CIRCULATION OF KNOWLEDGE

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In recent years, we have benefitted enormously from discussions with scholars whom we have met at conferences and seminars in Lund, Volda, Sundsvall, Uppsala, Stockholm, Ålborg, and elsewhere. Some of them have enriched our understanding of what the circulation of knowledge might mean; others have shown a more general interest in our endeavour to explore the history of knowledge.

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Lund and Oslo
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Circulation of Knowledge

Explorations in the History of Knowledge

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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*.[1]

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.[2]

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.[3] 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.[4]

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.[5] Beginning in the late 1980s, moreover, 'knowledge' appeared in a number of book titles, signalling the growing interest.[6]

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.[7]

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.[8]

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.[9]

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.[10]

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.[11] 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).[12]

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.[13] 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.[14]

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.[15] 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'.[16]

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'.[17]

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.[18] 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.[19]

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.[20] 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.[21]

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'.[22]

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.'[23]

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.[24]

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?[25]

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.[26]

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.[27]

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.[28] 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"'.[29]

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'.[30]

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.[31] Two years later we established a Nordic network, the New History of Knowledge.[32] 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.[33] Against this background, the history of knowledge could be seen as a response to calls in the 2010s to renew or revitalize cultural history.[34] We have chosen to take up the challenge by interrogating a common, though rarely theorized, concept—the circulation of knowledge.[35]

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.[36] 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.[37] 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.[38]

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.[39] 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.[40]

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.[41]

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.[42]

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?'[43]

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.[44]

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.[45]

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.[46]

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.[47]

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.[48]

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 metropoles and learned scientific societies.[49] 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.[50] 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.[51] The merits of exploring diffusion have traditionally been considered dubious at best.[52] 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.[53] 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.[54] 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.[55] 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.'[56] 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.[57] 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.[58] 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.[59]

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. Brilkman 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.[60]

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 transzendentale 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 Behavorial 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: Vandenhock & 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 tidsskrift* 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: Kunskapshistoriska 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 Perdiguero (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, *L'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.

I

PUBLIC CIRCULATION OF KNOWLEDGE

CHAPTER 1

Public, private, and experience-based knowledge

Cholesterol knowledge in circulation in Finnish society, 1970–2010

Laura Hollsten

Public health concerns are an important driving force in producing new knowledge about the human body. The scientific paradigms of the day and socioeconomic conditions have always influenced the ways in which this knowledge has been created, distributed, and received. It is because of its bearing on public health that knowledge about cholesterol has been of great societal and economic significance in the late twentieth century. Knowledge of this substance, produced by the human body, has also been of deeply personal interest for individuals concerned about their health.

Knowledge of cholesterol has circulated in the media since the Seven Countries Study, which investigated coronary heart disease and stroke in seven countries in 1956–1970.[1] The cornerstone of this knowledge has been the lipid hypothesis, which links high cholesterol levels with cardiovascular diseases, and is widely accepted within the medical community. The lipid hypothesis has become the governing paradigm in explaining cardiovascular disease, to the extent that researchers refer to it as the lipid consensus.

This essay investigates the circulation of knowledge about cholesterol in Finnish society by analysing a variety of sources such as scientific articles, newspaper articles, public debates, and blog posts. The objective is not to give an account of the cholesterol debate, but rather to chart the patterns of the circulation of knowledge. Thus the primary sources

have been selected to cast light on the various strands of knowledge in circulation. The so-called fat debate in the largest newspaper in Finland, *Helsingin Sanomat*, has recently been studied by Jallinoja et al.;[2] however, in this article more attention has been paid to the largest Swedish-language newspaper in Finland, *Hufvudstadsbladet*, with a readership of about 100,000. This concentration on the Swedish-language press reflects the fact that one of the most vocal opponents of the lipid hypothesis, the Danish physician Uffe Ravnskov, is based in Sweden and participated in the *Hufvudstadsbladet* debate. The source material also includes health blogs posted before 2010, the year when a programme on Finnish national television questioned the lipid consensus, sparking a long and lively debate that continues today.

