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Östling, Johan; Larsson Heidenblad, David; Sandmo, Erling; Nilsson Hammar, Anna; Nordberg, Kari

*Published in:*  
Circulation of Knowledge

2018

*Document Version:*  
Publisher's PDF, also known as Version of record

[Link to publication](#)

*Citation for published version (APA):*

Östling, J., Larsson Heidenblad, D., Sandmo, E., Nilsson Hammar, A., & Nordberg, K. (2018). The History of Knowledge and the Circulation of Knowledge: An Introduction. In J. Östling, E. Sandmo, D. Larsson Heidenblad, A. Nilsson Hammar, & K. Nordberg (Eds.), *Circulation of Knowledge: Explorations in the History of Knowledge* (pp. 9-33). Nordic Academic Press.

*Total number of authors:*  
5

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LUND UNIVERSITY

PO Box 117  
221 00 Lund  
+46 46-222 00 00

# The history of knowledge and the circulation of knowledge

## An introduction

*Johan Östling, David Larsson Heidenblad, Erling Sandmo,  
Anna Nilsson Hammar & Kari H. Nordberg*

The history of knowledge has emerged as a scholarly approach in its own right in the twenty-first century. It remains a young and still far from coherent field; there is no uncontested definition of what it encompasses, there is no established canon of texts. However, it is undoubtedly evolving and we are beginning to see its contours. Conferences are being arranged, institutional arrangements are materializing, and a whole range of studies are being published. By putting knowledge—not science, culture, or ideas, but knowledge per se—at the centre of the historical endeavour, new vistas for research open up.

German-speaking scholars began to argue that *Wissensgeschichte* (the history of knowledge) is something different than *Wissenschaftsgeschichte* (the history of science and scholarship) in the 2000s. In the 2010s, the field has started to attract considerable attention in other countries and contexts, for example, as ‘the history of knowledge’ in the Anglophone world, as ‘kunskapshistoria’ or ‘kunnskapshistorie’ in the Nordic region, and in the ambitious French work *Lieux de savoir*.<sup>1</sup>

There are different routes into the field. For historians of science or medicine, for example, the history of knowledge seems to offer a refashioning of traditional subjects of inquiry and a broadening of contexts. For those with a background in intellectual history or the history of education, the widening scope is similarly welcome, as is the introduction of new methods and frameworks such as the mediality and materiality of knowledge. For cultural historians, by contrast, the history of knowledge represents something new without necessarily

breaking with the fundamental assumptions of cultural history—a fresh approach that can help them narrow down their subject matter and sharpen their analytical focus. Moreover, a focus on knowledge could be a way to develop new and integrative forms of humanistic research.<sup>2</sup>

Scholars' enthusiasm for the history of knowledge is also driven by contemporary realities outside academia. As a scholarly field, it invites researchers to take an active part in some of the pressing issues of our time while furnishing them with historical points of reference. Today, the status of knowledge is entirely contested. Political and economic aspirations are closely bound up with knowledge institutions, yet at the same time leading politicians question scientific truths, and the new media landscape is awash with so-called alternative facts. For this reason, it behoves scholars to scrutinize knowledge and its place in other chronological contexts. As an intellectual enterprise, the *raison d'être* of the history of knowledge is ultimately to strengthen our ability to reflect on a fundamental issue: the role of knowledge in society and in human life.

### The history of knowledge— historiographical perspectives

Needless to say, the history of knowledge has been written *avant la lettre*. Even if we restrict ourselves to the post-war Western tradition, many of the classics in the history and sociology of science were not confined to science in a narrow sense, but were explorations of broader cognitive structures or the social and intellectual conditions for rational knowledge—including works by Ludwik Fleck, Robert K. Merton, Edmund Husserl, Alexandre Koyré, Thomas S. Kuhn, Michel Foucault, and Donna Haraway.<sup>3</sup> By the same token, knowledge and its shifting societal roles and institutional underpinnings have been treated in many historical subdisciplines, ranging from the history of education and the history of technology to economic, environmental, and gender history.<sup>4</sup>

Analyses of knowledge and knowledge systems have also been essential for cultural history, arguably the most dynamic branch of historical writing since the 1980s. Its choice of topic has primarily been shaped by an essentially anthropological outlook with a focus on rituals, systems of belief, and representations of power, but many

of the methodologically and theoretically influential contributions have in fact examined various aspects of knowledge. That is true for such different figures as Michel Foucault, Pierre Bourdieu, and Clifford Geertz, but also for many important practitioners of cultural history, including Michel de Certeau, Roger Chartier, Robert Darnton, Carlo Ginzburg, and Natalie Zemon Davis.<sup>5</sup> Beginning in the late 1980s, moreover, ‘knowledge’ appeared in a number of book titles, signalling the growing interest.<sup>6</sup>

As a distinct historiographical field with its own intellectual and institutional identity, however, the history of knowledge belongs to the twenty-first century. One early and relatively wide-ranging discussion of what it might mean has taken place in the German-speaking areas of Europe. Since 2000, *Wissensgeschichte* has established itself as an academic field, with chairs, research centres, empirical studies, and key theoretical considerations. The Max Planck Institute for the History of Science in Berlin, together with the three universities in the German capital, stands out as one intellectual hub.<sup>7</sup>

Another important milieu is the History of Knowledge Centre (Zentrum Geschichte des Wissens) in Zurich, inaugurated in 2005 as a joint venture by the Swiss Federal Institute of Technology in Zurich and the University of Zurich. In addition to the publication of numerous empirical studies, some of its leading representatives have reflected on the meaning of *Wissensgeschichte*. The most thorough discussion is given in a programmatic article from 2011 by Philipp Sarasin. His point is that historians always have related to larger contexts, whether it has been the nation or society. In the new cultural history, these larger entities have often comprised discourses or semiotic structures of different forms. Sarasin distinguishes three empirical fields that these studies have focused on: rationally motivated forms of knowledge, belief systems, and aesthetic expressions. He emphasizes that there are no sharp boundaries between these areas and that the rise of modernity to some extent is about how this division took shape into different spheres.<sup>8</sup>

Sarasin goes on to conclude that *Wissensgeschichte* is the study of ‘more or less rational forms of knowledge’, at least in the modern era. In the nineteenth century this knowledge was associated with the emerging scientific and scholarly disciplines, but they should be

seen as crystallization points and did not equate to the beginning or end of a longer process. Although rationally founded knowledge has a strong link with the university and other academic institutions, it is not solely confined to these arenas. ‘Knowledge is always evolving, changing and “realizing” through circulation between different societal spheres,’ Sarasin argues.<sup>9</sup>

For Sarasin, the history of knowledge should be about ‘the societal production and circulation of knowledge.’ He emphasizes that knowledge circulates between people, groups, and institutions. This does not mean that knowledge spreads freely and is evenly distributed, but rather that it can be communicated in various fields where it will interact with different societal contexts. At the same time, these processes transform knowledge. In addition, Sarasin underlines that knowledge must be regarded as a historical phenomenon. In *Wissensgeschichte*, the issue at stake is not whether some forms of knowledge are good or bad, useful or useless, but how, when, and why a certain type of knowledge appears and possibly disappears, what effects it has, and who its carrier is.<sup>10</sup>

