

Notes from Global Asia

How to Write a Global History of Knowledge

▼ **FORUM ARTICLE** in *Decentering the History of Knowledge*

▼ **ABSTRACT** Recent developments in the field of global Asia and the global South are paying attention to alternative ways of knowing and historicizing how they circulate. Such work helps the field produce critical geographies in our writing of the history of knowledge that decenter persistent Eurocentric narratives of the origins of science. They help avoid comparative and even civilizational frameworks that continue to shape our understanding of the modern world. To write a global history of knowledge that is both broad and deep in scale, scholars need to examine far-flung global networks that facilitate the movement of ideas and materials, along with conducting a deep and careful understanding of local contexts and regional specificity. By considering how circulating “global” knowledge and mobile objects “anchor” and manifest locally, the field reduces the risk of flattening the “global” and sacrificing specificity, depth, knowledge of locale(s) and regional expertise.

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Deep and rich local case studies from around the world have been crucial in enhancing our empirical picture of the global history of knowledge, and, with this more complete picture, have prompted the field to acknowledge that multiplicities of knowledge have existed over time and space. They moreover help us document how the history of knowledge is nonlinear, highly contingent, and enacts differently and unexpectedly at the local and global levels. Yet the uncovering of multiple contending forms of knowledge does beg the question: Is an overarching history of global knowledge possible, and if so, what form should it take? Furthermore, does such an approach allow us to avoid teleological arguments about the rise of science that continue to plague the field? Will we be able to decenter claims of Universalism associated with conventional narratives that identify the origins of science in the West? How do we effectively understand how and when knowledge travels, and how, in the process, it gains legitimacy? How might such circulating knowledge serve to constitute geopolitical hierarchy and economic inequity? Part of the answer to these questions lies in the ability to write connective transnational histories that span geographical units of analysis (nation states, regions, empires, etc.). To accomplish this, the field needs to produce scholars who have the multilingual capacity and rich knowledge of a variety of regions and locales to engage in multiple sets of primary sources and conduct global accounts responsibly. The writing of transnational accounts should also include more systematic efforts to engage in collaborative work among regional specialists to achieve a fully global picture. By investing in the ability to interrogate the local contexts in which global phenomena land and anchor themselves, our global histories will only then avoid remaining at the surface level and delve more deeply into understanding how and why local conditions might engender friction, unevenness, hierarchy/inequity, and even obstruct transnational knowledge flows. The field will also be able to move more effectively beyond the West versus Rest analytical axis to explore geographical circuits that are often messy, irregular, and at times, unexpected.

Since the latter part of the twentieth century, historians of science have been increasingly inquiring into how and why scientists and others have made truth claims about the universality of modern science. By identifying “paradigms” in science, Thomas Kuhn’s pioneering 1962 work, *The Structure of Scientific Revolutions*, started to decenter such claims. During the 1980s and 1990s, post-Kuhnian scholars such as Bruno Latour argued for the relativistic and constructivist nature of claims of scientific knowledge. By the first decades of the twenty-first century, historians of science continued to pursue the investigation of how science gained authority historically, by investigating the intertwining of science with other aspects of human society, including the marketplace, the legal arena, politics, social practice, and technological and material work.¹ These waves of revisionist work explore how such claims are

¹ See, for example, Biagioli and Riskin, *Nature Engaged*.

fundamentally political and moral in nature and have profound geopolitical, cultural, and commercial implications. Yet, even as this more critical vein of inquiry has emerged, some scholars, including historians interested in the emergence of the modern world, have continued to abide by narratives that assume the superiority of modern science and emphasize how the origins of modern science are located in the West.² Some of the historians of science who have contributed tremendously to the field with methodological insights and tools with which to historicize the making of science and claims of science's universalism have also remained surprisingly parochial.³ And those who have pioneered ways to think about alternative ways of knowing, including, for example, the tacit embodied knowledge of artisans, often remain primarily concerned with explaining the origins of the Scientific Revolution in the West.⁴