Previous social science research on the cholesterol debate has concentrated on discourses, scientific controversies, and the social construction of competence, while the question of cholesterol has been investigated to an extent by medical historians.[3] However, neither the cholesterol debate nor the knowledge transfer about cholesterol has been studied in terms of knowledge circulation.[4] From a historical perspective, it is interesting to study this circulation in the run-up to the Finnish debate.[5] It is shown here how public, private, and experience-based knowledge became intertwined, with knowledge generated and transformed while circulating between different actors and media. Finland is a useful case study because of the almost total dominance there of the lipid hypothesis as the ruling paradigm for explaining heart disease, and because of the high rates of coronary heart disease, as identified by the Seven Countries Study. Indeed, according to the World Health Organization (WHO), men in eastern Finland held the world record for heart disease in 1975.[6]

This essay argues that the concept of circulation enhances our understanding of how knowledge of cholesterol was produced, distributed, and received. In addition, it shows how such knowledge was shaped by the various types of media that carried it, and especially people's knowledge of the new products developed to lower cholesterol. The study is informed by Anders Daum's view that popular science is a 'changing set of processes, practices, and actors that generate and transform public knowledge across time, space, and cultures'.[7] This perspective allows for a view of knowledge which is not limited to the

realm of science, but embraces the multiple forms of public knowledge in circulation. What is more, it takes into account that public knowledge is formed not only by scientific research and official recommendations based on science, but also by individuals who through their articulated experiences contribute to the growing body of public knowledge. [8]

Other key concepts are experience-based knowledge and private knowledge. Private knowledge is 'what one knows, one thinks and what one believes to be true'.[9] It is knowledge based on experience, but also includes elements that are shared in a culture, in addition to containing other more individualistic elements.[10] When it comes to health, private knowledge—consisting of theories, beliefs, personal experience, observations, interpretations, and a hierarchy of acceptance from various sources—is a useful concept. While public knowledge about health tends to be universalist and based on comprehensive population-based trials, private knowledge is more particularistic and individualistic. The two are brought together and intertwined in the course of knowledge transfers or circulations between the public and the private. The concept of circulation hence enables us to investigate how knowledge of cholesterol was created in research projects, and how it was recreated as it moved, often across national boundaries, communicated by experts and scientific journals to primary healthcare, consumers, and the popular debate, via national recommendations, popular science, and the social media.

Cholesterol knowledge in the making

In 1758, the French physician François Poulletier de la Salle was the first to isolate cholesterol, and found it to consist of a waxy, fat-like substance located in all cells of the body. The early knowledge of cholesterol was characterized by circulation within the scientific sphere—while transcending national borders, it was limited as far as we know to the scientific community.[11] The first scientist to establish a link between cholesterol and cardiovascular disease was the Russian pathologist Alexander I. Ignatowski (1875–1955), who in 1907 conducted an experiment where he fed rabbits full-fat milk, eggs, and meat.[12] Ignatowski's results caught the eye of Nikolaevich Anichkov, who proceeded to conduct an experiment where he fed rabbits purified

cholesterol.[13] In 1912 he defended his doctoral thesis on 'Inflammatory changes in myocardium: apropos of myocarditis'.[14] However, Anichkov's results did not lead to further interest in the role of cholesterol in cardiovascular disease in humans, since rabbits are herbivores. At the time, atherosclerosis was understood to be the result of senescence rather than high cholesterol levels. Forty years later, Anichkov's results were revisited by a scientist at the University of California at Berkeley, John Gofman, who eventually found a correlation between heart attacks and elevated levels of blood cholesterol in the early 1950s. Finally, in 1953, a hypothesis about the epidemiological connection between blood cholesterol and coronary atherosclerosis was presented by Ancel Keys. A physiologist at the University of Minnesota, Keys launched the Seven Countries Study, designed to establish whether the occurrence of heart attacks in 15,000 middle-aged men over a ten-year period was linearly proportional to their blood levels of cholesterol.[15]

The seven countries that participated in the study were the US, Japan, Italy, Greece, the Netherlands, Finland, and Yugoslavia. It received much publicity and led to a number of well-known publications such as Keys' *How to eat and stay well* (1959) with Margaret Keys, *Coronary heart disease in seven countries* (1970) and *How to eat well and stay well: The Mediterranean way* (1975). There appeared to be strong indications that saturated fats increased the risk of cardiovascular disease. At this point, cholesterol entered the public sphere in the industrialized countries. In 1969, a spokesperson for the American Heart Association stated that heart disease, previously understood to be the inevitable accompaniment to old age, could be prevented by reducing cholesterol.[16] Although many cardiologists still criticized the cholesterol theory, it gradually began to gain attention. In a historical perspective however, starting with Anichkov's findings in 1913, the acceptance of the lipid hypothesis was a long uphill battle.[17]