Specifically, Sarasin discerns four analytical approaches to the history of knowledge: the order of knowledge; the mediality of knowledge; the actors of knowledge; and the genealogy of knowledge.<sup>11</sup> Sarasin admits that the form of *Wissensgeschichte* that he has outlined is not set in stone. Instead, he regards it as an intellectual framework of a kind. Nevertheless, he points to three sources of inspiration that have been fundamental to the theory of the field: Michel Foucault, Ludwik Fleck’s work on *Denkstil* and *Denkkollektiv*, and a number of innovative studies on the history of science (Steven Shapin and Simon Schaffer, Bruno Latour, and Hans-Jörg Rheinberger are mentioned).<sup>12</sup>

Sarasin’s article is the closest thing we have to a manifesto for the history of knowledge. Other researchers associated with the History of Knowledge Centre in Zurich, notably Daniel Speich Chassé and David Gugerli, have also contributed to the understanding of the field.<sup>13</sup> If we look at the studies that have been published in the 2010s by scholars affiliated with the Swiss centre, many of them have been devoted to the history of science or medicine, but there have also been quite a few books about broader themes or other areas of knowledge.<sup>14</sup>

German-speaking scholars were thus among the first to reflect on

the history of knowledge. In the Anglophone world, meanwhile, the principal and theoretical discussions have just started, even though Peter Burke has been a keen proponent of the history of knowledge for quite some time. His two-volume survey, *A Social History of Knowledge* (2000, 2012), stretches from Gutenberg to Wikipedia.<sup>15</sup> It is a learned and encyclopaedic account of more than five hundred years of history, but it offers no general theoretical consideration of what the history of knowledge might be. Burke himself characterizes the work as a series of essays, ‘impressionistic in its methods and provisional in its conclusions.’<sup>16</sup>

In his introduction, *What is the History of Knowledge?* (2016), Burke runs through the basic concepts, processes, problems, and prospects for the history of knowledge, but provides no clear-cut definition of the field. Drawing on his two earlier volumes, however, he formulates some brief general reflexions on his subject. His premise is that knowledge exists in a variety of forms, even within one given culture: pure and applied, abstract and concrete, explicit and implicit, learned and popular, male and female, local and universal. For that reason, Burke maintains—in a wide-ranging formulation—there ‘are only histories, in the plural, of knowledges, also in the plural.’<sup>17</sup>

Whereas Burke sets out to demonstrate the diversity and richness of the history of knowledge, other scholars have discussed the content and character of the field in more detail. Simone Lässig is one of them. She is currently a director of the German Historical Institute in Washington DC, where under her auspices the history of knowledge has developed into a prioritized research area.<sup>18</sup> In an illuminating article, ‘The History of Knowledge and the Expansion of the Historical Research Agenda’ (2016), Lässig argues that knowledge ‘touches upon almost all spheres of life in all eras and in all regions of the world, and it thus offers a distinctive approach to examining complex historical phenomena.’ The history of knowledge is potentially a vast field.<sup>19</sup>

Lässig has shown how the history of knowledge as a scholarly endeavour relates to neighbouring disciplines, including the sociology of knowledge, the history of science, and global history.<sup>20</sup> She claims that a central question is how knowledge has transcended defined spaces—in the case of global history, for example, the nation-state. She anticipates such research being the foundation for what she calls ‘a new history of knowledge’, which she interprets as:

a history of knowledge that takes as its purview not only the knowledge of the learned distilled into book form but also practical, social or tacit knowledge, that draws not only on texts but also images and objects as source material, and that considers not only knowledge as a 'product' but also the actors, practices, and processes involved in creating, disseminating, and transforming knowledge.<sup>21</sup>

Lässig discusses what the new history of knowledge has to offer historical research in general, paying special attention to the circulation of knowledge, and she goes on to venture a provisional definition of the field. The history of knowledge, she states, 'is a form of social and cultural history that takes "knowledge" as a phenomenon that touches upon almost every sphere of human life, and it uses knowledge as a lens to take a new look at familiar historical developments and sources.'<sup>22</sup>

Lässig's understanding of the history of knowledge is shaped by her training as a historian and by long-held assumptions within the field of history, with its traditional focus on politics, social relationships, and cultural phenomena. This is evident in the final sentences of her article, where she concludes that 'The history of knowledge does not emphasize knowledge instead of society but rather seeks to analyse and comprehend knowledge *in* society and knowledge *in* culture. Approaching society and culture in all their complexity, the history of knowledge will broaden and deepen our understanding of how humans have created knowledge over the course of the past.'<sup>23</sup>

Lorraine Daston, by contrast, contemplates, in an article in 2017, the emergence of the history of knowledge from the point of view of the history of science. A long-standing director of the Max Planck Institute for the History of Science in Berlin and one of the leading figures in her discipline, Daston is well equipped to address the issue. She begins by dating the origins of the history of science as a scholarly branch to the mid-twentieth century. A common denominator among the foundational works of the discipline was that the scientific revolution represented a historical transformation of the first magnitude, and that its core narratives were centred on this seminal event in early modern Europe. According to Daston, this modernist interpretation was subsequently challenged by a historicist approach, best exemplified by Thomas S. Kuhn's influential book from 1962. Since then the

discipline has undergone both a practical and a global turn, substantially broadening its methodological repertoire and diversifying its objects of study. As a consequence, the history of science has distanced itself from the old, teleological metanarrative of the rise of modern, Western science, which used to be so instrumental for its identity. But what are we then historians of? Daston asks.<sup>24</sup>

Her own tentative answer is that ‘we are historians of knowledge’. A usefully vague portmanteau, she argues, it has the advantage that it is not bound to a specific modern Western understanding of science. Instead, it comprehends Hellenistic alchemy and indigenous Peruvian botany as well as the post-war social sciences and practices of knowledge that are very remote from anything resembling latter-day science. At the same time, its ample and nebulous character is also problematic. What doesn’t it cover?<sup>25</sup>

Daston claims that the term ‘the history of knowledge’ is currently applied to at least two different research programmes: on the one hand, an approach that focuses on forms of knowledge that have been denigrated as substandard (for example, craftsmen’s skills, women’s medical recipes, and much else that is ostensibly non-academic), and on the other hand, the history of learning or the humanities. ‘The only thing that these two varieties of the history of knowledge have in common is that they are pointedly not about modern science—but are still implicitly defined by it’, she points out.<sup>26</sup>

For Daston, the history of knowledge seems to be a necessary reformulation of her discipline more than a promising new framework where new intellectual horizons beckon. She also stresses the many problems that remain to be solved. Her view is that the history of knowledge, as it currently stands, makes ‘a poor showing next to the most conceptually sophisticated examples of the history of science’. In addition, ‘knowledge’ as a category needs to undergo a conceptual analysis similar to what ‘science’ has undergone. Nevertheless, the history of knowledge may develop into something that more adequately describes what historians of science actually do today. In the long run, it might also provide narratives that are not based on the rise of the Western scientific standard.<sup>27</sup>

Lässig’s and Daston’s articles are two important interventions in the debate about how to frame the history of knowledge. Insightful, and

written from two very different perspectives—history and the history of science—they show that a scholar’s understanding of the history of knowledge, and its possible potentials and limitations, is partly related to his or her academic background.