Historians of science of the non-West have similarly not always been able to escape a comparative or even civilizational framework, even as they explore ways of knowing and knowledge production outside of the West. In the early twentieth century, Joseph Needham sought to identify philosophical and technical traditions in China as crucial in the history of science, flowing into the universal river of scientific knowledge, with Western mathematical reasoning, however, ultimately constituting the crucial ingredient in making the leap to modern science.⁵ In response, post-Needham scholars have asserted that, while pioneering in recognizing the contributions of non-Western parts of the world, Needham's approach remains essentially a civilizational analysis that takes as its central task the explanation of the rise of modern science as a universal epistemological form. As a corrective, these scholars take care to demonstrate how knowledge production is a localized process whose political, social, and epistemological value should be evaluated within specific contexts and on its own terms.⁶ They show how innovative knowledge formation has always occurred outside of and beyond the realm of the modern West, whether they played a role in the making of science or not, problematizing any lurking teleologies about the universality of modern science in the process.⁷ By untethering the different ways of knowing the natural world from the question of the rise of science, this work has also helped the field shift away from the history of science to the history of knowledge.⁸

2 See, for example, Mokyr, *A Culture of Growth*.

3 The aforementioned 2012 volume, *Nature Engaged*, that identifies the need for historical pragmatism has, for example, the subtitle "Science in Practice of the Renaissance to the Present," and traces the linear progression of science only within the context of Europe.

4 See, for example, Smith, *The Body*.

5 See Needham, "The Roles of Europe."

6 See, for example, Hart, "Beyond Science and Civilization." For critiques outside of the China field, see, for example, Raj, *Relocating Modern Science*.

7 For local premodern case studies in the Chinese history field, see the post-Needham examples such as Bray, *Technology and Gender*, and Schäfer, *The Crafting*. For the specific use of the phrase "on their own terms," see Elman, *On Their Own Terms*.

8 For more on the need for this shift to the history of knowledge, see the inaugural issue of this journal.

Yet, by uncovering the *longue durée* history of “Chinese” or “Arabic” knowledge systems, such scholarship often risks limiting itself to the confines of a national or even civilizational framing. As a result, it remains far too easy for those who insist upon seeing modern (Western) science as universal to identify these case studies as “alternative” and particularistic.⁹ It has only been with the “global turn” that scholars have started to acquire more powerful methodological tools with which to avoid any residual civilizational analyses. By examining exchange and translation that occurred in circuits of empire and contact zones, historians of science inspired by postcolonial studies, for example, have powerfully demonstrated how knowledge from around the world played a role in the making of modern science.¹⁰ Translators and go-betweens, we now know, were crucial in making possible the mobility of knowledge, objects, and people that was needed for the scientific revolution to even occur.¹¹ The rise of science thus can no longer be located only within the West. To be sure, there are constraints with this approach. If helping globalize the study of the history of science, postcolonial studies remain constricted by the metropole-periphery axis. Parts of the non-West that were colonized or subjected to imperialism remain too easily designated as merely the local or the peripheral, with the West—in the metropole—always being marked as the “global.” The question also often remains primarily focused on the rise of science within the context of modern imperialism, and less interest is shown in forms of knowledge that might not have contributed to the rise of science.

Perhaps not entirely surprisingly, scholarship on the early modern world has helped us escape the confines of postcolonial scholarship, which has tended to focus primarily on modern forms of colonialism and imperialist expansion. In the Chinese history field, scholars outside of the modern period have proven particularly able to explore imperial formations and knowledge outside of a metropole–periphery framework and move beyond the singular question of the rise of modern science.¹² Drawing from New Qing Studies,

9 For a study of comparative industrializations that does not fully escape the civilizational framework in its comparative approach and abides by the divergence narrative that Needham also proposes, see, for example, Pomeranz, *The Great Divergence*. There have been many waves of scholarship that have asked what is at stake if area studies scholars remain fixed in their regions, including the reproduction of the logic of the Cold War that lay behind area studies to begin with. For a review of how East Asianists have explored the problems of an area studies approach, see, for example, Gordon, “Rethinking Area Studies.”

10 For examples, see Cook, *Matters of Exchange*, and Fan, *British Naturalists*.

11 For an early study in the history of science field on how knowledge moves, see Secord, “Knowledge in Transit.” See Raj, *Relocating Modern Science*, on circulation and South Asian translators; Mueggler, *The Paper Road*, on Chinese and Naxi guides to British botanists; and Tilley, *Africa*, on native informers to colonial anthropologists and scientists in early-twentieth-century Africa. For go-betweens, see Schaffer et al., *The Brokered World*.