Finland and the lipid hypothesis

Finland was one of the countries included in the Seven Countries Study; the Finnish part of the study was initiated in North Karelia in eastern Finland in 1956. North Karelia is a rural area where the men had the highest international occurrence of mortality from cardiovascular

disease.[18] Another early trial was the Finnish Mental Hospital Study in 1968, conducted by a research group led by Osmo Turpeinen, and inspired by Keys' ideas and the Seven Countries Study.[19]

Because of the alarming situation in Finland, and particularly in North Karelia, the issue of coronary health attracted increasing attention at the national level. As a result, a comprehensive community-based preventive programme was launched in North Karelia in 1972 in order to reduce the risk factors for cardiovascular health (which included smoking, high blood pressure, and high cholesterol levels). The project was to run until 1997. One of its key figures was professor and principal investigator Pekka Puska, later director of the National Institute of Public Health. By popularizing its research results, Puska played an important role in converting scientific knowledge into a more practically oriented form of public knowledge. Known as Mr Public Health, he became the public face of the North Karelia project and the prevention of cardiovascular disease with the help of a cholesterol-reducing diet, regularly appearing in the media to share his knowledge about the role of cholesterol in cardiovascular health. In addition, knowledge about cholesterol was spread by means of education and media campaigns, competitions, and lay advocates.[20]

The community-based North Karelia project mobilized a variety of local actors such as healthcare personnel and local organizations, including the Women's Association for Home Economics, the Church, and the army. There was community action—such as rewarding villages or towns that were successful in reducing residents' cholesterol—combined with changes in the national legislation. Farmers, who previously had been paid for their dairy produce based on its fat content, were now encouraged to produce low-fat milk and grow a new variety of rapeseed for oil. Tobacco advertising was banned. The participation rate in health examinations and surveys run by the project was high.[21]

As a result of the publicity about the North Karelia project, public, authority-based knowledge of cholesterol circulated widely in Finnish society, both in the media and among individuals. For example, Mikko Jauho finds that local residents in North Karelia corresponded with the project office concerning their health surveys, while project officials answered questions from the public in two local newspapers.[22] Jauho's

findings show that some of the residents' understandings of the causes of heart problems differed from those projected by the project. The locals' private knowledge was not necessarily experience-based, but originated in their perception of a healthy lifestyle and diet as well as the region's history of deprivation and food shortages.[23]

The North Karelia project produced a wide variety of knowledge, generating over 400 international medical journal articles. Its collaboration with the WHO has brought it considerable authority in the public arena. Scientific knowledge about cholesterol thus gained formal status and was adopted by medical experts, politicians, physicians, and other public figures. In addition, this scientific knowledge was popularized as it circulated into community interventions and educational programmes. Here, cholesterol knowledge quickly evolved into a more practically oriented knowledge of nutritional choices and lifestyle. Although the questions of smoking and exercise were prominent, the main concern centered around the issue of diet. The advice was further repeated by the media, often boiling down to the question of animal versus vegetable fats. Representatives of the project visited schools across Finland to ensure that even young children learnt to avoid saturated fats in favour of vegetable fats. Although many participants embraced the new recommendations, substituting low-fat milk for whole milk, others were less enthusiastic. As Jauho's study of the response of local participants to the North Karelia project shows, low-fat options in schools and shops occasionally met with passive resistance, but the resistance could also be more active, as in the case of one of the letters to the project, in which a middle-aged woman from a rural area accused it of representing meat and dairy farmers as 'enemies of humankind'.[24] The resistance should be understood in the context of the structural changes taking place in North Karelia, where agriculture and dairy farming had traditionally been strong. The new knowledge was not always welcome, and a lack of trust sometimes created blockages in its circulation.

In spite of the divided opinions, the link between high cholesterol and cardiovascular disease was further strengthened in the 1990s, in part as a result of studies on statins, the cholesterol-lowering medicines introduced in the 1980s. After several large-scale clinical trials of statins in the mid-1990s showed decreases in LDL cholesterol, they eventually became a cornerstone in the treatment of heart disease,

adding a new component to cholesterol knowledge. According to the former Professor of Internal Medicine at Helsinki University Hospital, Matti Tikkanen, the use of statins was initially low, and some experts were of the opinion that they should be used only in exceptional cases such as familial hypercholesterolemia.[25] However, their use rose throughout the 2000s to the point when 660,000 people were taking them in 2010.[26] Given the consumption of statins, Professor Antero Kesäniemi's complaint (in 2005) that Finns, according to a global study of attitudes towards cholesterol management, were careless about high cholesterol, is somewhat surprising. After all, there was plenty of information about the health hazards posed by high cholesterol.[27] Kesäniemi's comment can be interpreted as evidence of the medical establishment's continuing determination to lower the Finnish population's cholesterol with the help of knowledge, diet, and medication.