Another contemporary framing of the history of knowledge, briefly mentioned by Daston, comes thanks to the renaissance in the history of the humanities seen in very recent years. This renewed interest has been inspired in part by the history of science, and aims at a more integrative history, which goes beyond the study of individual disciplines. Rens Bod and his colleagues have led the way with this new brand of scholarship: they have organized a number of conferences in recent years and published several books.<sup>28</sup> In the first issue of the journal *History of the Humanities*, launched in 2016 and with Bod as a key figure, the editors encouraged historians of the humanities to engage with the history of science, and vice versa. ‘Eventually’, they write, ‘a case could be made for uniting the history of the humanities and the history of science under the head of “history of knowledge”.’<sup>29</sup>

The history of knowledge is also the intellectual focus of an even newer periodical, *KNOW: A Journal on the Formation of Knowledge*, whose first issue was published in 2017 (it carried the article by Daston discussed here). One of the driving forces behind it is the classicist Shadi Bartsch-Zimmer, director of *KNOW*’s parent organization, the newly founded Stevanovich Institute on the Formation of Knowledge at the University of Chicago. In an introduction, she and the other editors explain the journal’s focus: ‘uncovering and explicating diverse forms of knowledge from antiquity to the present, and accounting for contemporary forms of knowledge in terms of their history, politics, and culture’. In their brief introductory remarks, they do not engage with the history of knowledge as a field, but they state that they have gathered contributors who ‘enact variously the mission of coming to know knowledge’ and whose approaches to knowledge are ‘descriptive, historical, analytic, relational, systematic, rather than normative’.<sup>30</sup>

Inspired by the trends discussed above—from the *Wissensgeschichte* of the German-speaking world to the wider scholarly conversation—we started to look more closely at the history of knowledge in 2014.<sup>31</sup> Two years later we established a Nordic network, the New History of Knowledge.<sup>32</sup> It draws its members from different historical subdisciplines,

but most of the founders have been trained as cultural historians in the broad sense. Like in many other regions of the world, cultural history has been an important historiographical current in the Nordic countries in recent decades. With its emphasis on constructions, concepts, worldviews, images, narratives, and discourses, cultural history has enriched historical writing and opened up new vistas.

Yet as we approach the 2020s, that new cultural history is not so new any more. This is as true in the Nordic countries as elsewhere.<sup>33</sup> Against this background, the history of knowledge could be seen as a response to calls in the 2010s to renew or revitalize cultural history.<sup>34</sup> We have chosen to take up the challenge by interrogating a common, though rarely theorized, concept—the circulation of knowledge.<sup>35</sup>

### The circulation of knowledge

When we began our exploration in the history of knowledge, the concept of circulation stood out as particularly interesting, if only because it directs scholarly attention towards how knowledge moves, and how it is continuously moulded in the process. In the initial stages we were inspired by the Swiss discussions about the constituencies of *Wissensgeschichte* and the historian of science James Secord's seminal article 'Knowledge in Transit', of which more below. These texts sparked our curiosity, for, despite our differing empirical interests, we all registered that an analytical focus on circulation could inform and alter our own research practices. Though we could not settle on a common understanding or definition of the concept, we became confident that it constituted a promising trajectory for developing the history of knowledge. In order to explore the concept further we conducted empirical case studies, delved into new strands of literature, and discussed our findings and theoretical considerations with one another.<sup>36</sup> Moreover, we have sought to introduce other Nordic scholars to this venture.

The present volume speaks for this growing interest among Nordic historians, and our conviction that the concept of the circulation of knowledge has the potential to transform historical research.<sup>37</sup> What we do *not* do here, however, is to offer a shared understanding of what the circulation of knowledge is. Rather, we demonstrate that

both ‘circulation’ and ‘knowledge’ can be understood, employed, and analysed in a multitude of ways and historical settings. We editors have not sought to harmonize the contributions; instead, we offer a plurality of interpretations that shed light on the differences. This volume is part of the ongoing explorations of the history of knowledge, and it seeks to spur—not to settle—scholarly discussion.

This introduction thus brings together the somewhat disjointed international discussion of knowledge movement that has inspired our own explorations. In what follows, then, we concentrate on *Wissensgeschichte* of the Swiss model and on the history of science, particularly the global history of science and the history of popular science.<sup>38</sup>

For the Swiss scholars, knowledge is essentially a communicative phenomenon, of which circulation is one constitutive feature. This is the stance in many of their key theoretical publications, spelt out most clearly in 2011 in a yearbook that has ‘Zirkulationen’ as its theme.<sup>39</sup> In their introduction, Philipp Sarasin and Andreas Kilcher discuss what characterizes the circulation of knowledge. Their take can be summed up in three points. First, the concept of circulation means that the materiality and mediality of knowledge is taken very seriously. Sarasin and Kilcher postulate that knowledge does not move freely, but is always embedded in social contexts, and rests essentially on a material basis. In their vocabulary, it is objects that circulate. Second, Sarasin and Kilcher question the traditional historical preoccupation with origins and novelty. They claim that it is impossible to identify fixed origins for various forms of knowledge; instead, all knowledge is continuously formed in cultural processes and shaped by power relations. Third, they emphasize that knowledge is not everywhere and is not equally accessible to all. They reject as idealistic the dreams of a free, unregulated circulation of knowledge, arguing that any comprehensive analysis of knowledge circulation must take the political dimension into account, along with all the inhibitions, detours, and blockages.<sup>40</sup>

The Swiss discussion, while it has its own distinguishing features, is evidently informed by contemporary tendencies in the Anglophone history of science, along with other intellectual traditions. It should be noted that this is a one-way traffic: the works of Swiss scholars, mainly written in German, are infrequently alluded to in the English-language

discussions of knowledge movement—an illustrative example of how academic knowledge circulates unevenly and on unequal terms.<sup>41</sup>

Recent developments in the history of science further demonstrate this point. The concept of circulation started to gain traction in the field in August 2004 when the American, British, and Canadian societies for the history of science held their fifth joint meeting in Halifax, Nova Scotia. The conference theme was ‘Circulating knowledge’ and the keynote address was given by James Secord. His talk was subsequently published in *Isis*, the flagship journal in the discipline of history of science. Ever since its publication, Secord’s essay has prompted both theoretical discussion and empirical inquiry—and has demonstrably circulated widely.<sup>42</sup>

Secord’s essay is written as a proposal for a new history of science, one which—in contrast to established practices—does not focus on the making of scientific knowledge. Instead, he encourages his colleagues to shift their analytical attention to knowledge in motion and new research questions such as ‘How and why does knowledge circulate? How does it cease to be the exclusive property of a single individual or group and become part of the taken for granted understanding of much wider groups of people?’<sup>43</sup>