12 To be sure, postcolonial scholarship productively informed the study of China’s experience with modern science within the context of empire. See, for example, Rogaski, *Hygienic Modernity*. Furthermore, with the postcolonial “turn,” the idea that authentic “Chinese” science can only be found in the premodern period—a legacy of the Needham approach—has been effectively debunked. Scholars now investigate how the establishment of new disciplines, institutions, and forms of material practice in the modern period was not simply the adoption of “modern (Western) science,” but involved complex processes

which invests in the study of languages beyond Chinese in order to better study locales traditionally seen as “peripheral,” historical scholarship on early modern Chinese knowledge characterizes the Qing Empire (1644-1911) as a multicultural empire that assumed new “frontiers,” whether that of Manchuria, Mongolia, Xinjiang, or Tibet. As an early modern empire with a variety of constituencies, long-distance trade routes emerged to help engender highly pluralistic domains of knowledge and material practice, as seen with the Qing’s pharmaceutical culture.¹³ Medical knowledge and *materia medica* also traveled throughout *Pax Manjurica* through routes of trade but also via the institutional networks of Buddhist temples, including back to the imperial center of Beijing.¹⁴ Our understanding of the early modern empire in China is thus increasingly informed by alternative centers, including areas in the so-called borderlands, which, as crossroads of empires, were nonetheless highly cosmopolitan and coexisted alongside the imperial center of Beijing or the traditional cultural centers in Jiangnan.¹⁵

Recent global historical approaches have also proven particularly adept at conceptualizing the fluidity of shifting geographies and networks that make up far-flung connections and global phenomena.¹⁶ By casting light on the highly messy, convoluted, and often unpredictable pathways through which ideas, things, and practices can travel, global histories inspired by diaspora and migration studies similarly break down the familiar dyads of metropole–periphery, East-West and North-South. They force us to question how we can even demarcate “Chinese,” “African,” and “Western” science and knowledge, and equip us with means to avoid persistent narratives that science and technology emerged in the West only to be subsequently diffused to the rest of the world. This more fluid understanding of global phenomena has led to the emergence of new, critical geographical imaginaries. The “Global South,” for example, is proving to be an effective critical analytic category for scholars seeking to move beyond the focus on East-West transmission or North–South influence to explore less well-understood historical ties between Asia and Africa or Asia and Latin America. Scholars with the proper linguistic skills are now exploring South-South or East-East ties that transcend traditional regional and

of translation and adaptation that occurred within the context of imperialism and deserved historical examination. Chinese history of science has thus flourished in the recent decades, with a flurry of studies focused on the Republican period and the post-49 era.

13 Bian, *Know Your Remedies*.

14 For forthcoming work on this, see Van Vleet, *Plagues, Precious Pills*, which traces the travel of such knowledge and *materia medica* by examining the rise of a vast network of Tibetan medical institutions across Inner Asia during the Qing.

15 Gray Tuttle’s current research project on Amdo Tibet as a “Middle Ground” between Lhasa and Beijing during the early modern period is an example of the foundational work rethinking the Qing from an alternative “center.”

16 For an example of a pioneering global history of diaspora, see McKeown, *Chinese Migrant Networks*. For an important article on networks in the study of global phenomena such as diasporic flow, see McKeown, “Conceptualizing Chinese Diasporas.”

area studies boundaries. Some shed light, for example, on the rich history of the transfer of people, knowledge, and expertise between modern China and Africa.¹⁷ Others show how vibrant scientific, technical, and cultural exchange took place during the Cold War between Eastern Europe and East Asia within the socialist bloc, as well as between India and China *despite* Cold War divisions.¹⁸ Another reorientation has been to decenter land-based geographical units, and instead explore the commercial exchange and geopolitical conditions that enabled people, objects, and ideas to crisscross the Indian Ocean, the Pacific Rim, and the Atlantic World. Recent work in China–India studies argues for understanding the exchange between China and India not from an area studies perspective that sees the two countries as somehow representing “Asia” by virtue of their size and their civilizational roots.¹⁹ Instead, approaches such as the “Asia as Method” approach whereby Asia is seen not as an ontological region *per se*, but as a construct with actual historical connections that we can historically identify, are enabling Asian societies to become each other’s reference points (as opposed to being constantly compared to the purported standard that is Europe) and can help us pose a different set of questions about world history.²⁰