Thanks to the North Karelia project, lay people all over Finland gradually accepted the now state-sanctioned medical knowledge about cholesterol, together with its practical applications. This knowledge had been translated into specific and concrete advice about diet and lifestyle which, although not always popular, was most often perceived as the best way to avoid cardiovascular disease.

Benecol, the embodiment of knowledge

In addition to being of importance to the medical community, knowledge about cholesterol has been instrumental in the creation of products aimed at lowering cholesterol levels. Such products have been marketed in Europe and elsewhere in the world since the 1990s. The first of these products to appear on the market was Benecol, launched by the Finnish food company Raisio in 1995. The process that led to Benecol's development shows how medical knowledge about cholesterol was combined with knowledge from the paper pulp industry. Initially, knowledge produced in medical research and knowledge produced in the study of industrial processes circulated separately, but once they had been put together the interaction between them continued.

The active ingredient in Benecol is sitostanol, shown in the late 1970s to be the most effective of the plant sterols in reducing serum

cholesterol. Plant sterols occur naturally in many grains, vegetables, fruits, nuts, and seeds. The average human diet contains roughly equal amounts of plant sterols and cholesterol. Plant sterols and cholesterol possess many common features on a molecular level, and they have a similar chemical structure. When eaten, sterols appear to partially block the uptake of cholesterol, which leads to a reduction of cholesterol levels in the blood.[28]

In the early 1970s a Finnish paper mill, Kaukas, was looking for ways to use the sitostanol that was produced from the tall oil, a by-product of pulp production. In order to investigate how the produce could be put to use, three Finnish paper pulp companies, Kaukas, Enso-Gutzeit, and Kymmene, provided financing for a research group led by Professor Eero Avela to work on tall oil research at Åbo Akademi University in Turku.[29] The Åbo Akademi research team, Kaukas, and a small engineering company named Linotekno collaborated on the technical development, and the production of sitosterol could begin in 1981. Researchers at Kaukas then studied the medical properties of sitosterol. Originally, the plan had been to sell it to a Finnish medical company with a view to producing steroid hormones, but that company backed out. Kaukas subsequently contacted the leading cholesterol researcher in the country, Professor Tatu Miettinen at the University of Helsinki. By coincidence, Miettinen had just been dismissed as chairman of the scientific advisory board of Finland's leading dairy company, Valio. Meanwhile, new research in Germany and Japan indicated that sitostanol, saturated from sitosterol, was more efficient in lowering cholesterol than sitosterol. Miettinen contacted Raisio Margarine Ltd., a division of the agricultural and chemical company Raisio, and suggested using sitosterol and sitostanol in its products.[30]

The idea of using sitosterol in food had already been proposed in 1985.[31] Raisio in turn had conducted research which showed that canola oil reduced the content of cholesterol in the human bloodstream. Once Raisio's results were published in 1989, sales of canola oil quadrupled in two years. .With the help of their experiences with canola oil, the researchers at Raisio found a way of turning plant stanol into a fat-soluble sitostanol ester suitable for food production. After years in development, the margarine was ready to be launched. However, the producers wanted it to be backed up by convincing scientific

knowledge of its effects. A number of smaller clinical studies followed in 1993–1994 to establish whether the new product really could be proved to lower cholesterol content in humans. In addition, a larger clinical study was conducted in cooperation with the North Karelia project. The North Karelia project by this stage had the infrastructure and experience needed to conduct a representative study. In terms of knowledge circulation, this connection is noteworthy because the new product, Benecol margarine, embodied the knowledge produced by the North Karelia project. This knowledge was not only crucial for Benecol's existence, but also enabled Raisio to capitalize on its infrastructure and conduct a large double-blind trial.

The new study showed that sitostanol-ester reduced total cholesterol levels by more than 10 per cent and LDL-cholesterol by 14 per cent. The results received much publicity when they were published in the *New England Journal of Medicine* in November 1995. They were presented at a press conference, and Benecol margarine was launched the same day. The product could henceforth be marketed using scientific medical knowledge. Since its launch Benecol has been marketed all over the world. For instance, in 2014 Raisio launched its cholesterol-lowering plant sterol-based Benecol products in Brazil, and the following year they entered the Chinese market. In its twenty years' retailing of Benecol products, Raisio has consistently based its marketing on research-based scientific knowledge. The product and the knowledge have become intertwined in the various arenas where the knowledge has circulated.[32]