Secord frames these questions in opposition to recent trends in the field, which put great emphasis on examining ‘science in context’. The standard method has been to conduct detailed analyses of how specific actors have produced scientific knowledge in particular local, material, and mundane settings. Secord acknowledges that this collective endeavour has succeeded in demystifying scientific activities, but argues that its proponents have paid too little attention to the wider societal importance of this scientific knowledge. He emphasizes that this larger significance is often assumed, but is rarely demonstrated empirically. To this end, he urges his fellow historians of science to examine audiences, readers, and mediations as rigorously as they situate scientific experiments and explorations.<sup>44</sup>

Secord suggests that one direction forward would be to regard all scientific activity as a form of communicative action. This theoretical underpinning, which is similar to that expressed by the Zurich school, eradicates all distinctions between the production and communication of knowledge, and so helps the historian shift empirical focus. Secord

stresses that his proposal is not original, but is rather a conventional theoretical assumption. However, he agrees that it is a position that has yet to make a mark on the way empirical investigations are carried out in practice. Secord draws attention to a tendency among historians of science to be ‘obsessed with novelty’, which results in an inclination to analyse origins, producers, and innovations at the cost of all else. Explorations of how knowledge moves after its inception are habitually given secondary status. Secord wants these processes to be explored with as much analytical precision and attention to nuance as seen in studies of laboratory work.<sup>45</sup>

In the past decade, Secord’s essay has had a very real impact on the history of science and beyond. While there is little sign of a general shift in scholarly priorities, from production to circulation, many historians of science have nevertheless become markedly more interested in how knowledge circulates. This is particularly true of two fields: the early modern global history of science and the history of popular science.

To date, the concept of circulation has made the greatest impression on global historians of science—those studying colonial and intercultural encounters during the early modern period. The keen interest in circulation over vast geographic distances was prompted by a long-standing dissatisfaction with Eurocentric accounts of the scientific revolution, which held that modern science was born in Europe in the sixteenth and seventeenth centuries, from where it spread to the rest of the world in the course of colonial expansion. This grand narrative is closely associated with classical modernization theories, and presupposes a simplistic diffusionist model by which scientific knowledge is governed by centripetal forces, spreading from the centre to the periphery because it is rational, true, and useful. It is in this historiographical setting that ‘circulation’ has become established as an increasingly fruitful alternative concept.<sup>46</sup>

Circulation has proved a popular concept among historians of Britain’s colonial past, especially from a South Asian horizon. One of the earliest theoretical arguments, often cited by other researchers in the field, was coined by Claude Markovits, Jacques Pouchepadass, and Sanjay Subrahmanyam, who stated that:

Circulation is different from simple mobility, inasmuch as it implies a double movement of going back and forth and coming back, which can be repeated indefinitely. In circulating, things, men and notions often transform themselves. Circulation is therefore a value-loaded term which implies an incremental aspect and not the simple reproduction across space of already formed structures and notions.<sup>47</sup>

This understanding of the concept renders words such as ‘diffusion’, ‘dissemination’, and ‘conveyance’ problematic, as they imply an understanding of the objects in motion as somehow fixed. Critical references are often made to Bruno Latour’s concept of ‘immutable mobiles’, which suggests that there are certain practices, devices, and systems that spread without being transformed in the process. According to Latour, it is precisely these ‘immutable mobiles’ that enable scientific networks to exist, and they provide the scientific knowledge produced within them with a universal character.<sup>48</sup>

However, for global historians of science such as Lissa Roberts and Kapil Raj it is precisely the idea of circulation as something intrinsically transformative that ought to be further theorized and explored. Roberts proposes that circulation should be used as an analytical tool to help researchers to break away from habitual focuses on certain privileged positions, such as European metropolises and learned scientific societies.<sup>49</sup> Similarly, Raj stresses that the strength of the circulation perspective is that it confers agency on all those involved in the process of circulation. This does not mean that every single historical actor involved is of equal importance, or that power is somehow evenly distributed. On the contrary, Raj points out that the concept of circulation is a useful analytical tool for studying different forms of power relations.<sup>50</sup> Roberts and Raj, just like Secord, employ the concept of circulation as an imperative—historians of science ought to analyse how knowledge really moves, or fails to move, in and between specific historical and spatial contexts.

The second field in the history of science where there has been particular interest in examining knowledge in motion is the history of popular science. Its scholars have frequently expressed their dissatisfaction with the classical, unidirectional, diffusionist model whereby scientific knowledge is first produced in a pure form and

then, in more or less distorted forms, is spread to passive consumers or users.<sup>51</sup> The merits of exploring diffusion have traditionally been considered dubious at best.<sup>52</sup> Moreover, it has not been clear how the findings from the history of popular science fit into any broader discussions, particularly when, as James Secord has pointed out, the history of science has concentrated on situating the production of scientific knowledge in local contexts.

Secord's own research has a prominent place in the history of popular science, and his study *Victorian Sensation* (2000) is often cited as an excellent example of the benefits of a study of knowledge in motion.<sup>53</sup> His study has been inspired by the history of the book, and he puts a strong emphasis on analysing publishers, markets, media forms, readers, and materialities.<sup>54</sup> Given this, his article 'Knowledge in Transit' should perhaps be read as a plea for the integration of this type of methodology into the history of science.

Secord's theories have been welcomed by other historians of popular science. What they have particularly embraced is his proposition that all scientific activity should be seen as a form of communication, ignoring the traditional boundaries between production and distribution.<sup>55</sup> What is conspicuously absent from current thinking on the history of popular science, however, is the concept of circulation per se. It is rarely touched on, whether in empirical investigations or theoretical discussions. The relative silence does not mean that there is a shortage of material, however: many contemporary studies of the history of popular science are devoted to the transformation of knowledge as it moves between different social strata, media, and environments.

One especially informative contribution has been made by Andreas Daum. His argument is that various forms of popular science should be understood as 'specific variations of a much larger phenomenon—that is, as transformations of public knowledge across time, space, and cultures.'<sup>56</sup> The key concept in Daum's account is 'public knowledge', and he proposes that historians should direct their attention to the question of what was considered legitimate knowledge in the past. If they were to do so, they would more distinctly articulate the relevance of public knowledge to the history of science as a whole.<sup>57</sup> Jonathan Topham voices similar opinions, with a nod to Secord, when he positions public knowledge as part

of a broader economy of knowledge in transit.<sup>58</sup> Daum's hope is that there will be a change of focus 'from science to knowledge', as he puts it. He briefly mentions the history of knowledge, although without defining it or giving any references.<sup>59</sup>

Turning to the present volume, we have chosen to highlight Daum's concept of public knowledge in the first of its three parts, 'The public circulation of knowledge', with contributions that employ the concept of circulation to study knowledge movement in society at large. The second part, 'The conditions of circulation', explores the importance of lifeworlds, conflicts, blockages, and translations for the circulation of knowledge. In the third part, 'Objects and sites of knowledge', it is the material aspects of circulation that are addressed.

