, *The Indian Economic and Social History Review* 52, No. 3 (2015), 357–389.

nologies in public buildings and spaces, a careful examination of “alternative” sources—lectures, personal writings, visual sources, reports and advertisements in vernacular and English periodicals, journals and newspapers—help map the manners in which historical actors interpreted and appropriated electrical technologies within their social, cultural and political conceptions of everyday life.¹¹ The fragmentary nature of “alternative” archives adds a level of complexity to identifying actual social practices emerging from cultural representations of electricity. The paucity of sources that directly discuss electricity means it is not always possible to recover direct evidences of the spaces and ways in which consumers installed and used electricity. We can, nevertheless, gauge how questions of class identity based on economic thrift and consumption influenced consumers’ interactions with electrical technologies through an analysis of sources found in alternative archives—electric bills, applications for electric supply, and lists of domestic expenses—alongside legal case reports and newspaper accounts of electrical theft or deaths by electrical accidents.

Our third intervention addresses the issue of gaps in official archives by discussing the need to curate “alternative” archives of primary sources. Most archives in South America, structured around governmental administrative and institutional sources, prove insufficient, even irrelevant, to reconstructing the historical daily and domestic lives of women’s social and material practices in the region. National archives, for instance, do not hold specialized collections about domestic life,¹² and therefore, we must think beyond them and their inherent limitations for studying historical actors that worked outside the confines of formal workspaces, performing non-salaried tasks. For example, the remnants of cooking practices and eating habits performed and preserved by women transformed material cultures and knowledge at a global level; however, the role of South American women as homemakers is usually overlooked and underrepresented in global histories of technologies.¹³ Discussions of the agency of women, in cases when they do show up in official records, usually relate to the ones who have a significant role in the public sphere. Extant historiography too tends to dissociate homemakers from mobility and the circulation of ideas and goods that characterise the study of global history, associating women with

11 Some of the sources mentioned here can be found in the archives of the Centre for Studies in Social Sciences, Calcutta.

12 This statement is based on a revision of official archives like the *Archivo General de la Nación* in Argentina and the *Archivo General de la Nación* del Perú.

13 See for example studies on cooking technologies and practices at a national or regional level, such as Ruth Oldenziel and Karin Zachmann (eds.), *Cold War Kitchen. Americanization, Technology, and European Users* (Cambridge, MA 2009); Laura Ann Twagira, “Machines That Cook or Women Who Cook? Lessons from Mali on Technology, Labor, and Women’s Things”, *Technology and Culture* 61, No. 2 (2020), 77–103; Sandra Aguilar-Rodríguez, “Cooking Technologies and Electrical Appliances in 1940s and 1950s Mexico”, in *Technology and Culture in Twentieth-Century Mexico*, ed. Araceli Tinajero and J. Brian Freeman (Alabama 2013), 43–54.

their homes, immobility, and intimacy. Nevertheless, the ephemeral but quotidian practices of homemakers, many of them illiterate, became the basis of a complex tacit knowledge regarding activities like cooking, sewing, or cleaning.¹⁴ These practices pushed women into mastering and appropriating tools and technologies—both imported and locally produced—in the household. By focusing on these house chores usually performed by women and domestic servants, we can approach women’s workspaces, technologies, and technical knowledge. Curating these alternative collections means documenting the practices, that survived as personal and family remnants, to frame them together and look for patterns and commonalities, making comparisons, establishing connections, reconstructing networks, finding causes, and finally creating narratives about understudied topics. Building this kind of archive requires looking for sources in personal collections, specialized museums, second-hand bookstores, libraries, and creating a network of people willing to collaborate and share their personal stories. The sources that emerge, for example, in an alternative archive of cooking, include recipe books, letters, memoirs, photos, women’s magazines, and interviews. Going beyond this lack of representation in official documents and looking for new sources, we argue, brings up histories where interconnectedness is crucial in women’s lives, reflecting the importance of women in shaping material cultures beyond their households’ borders.

This paper, in its exploration of “alternative” approaches to archives, has only presented preliminary findings. Any future research on global histories of technologies following the approaches discussed here will have to consider the institutional structures of archives in the Global South. Funding for both “alternative” and official archives in the Global South is not always as vast as it is in Euro-American context, which undeniably affects the state and amount of the documents preserved. Therefore, it is important to approach archives and their sources with creativity and ingenuity to fill gaps, silences, and absences in colonial or official archives. Such an approach will also need to engage with sources outside of written documents. Including oral traditions such as songs or proverbs, or oral history testimonies will allow the historian to include the voices of historical actors that have been silenced in written sources, thereby enabling more diverse, coherent, critical and decolonised global histories of technologies.

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14 Examples of this approach include Elaine Leong, *Recipes and Everyday Knowledge. Medicine, Science, and the Household in Early Modern England* (Chicago 2018); Paula Caldo, *Mujeres Cocineras. Hacia una historia sociocultural de la cocina Argentina a fines del siglo XIX y primera mitad del XX* (Rosario 2009).