As we attend to these new critical geographies, we need to consider and historicize the processes by which movement and mobilization can even occur. Travel is never automatic, as the term “global flow” might imply. Some scholars have rightfully warned against overusing “hydraulic” metaphors of circulation too uncritically and call for the need to avoid “flattening” accounts of far-flung mobility and keep in mind how uneven power relations might generate friction that can fragment encounters and stymie the free travel and flow of ideas and things.²¹ Indeed, work and human labor have always been involved in the creation of such circuits and conditions of movement and connection.²² New lines of inquiry now include how knowledge traveled, arrived, and anchored itself in any one locale or node in a global network. What conditions allowed for the translation efforts, the creolization through use, and the endeavors of vernacularization and adaptation that constituted the efforts of “anchoring” mobile knowledge?²³ Part of attending to these efforts includes

17 For one example, see Zou, “Socialist Medicine,” which details how Maoist China pursued its form of socialist humanitarianism globally by sending medical missionaries to rural North Africa.

18 For scholarship that examines Cold War interaction between China and East Central Europe, see Jersild, *The Sino-Soviet Alliance*, and Méhilli, *From Stalin to Mao*. For work on Chinese-Indian statistical knowledge transfer during the 1950s, see Ghosh, *Making it Count*.

19 Sen, “China-India Studies.”

20 For more on “Asia as Method,” see Kuan-Hsing, *Asia as Method*. For this approach in the history of science, see Fan, “Modernity, Region, and Technoscience.”

21 On hydraulic metaphors and their potential limits, see Anderson, “Waiting for Newton?” and Fan, “The Global Turn.” For the concept of “friction” in globalization, see Tsing, *Friction*.

22 For a recent study focused on the human work involved in making the global, see Hathaway, *Environmental Winds*.

23 For theoretical work on translation, see Liu, *Translingual Practice*. For creolization and use, see Edgerton, *The Shock*. For vernacularization, see Lean, *Vernacular Industrialism in China*.

considering the rich local epistemological and material context in which the adaptation of foreign technologies and knowledge occurs.²⁴ By adopting such approaches, we can better grasp how knowledge production in the modern era was never simply a derivative story about the emergence of formal science imported from the West. It is precisely the task of the historian, then, to examine the contingent conditions under which complex processes of adapting and translating new ways of knowing occur among different parts of the world. The Global South is furthermore never the passive periphery or the receiving end point where only localization occurs. Rather, it is one node of many upon which knowledge and material practice morph and evolve, often to be radically reshaped, and then move on.

New directions in the field, including climate and environmental studies, the examination of science and capitalism, and extractive infrastructures, all demand an ongoing nimble but rigorous global approach.²⁵ The requisite toolbox needed to provide a global account calls for multiple approaches. Microhistories and rich local case studies should not be discarded, as their very production demonstrates the multiplicity and plurality of a global history of knowledge and forces a reckoning for any universalistic or teleological claim. At the same time, these local cases need to be considered within a global context rather than via mere comparison. As the global turn has demonstrated and as it matures, the deep local and linguistic knowledge—while not to be the basis of siloization—is nonetheless necessary for the writing of a global history of knowledge that is not superficial, but instead attends to the processes through which mobile objects and ideas “anchor” and localize. Collaborative efforts, too, where we break apart our siloed regional approaches in academia, can facilitate this goal of writing a global history of knowledge that is both broad and deep in scale.²⁶

About the Author

Eugenia Lean is a Professor of East Asian Languages and Cultures at Columbia University. She recently published *Vernacular Industrialism in China: Local Innovation and Translated Technologies in the Making of a Cosmetics Empire, 1900–1940*. Her current research examines how modern China has gained the reputation of being a “copycat nation.”

24 For an argument about the need to consider the historical epistemological terrain of areas in the Global South to which modern science and technology travels, see Mavhunga, *What Do Science*, especially the introduction.

25 For an example of a global approach in environmental history and the history of capitalism, see the work of Bathsheba Demuth, including *Floating Coast* and “The Walrus.”

26 This is now often done in special issues of journals. See, for example, Rieppel, Deringer, and Lean, *Science and Capitalism*. Or it is pursued through more ambitious multivolume projects, such as the forthcoming *Cambridge History of Technology* that includes scholars from all over the world, with scholars with different regional expertise often working collaboratively on each entry, to write a global history of technology.

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