## The public circulation of knowledge

The first group of essays explores how various forms of knowledge moved within and between public spheres. Central here is the social reach of knowledge, the mediums and arenas in which public knowledge moves, and the important role—and often contested nature—of public expertise. The first three essays (Hollsten, Nordberg, and Larsson Heidenblad) thus examine how three different forms of knowledge circulated in the mass media landscapes of the post-war period, while the fourth (Bodensten) employs the concept in a study of political debate in the eighteenth century.

Laura Hollsten analyses how knowledge of the health hazards of high levels of cholesterol circulated in Finnish society from the 1970s to the 2010s. Her study makes evident that this circulation was affected by commercial, political, and scientific interests. She finds that the knowledge also had a distinctly private character, as it concerned individuals' bodily experiences. Recently, health bloggers have been notably sceptical of the consensus view shared by physicians, scientists, and government officials. Hollsten's essay demonstrates how worthwhile it is to shift focus from the scientific production of knowledge to the processes of circulation.

Kari H. Nordberg studies the sexologists Inge and Sten Hegeler, who became media celebrities in Scandinavia in the 1960s. The Hegelers communicated sexual knowledge in books, films, and

newspaper columns, while also publicly performing the desirable outcome of this knowledge as the happily married heterosexual couple sharing joyful experiences. Nordberg, like Hollsten, points to the importance of analysing the commercial aspects of the knowledge in circulation. The wide circulation which the Hegelers achieved did not necessarily mean that the content of the knowledge was altered, however, for as Nordberg demonstrates, sexual knowledge remained remarkably stable.

In David Larsson Heidenblad's view, historians of knowledge could make an important contribution to historical research by developing new methods for analysing influential books. He argues in his essay that their influence must not be taken for granted, but instead should be subject to scrutiny. By examining where, when, and how these publications were mentioned and discussed in public, it is possible to write a history of the books' circulation—a history which does not depend on the traditional method of close readings and interpreting a book's content. The main empirical example in Larsson Heidenblad's text is the heated debate in early seventies' Sweden about the future, which demonstrates that what circulated as public knowledge in January could be regarded as personal opinion by March.

Erik Bodensten's contribution is the only one in the first part of the volume to treat the early modern period. He examines what happened when French subsidies paid to the Swedish government became public knowledge in the late 1760s. While these monetary arrangements were not new, they had not previously been openly discussed in political debate. Bodensten shows that in a short period of time a plethora of political publications were printed, and that this altered the political knowledge of the day—evidently the public circulation of knowledge is not just the preserve of historians of the modern era.

### The conditions of circulation

The essays in the second part of the volume address the general conditions for knowledge in circulation. In order to develop the concept of circulation further, the importance of such factors as everyday life, blockages, conflicts, and translations are considered. The first contribution (Nilsson Hammar) concerns the theory of circulation, while

the three others (Ahlbäck, Hammar, and Brilkman) operationalize their theoretical choices with empirical studies.

Anna Nilsson Hammar discusses how historians of knowledge could benefit from incorporating and developing the Aristotelian tripartite division of knowing as *theoria*, *praxis*, and *poiesis*. She proposes that this distinction is a valuable analytical tool, especially when conducting a circulation analysis that centres on knowledge in everyday life. Nilsson Hammar stresses that historians of knowledge have thus far focused on the production and circulation of scientific or rational knowledge (*theoria*) while paying less attention to other forms of knowledge (*praxis* and *poiesis*) and to the relationship between them. Her essay demonstrates the importance of analysing the circulation between different forms of knowledge in everyday life.

Anders Ahlbäck employs the concept of circulation in order to demonstrate how certain forms of knowledge can be hindered and counteracted. His empirical focus is the multifaceted local resistance at Åbo Akademi University to academic knowledge about teaching and learning in higher education. Ever since the 1960s there have been attempts to intensify the circulation and practical implementation of such pedagogic knowledge, but as Ahlbäck's study shows these attempts were for many decades largely unsuccessful. His study shows that the non-circulation of knowledge, and not least the strategies employed by actors to block the circulation of knowledge, is an intriguing topic.

Isak Hammar establishes in his essay that the interplay of conflict and consensus is a fruitful way to study the public circulation of knowledge. His empirical example is the intense Swedish education debate in the early nineteenth century, which revolved around the contested value of classical and modern education. Hammar uses the concept of circulation to analyse value claims rather than truth claims, but shows that antagonistic debates about values could also serve to circulate consensual knowledge. He finds that the didactic ideal of formal education was of fundamental importance to all debaters, underscoring that a public dispute over knowledge can also build rather than undermine consensus.

Kajsa Brilkman discusses the relationship between translation and the circulation of knowledge in early modern theological literature. She

argues that the concept of circulation can aid a better understanding of these multilingual processes, but that the concept has to be finely adjusted to the historical context under scrutiny. Brillman draws attention to many of the particularities of early modern print culture, for example the way in which texts were repeatedly recontextualized when they were adapted to new political and cultural contexts, and she elucidates how key concepts such as ‘translation’, ‘society’, and ‘authorship’ meant something quite different in the sixteenth century than they do today.

### Objects and sites of knowledge

The essays of the third and final part of the volume explore how various forms of objects have circulated in and between texts, images, epistemologies, and physical locations. Central to this section are the materialities of knowledge, visual representations, and non-human actors. The first three essays (Sandmo, Ruud, and Holmberg) explore different objects of knowledge in an early modern context, while the fourth (Jordheim) complicates the discussion by proposing that books and other printed media should not only be understood as formative vehicles of knowledge, but also as sites where knowledge circulates.

Erling Sandmo examines the movements of two objects of knowledge—the sea-pig and the walrus—which appeared in the magisterial works of the Swedish theologian and natural historian Olaus Magnus. By analysing visual representations and textual descriptions, Sandmo outlines the epistemological borders between the monstrous and the non-monstrous in the fifteenth to seventeenth centuries. This was a time when the two objects in question circulated in various media and contexts, whereby their meaning continually altered. Sandmo’s circulation analysis sheds light on how objects of knowledge can cross epistemological boundaries, hence gaining—or losing—meaning.

Camilla Ruud’s contribution is informed by actor–network theory where objects are seen as analytical sites for the circulation of knowledge. She considers materiality to be a relational effect that does not exist in and of itself, but is made through relations to other actors in a network. Ruud’s empirical focus is a gigantic fossil found

in South America in the late eighteenth century and put on display in a museum in Madrid. Ruud examines the making of this object of knowledge in an account written by a Danish naturalist who visited the museum in the 1790s. Her study charts the interplay of enactments and translations, which made the fossil into an object of knowledge, circulated widely in natural historical communities.

Susann Holmberg explores how the idea that guaiacum was a possible cure for pox circulated in the early modern period. She compares the introduction of guaiacum in the sixteenth century with efforts to reintroduce it in the eighteenth century. Her analysis centres on the arguments made for its effectiveness, proving that the meaning of guaiacum was continuously transformed and adapted to local circumstances. Holmberg highlights the importance in the early modern era of establishing origins—both of epidemics and cures—and emphasizes that medical knowledge and medical authority were intrinsically linked and co-produced in the process of circulation.

Helge Jordheim looks at the learned print culture of seventeenth- and eighteenth-century Europe, proposing that printed works of this kind should be understood less as vehicles or carriers of knowledge, but rather as sites where various forms of knowledge circulated. His empirical example, Bernard de Fontenelle's *Entretiens sur la pluralité des mondes*, was first published in 1686 and went on to become one of the bestsellers of the age. Jordheim considers how different forms of knowledge circulated in Fontenelle's work and examines how subsequent translations, prefaces, and footnotes played an active part in this creative process. He finds that the genre of the dialogue—which involves a plurality of voices within a work—fostered this multifaceted and organic circulation of knowledge, which was so characteristic of the early modern republic of letters.

All in all, the twelve essays display the potential of circulation as an analytical concept in the history of knowledge. As a tool, it is not only applicable in investigations of wildly differing themes, epochs, and geographical areas, but it can open up new perspectives in studies that stem from very diverse theoretical and scholarly traditions. At the same time, precise understandings of circulation vary, as do the definitions of knowledge. In a rich and multidimensional discipline like history this is not surprising and is perhaps inevitable. Yet systematic

explorations in the history of knowledge are of fairly recent date, and some approaches may very well prove to be more fruitful than others. The conversation continues.<sup>60</sup>

## Notes

- 1 See, for example, Peter Burke, *What is the History of Knowledge?* (Cambridge: Polity, 2016); Johan Östling, 'Vad är kunskapshistoria?', *Historisk tidskrift* 135/1 (2015); Christian Jacob (ed.), *Lieux de savoir: Espaces et communautés* (Paris: Albin Michel, 2007); and id. (ed.), *Lieux de savoir: Les mains de l'intellect* (Paris: Albin Michel, 2010).
- 2 This draws on the arguments in Johan Östling & David Larsson Heidenblad, 'From Cultural History to the History of Knowledge', *History of Knowledge*, 8 June 2017, <https://historyofknowledge.net/2017/06/08/from-cultural-history-to-the-history-of-knowledge/>. See also Sverker Sörlin & Graeme Wynn, 'Fire and Ice in the Academy: The Rise of the Integrative Humanities', *Literary Review of Canada* 7 (2016).
- 3 See, for example, Ludwik Fleck, *Entstehung und Entwicklung einer wissenschaftlichen Tatsache: Einführung in die Lehre vom Denkstil und Denkkollektiv* (Basel: Schwabe, 1935); Robert K. Merton, 'Science, Technology and Society in Seventeenth Century England', *Osiris* 4 (1938); Edmund Husserl, *Die Krisis der europäischen Wissenschaft und die transzendente Phänomenologie* (The Hague: M. Nijhoff, 1954); Alexandre Koyré, *From the Closed World to the Infinite Universe* (Baltimore: Johns Hopkins, 1957); Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962); Michel Foucault, *Histoire de la folie à l'âge classique, folie et déraison* (Paris: Plon, 1961); id., *Les mots et les choses: Une archéologie des sciences humaines* (Paris: Gallimard, 1966); id., *L'archéologie du savoir* (Paris: Gallimard, 1969); Donna Haraway, 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies* 14/3 (1988). The reception of many of these texts has a complicated history, including republications and translations. For general overviews of the historiography of the history of science, see Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Chicago: University of Chicago Press, 2005); Kostas Gavroglou & Jürgen Renn (eds.), *Positioning the History of Science* (Dordrecht: Springer, 2007); and Lorraine Daston, 'Science, History of', in *International Encyclopedia of the Social and Behavioral Sciences*, ed. James D. Wright (Oxford: Elsevier, 2015), xxi. 241–47.
- 4 Burke, *What is the History of Knowledge?* 7–14.
- 5 See, for example, Foucault, *Les mots et les choses*; Foucault, *L'archéologie du savoir*; Pierre Bourdieu, *Homo academicus* (Paris: Éd. de Minuit, 1984); Clifford Geertz, *Local Knowledge: Further Essays in Interpretive Anthropology* (New York: Basic Books, 1983); Michel de Certeau, *L'écriture de l'histoire* (Paris: Gallimard, 1975); Roger Chartier, *Les usages de l'imprimé: XVe–XIXe siècle* (Paris: Fayard, 1987); Robert Darnton, *The Literary Underground of the Old Regime* (Cambridge, Mass.: HUP, 1982); Carlo Ginzburg, *Storia notturna: Una decifrazione del sabba* (Turin:

- Giulio Einaudi, 1989); Natalie Zemon Davis, *Trickster Travels: A Sixteenth-Century Muslim Between Worlds* (New York: Hill & Wang, 2006).
- 6 Richard D. Brown, *Knowledge is Power: The Diffusion of Information in Early America, 1700–1865* (New York: OUP, 1989); Fritz Ringer, *Fields of Knowledge: French Academic Culture in Comparative Perspective, 1890–1920* (Cambridge: CUP, 1992); Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India* (Princeton: PUP, 1996); see also Burke, *What is the History of Knowledge?* 2.
  - 7 Ulrich Johannes Schneider, ‘Wissensgeschichte, nicht Wissenschaftsgeschichte’, in Axel Honneth & Martin Saar (eds.), *Michel Foucault: Zwischenbilanz einer Rezeption* (Frankfurt am Main: Suhrkamp, 2003); Jakob Vogel, ‘Von der Wissenschafts- zur Wissensgeschichte der “Wissensgesellschaft”’, *Geschichte und Gesellschaft* 30 (2004); Philipp Sarasin, ‘Was ist Wissensgeschichte?’, *Internationales Archiv für Sozialgeschichte der deutschen Literatur (IASL)* 36 (2011); Daniel Speich Chassé & David Gugerli, ‘Wissensgeschichte: Eine Standortbestimmung’, *Traverse: Zeitschrift für Geschichte* 1 (2012); Jürgen Renn, ‘From the History of Science to the History of Knowledge—and Back’, *Centaurus: An International Journal of the History of Science & its Cultural Aspects* 57 (2015); Daniel Speich Chassé, ‘The History of Knowledge: Limits and Potentials of a New Approach’, *History of Knowledge*, 3 April 2017, <https://historyofknowledge.net/2017/04/03/the-history-of-knowledge-limits-and-potentials-of-a-new-approach/>.
  - 8 Sarasin, ‘Was ist Wissensgeschichte?’, 159–165.
  - 9 Ibid. 166.
  - 10 Ibid. 165.
  - 11 Ibid. 167–71.
  - 12 Ibid. 165.
  - 13 Speich Chassé & Gugerli, ‘Wissensgeschichte’; Speich Chassé, ‘The History of Knowledge’.
  - 14 See, for example, Harald Fischer-Tiné, *Pidgin-Knowledge: Wissen und Kolonialismus* (Zurich: Diaphanes, 2013); Daniel Speich Chassé, *Die Erfindung des Bruttosozialprodukts: Globale Ungleichheit in der Wissensgeschichte der Ökonomie* (Göttingen: Vandenhoeck & Ruprecht, 2013); Kijan Espahangizi & Barbara Orland (eds.), *Stoffe in Bewegung: Beiträge zu einer Wissensgeschichte der materiellen Welt* (Zurich: Diaphanes, 2014); Monika Dommann, *Autoren und Apparate: Die Geschichte des Copyrights im Medienwandel* (Frankfurt am Main: S. Fischer, 2014); Michael Hagner, *Zur Sache des Buches* (Göttingen: Wallstein, 2015); Alban Frei & Hannes Mangold (eds.), *Das Personal der Postmoderne: Inventur einer Epoche* (Bielefeld: Transcript, 2015); Tobias Scheidegger, ‘Petite Science’: *Ausseruniversitäre Naturforschung in der Schweiz um 1900* (Göttingen: Wallstein Verlag, 2017). In addition, the centre’s yearbook, *Nach Feierabend*, has since 2005 developed into a creative forum for explorations of both traditional and original topics in the history of knowledge, including Darwin, health, the university, and non-knowledge.
  - 15 Peter Burke, *A Social History of Knowledge: From Gutenberg to Diderot* (Cambridge: Polity, 2000); id., *A Social History of Knowledge: From the Encyclopédie to Wikipedia* (Cambridge: Polity, 2012); see also id., *What is the History of Knowledge?*; and id., *Exiles and Expatriates in the History of Knowledge, 1500–2000* (Waltham: Brandeis University Press, 2017).

- 16 Burke, *A Social History of Knowledge: From the Encyclopédie*, 7.
- 17 Burke, *What is the History of Knowledge?*, 7.
- 18 In late 2016, the German Historical Institute in Washington DC launched a blog devoted to the history of knowledge. In its first year of existence, a number of texts have been posted on general as well as specific issues, written by both historians at GHI and other scholars (<https://historyofknowledge.net>).
- 19 Simone Lässig, 'The History of Knowledge and the Expansion of the Historical Research Agenda', *Bulletin of the German Historical Institute* 59 (2016): 32.
- 20 Ibid. 33–8.
- 21 Ibid. 38.
- 22 Ibid. 44.
- 23 Ibid. 58. An answer to this call for a broader scope is 'Knowledge and Migration', a special issue of *Geschichte und Gesellschaft* 43/3 (2017), edited by Simone Lässig & Swen Steinberg.
- 24 Lorraine Daston, 'The History of Science and the History of Knowledge', *KNOW: A Journal on the Formation of Knowledge* 1/1 (2017): 134–42.
- 25 Ibid. 142–3.
- 26 Ibid. 143–4.
- 27 Ibid. 145.
- 28 Rens Bod, *A New History of the Humanities: The Search for Principles and Patterns from Antiquity to the Present* (Oxford: OUP, 2013); Rens Bod, Jaap Maat & Thijs Weststeijn (eds.), *The Making of the Humanities*, iii: *The Modern Humanities* (Amsterdam: AUP, 2014); Rens Bod & Julia Kursell, 'The History of the Humanities and the History of Science', *Isis* 106/2 (2015).
- 29 Rens Bod et al., 'A New Field: History of Humanities', *History of Humanities* 1/1 (2016): 6; see also John Pickstone, 'Toward a History of Western Knowledges: Sketching Together the Histories of the Humanities and the Natural Sciences', in Bod et al., *The Making of the Humanities*, iii. 667–85.
- 30 Shadi Bartsch et al., 'Editors' Introduction', *KNOW: A Journal on the Formation of Knowledge* 1/1 (2017), 1 & 6.
- 31 Our publications so far include Östling, 'Vad är kunskapshistoria?'; David Larsson Heidenblad, 'Framtidskunskap i cirkulation: Gösta Ehrensvärds diagnos och den svenska framtidsdebatten 1971–1972', *Historisk tidskrift* 135/4 (2015); id., 'Ett ekologiskt genombrott? Rolf Edbergs bok och det globala krismedvetandet i Skandinavien 1966', *Historisk tidskrift* 95/2 (2016); Johan Östling, *Humboldts universitet: Bildning och vetenskap i det moderna Tyskland* (Stockholm, 2016); id., 'Publiken: Fråga Lund och folkbildningen', in Gunnar Broberg & David Dunér (eds.), *Beredd till bådadera: Lunds universitet och omvärlden* (Lund: Lund University, 2017); Johan Östling & David Larsson Heidenblad, 'Cirkulation—Ett kunskapshistoriskt nyckelbegrepp', *Historisk tidskrift* 137/2 (2017); David Larsson Heidenblad, 'Mapping a New History of the Ecological Turn: The Circulation of Environmental Knowledge in Sweden 1967', *Environment and History* (in press).
- 32 'New History of Knowledge', <https://newhistoryofknowledge.com>.
- 33 This argument was first developed in Östling & Larsson Heidenblad, 'From Cultural History'.

- 34 James W. Cook, Lawrence B. Glickman & Michael O'Malley (eds.), *The Cultural Turn in US History: Past, Present, and Future* (Chicago: University of Chicago Press, 2009); Sasha Roseneil & Stephen Frosh (eds.), *Social Research after the Cultural Turn* (New York: Palgrave Macmillan, 2012); and a number of contributions to 'AHR Forum: Historiographic "Turns" in Critical Perspective', *American Historical Review* 117/3 (2012).
- 35 Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900* (Basingstoke: Palgrave Macmillan, 2007); also id., 'Networks of Knowledge, or Spaces of Circulation? The Birth of British Cartography in Colonial South Asia in the Late Eighteenth Century', *Global Intellectual History* 2/1 (2017).
- 36 It should be noted that the concept of circulation has also gained traction in the theory of neighbouring disciplines, including sociology and media studies. See, for example, Pierre Bourdieu, 'Les conditions sociales de la circulation internationale des idées', *Actes de la recherche en sciences sociales* 145/1 (2002); Johanna Sumiala, 'Circulation', in David Morgan (ed.), *Keywords in Religion, Media, and Culture* (London: Routledge, 2008), 44–55; Wiebke Keim, 'Conceptualizing Circulation of Knowledge in the Social Sciences', in Wiebke Keim, Ercüment Çelik, Christian Ersche & Veronika Wöhrer (eds.), *Global Knowledge in the Social Sciences: Made in Circulation* (Farnham: Ashgate, 2014), 87–113; Katja Valaskivi & Johanna Sumiala, 'Circulating Social Imaginaries: Theoretical and Methodological Reflections', *European Journal of Cultural Studies* 17/3 (2014): 229–43.
- 37 This has also recently been pointed out by Sverker Sörlin in his interesting afterword to a new edited volume. Sverker Sörlin, 'Användning och cirkulation: Kunskaps-historiska reflektioner om naturbruk och textkultur', in Merethe Roos & Johan Tønnesson (eds.), *Sann opplysning? Naturvitenskap i nordiske offentligheter gjennom fire århundrer* (Oslo: Cappelen Damm Akademisk, 2017).
- 38 This overview draws on Östling & Larsson Heidenblad, 'Cirkulation'. Of course, the fields discussed are not a complete list of historical studies that have engaged with the circulation of knowledge. See, for example, the interesting discussion among economic historians on the transmission of artisanal skills and knowledge in the early modern period: Joel Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Princeton: PUP, 2002); Prasannan Parthasarathi, *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence 1600–1850* (Cambridge: CUP, 2011); Pamela Smith, Amy R. W. Meyers & Harold J. Cock (eds.), *Ways of Making and Knowing: The Material Culture of Empirical Knowledge* (Ann Arbor: University of Michigan Press, 2014); Peter M. Jones, *Agricultural Enlightenment: Knowledge, Technology, and Nature, 1750–1850* (Oxford: OUP, 2015). See, moreover, the emerging field of global intellectual history: Donald R. Kelley, 'Intellectual History in A Global Age', *Journal of the History of Ideas* 66/2 (2005); 'An Intellectual History for India', *Modern Intellectual History* 4/1 (2007); Samuel Moyn & Andrew Sartori (eds.), *Global Intellectual History* (New York: Columbia University Press, 2013); Darrin M. McMahon & Samuel Moyn (eds.), *Rethinking Modern European Intellectual History* (Oxford: OUP, 2014); Heike Jöns, Peter Meusburger & Michael Heffernan (eds.), *Mobilities of Knowledge* [ebook edn] (Springer International, 2017); Knud Haakonssen & Richard

- Whatmore, 'Global Possibilities in Intellectual History: A Note on Practice', *Global Intellectual History* (2017), <http://dx.doi.org/10.1080/23801883.2017.1370248>. See also Stefanie Gänger, 'Circulation: Reflections on Circularity, Entity, and Liquidity in the Language of Global History', *Journal of Global History* 12/3 (2017).
- 39 Nach Feierabend: Zürcher Jahrbuch für Wissensgeschichte 7 (2011); Sarasin, 'Was ist Wissensgeschichte?'
- 40 Philipp Sarasin & Anderas Kilcher, 'Editorial', *Nach Feierabend: Zürcher Jahrbuch für Wissensgeschichte* 7 (2011), 9–10.
- 41 Sarasin, 'Was ist Wissensgeschichte?', 159–72; Speich Chassé & Gugerli, 'Wissensgeschichte', 85–100; Östling, 'Vad är kunskapshistoria?'
- 42 James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004).
- 43 Ibid. 655.
- 44 Ibid. 657–9.
- 45 Ibid. 660–4.
- 46 Simon Schaffer, Lissa Roberts & Kapil Raj (eds.), *The Brokered World: Go-Betweens and Global Intelligence, 1770–1850* (Sagamore Beach: Science History, 2009); Mary Terral & Kapil Raj, 'Introduction: Circulation and Locality in Early Modern Science', *British Journal for the History of Science* 43/4 (2010); Fischer-Tiné, *Pidgin-Knowledge*; Bernard Lightman, Gordon McOuat & Larry Stewart (eds.), *The Circulation of Knowledge between Britain, India, and China: The Early-Modern World to the Twentieth Century* (Leiden: Brill, 2013); Londa Schiebinger, *Secret Cures of Slaves: People, Plant, and Medicine in the Eighteenth-Century Atlantic World* (Stanford: Stanford University Press, 2017).
- 47 Claude Markovits, Jacques Pouchepadass & Sanjay Subrahmanyam (eds.), *Society and Circulation: Mobile People and Itinerant Cultures in South Asia, 1750–1950* (London: Anthem, 2006), 2–3.
- 48 Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, Mass.: HUP, 1987).
- 49 Lissa Roberts, 'Situating Science in Global History: Local Exchanges and Networks of Circulation', *Itinerario* 33/1 (2009): 18.
- 50 Kapil Raj, 'Beyond Postcolonialism...and Postpositivism: Circulation and the Global History of Science', *Isis* 104/2 (2013): 343.
- 51 Roger Cooter & Stephen Pumfrey, 'Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture', *History of Science* 32/3 (1994): 237–67; Jonathan R. Topham, 'Beyond the "Common Context": The Production and Reading of the Bridgewater Treatises', *Isis* 89/2 (1998): 233–62; Jonathan R. Topham, 'Scientific Publishing and the Reading of Science in Nineteenth-Century Britain: A Historiographical Survey and Guide to Sources', *Studies in the History & Philosophy of Science* 31/4 (2000): 559–612; Secord, 'Knowledge in Transit'; Peter Broks, *Understanding Popular Science* (Maidenhead: Open University Press, 2006); Jonathan R. Topham, 'Rethinking the History of Science Popularization/Popular Science', in Faidra Papanelopoulou, Agustí Nieto-Galan & Enrique Perdiguerro (eds.), *Popularizing Science and Technology in the European Periphery, 1800–2000* (Farnham: Ashgate, 2009), 1–20; Bernadette Bensaude-Vincent, 'A Historical Perspective on Science and Its "Others"', *Isis* 100/2 (2009): 359–68; Agustí

- Nieto-Galan, *Science in the Public Sphere: A History of Lay Knowledge and Expertise*, trans. Fiona Kelso (Abingdon: Routledge, 2016).
- 52 Nicholas Jardine, James Secord & Emma Spary, *Cultures of Natural History* (Cambridge: CUP, 1996); Andreas Daum, *Wissenschaftspopularisierung im 19. Jahrhundert: Bürgerliche Kultur, naturwissenschaftliche Bildung und die deutsche Öffentlichkeit, 1848–1914* (Munich: Oldenbourg, 2002); Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2007); Marcel C. LaFollette, *Science on the Air: Popularizers and Personalities on Radio and Early Television* (Chicago: University of Chicago Press, 2008).
- 53 James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago: University of Chicago Press, 2000); Jonathan R. Topham, 'Introduction: Historicizing Popular Science', *Isis* 100/2 (2009): 310–318.
- 54 Robert Darnton, *Literary Underground of the Old Regime* (Cambridge: HUP, 1982); Roger Chartier, 'Texts, Prints, Readings', in Lynn Hunt (ed.), *The New Cultural History* (Berkeley & Los Angeles: University of California Press, 1989); Roger Chartier, *Ordre des livres: Lecteurs, auteurs, bibliothèques en Europe entre XIVE et XVIIIe siècle* (Aix-en-Provence: Alinea, 1994); Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: University of Chicago Press, 1998); Robert Darnton, 'An Early Modern Information Society: News and the Media in Eighteenth-Century Paris', *American Historical Review* 105/1 (2000): 1–35.
- 55 Topham, 'Rethinking the History of Science.'
- 56 Andreas Daum, 'Varieties of Popular Science and the Transformations of Public Knowledge', *Isis* 100/2 (2009): 320.
- 57 Ibid.
- 58 Topham, 'Introduction', 312.
- 59 Daum, 'Varieties of Popular Science', 325.
- 60 This introduction was primarily written by Johan Östling and David Larsson Heidenblad, whose research was financed by the Crafoord Foundation and Riksbankens Jubileumsfond; however, it draws on all five editors' joint discussions and collaborative work over the last years.