The two camps

Although the lipid hypothesis was accepted by most of the medical community by the 1980s, leading to what has been termed the 'lipid consensus', there were diverging views. These resulted in a debate popularly known as the fat debate. One of the reasons for a new perspective on the fat question was the shifting of attention from fat to diabetes and obesity, now considered to be serious public health issues. Jallinoja et al. have identified some peak periods in the discussion about the health risks of dietary fats in Finland: one after 1988 and another in the early 2000s, continuing up to a new high in 2010.[33]

The intensifying public discussion was a reaction to a whole-page advert published in Finnish newspapers in June 1988, entitled 'Five things you have wanted to hear about nutritional fats that nobody has told you'.[34] The advert was placed by the largest milk producer, Valio—Finland is a major dairy producer, and the dairy industry had no intention of taking an attack on the merits of its main products lying down. The advert set out to refute five theses. Valio stated that firstly, contrary to popular belief, of all the OECD countries Finland was among the four to consume the least fat in 1985, and that the connection between animal fats and deaths from cardiovascular diseases had not been thoroughly established. Meanwhile, according to Valio, the consumption of animal fat in the US had increased, while mortality rates from cardiovascular disease had fallen. Besides, mortality rates due to cardiovascular disease were dropping rapidly in Finland, as they were in many other countries. Finally, the advert stated that mortality rates had decreased more slowly in North Karelia than in other areas of Finland, despite the local campaigns. Valio's intervention brought an immediate reaction from several medical experts, who strongly condemned the announcement. [35] All in all, *Helsingin Sanomat* received 56 letters to the editor out of which 28 were published. Although most letters remarked on the unhealthiness of saturated fats, some of the writers did not believe in the harmfulness of animal fats.[36]

Interestingly, the Valio advert did not occasion a debate in the Swedish-language media. Although the majority Finnish-language and minority Swedish-language media were part of the same circuit of knowledge, some differences can be observed. Like the Finnish media generally, there was little said about cholesterol in the Swedish-language media in the 1970s. In 1977 a Professor of Animal Breeding, U. B. Lindström (later general secretary of UNICEF in Finland) claimed that vegetable fats did not lower cholesterol, remarking, with reference to a study by Saarivirta in 1974, that Finns consumed less animal fats than inhabitants in other Nordic countries.[37] Almost two decades later in 2001, Lindström published a column in which he noted that lower cholesterol led to fewer heart attacks but somewhat higher mortality.[38] Lindström's views can be ascribed to his field of research. Lindström's and Valio's actions show that the lipid hypothesis was gaining ground,

and the meat and dairy producers felt the need to highlight existing scientific knowledge in favour of animal fats.

The margarine industry also had its own association, as an organization called Margariinitiedotus (Margarine Information) was founded in 1978. As the name suggests, it saw its job as spreading information about the beneficial effects of vegetable fats. The organization distributed not only scientifically based information with references to medical studies such as the *American Journal of Clinical Nutrition*, but also took out adverts that focused on wellbeing—with the help of soft vegetable fats (margarine) you could hug your friends on the cellular level, according to an advert of the day.[39]

The debate about cholesterol in *Hufvudstadsbladet* intensified in the spring of 1990, but the Valio advert was not referred to. Instead, the topic was a study by the Turku-based physician Dr Rolf Kroneld on the island of Iniö in the south-western archipelago. Kroneld and his team studied Iniö's residents, and randomly selected individuals of the same age and sex in chosen areas in south-west Finland (Loimaa) and North Karelia. It appeared that the population of Iniö consumed twice the amount of margarine compared to the other regions, and only half the butter. In addition, unlike the other groups they drank skimmed milk. Even so, the highest cholesterol values were found on Iniö—along with lower mortality.[40] Kroneld's conclusion was that other factors than cholesterol should be considered. Although the study led to a lively discussion in the Swedish-language media in 1990 it appears not to have had much impact on the subsequent discussion of the lipid hypothesis. It was commented on by the director of the Finnish Public Health Institute, Professor Jussi Huttunen, who criticized its methodology, arguing that the number of trial subjects (536) was too few to be able to draw certain conclusions.[41]

The physicians who questioned the lipid hypothesis represented an alternative, scientifically based medical knowledge wary of the hegemonic, official line. Both camps had followers among laypeople who became progressively more vocal in the debate. From the 1990s on, people increasingly trusted their experience-based knowledge and said as much in the media.

Cholesterol sceptics

One of the researchers who did cite Kroneld's study was a well-known opponent of the lipid hypothesis, Dr Uffe Ravnskov, whose name now began to figure increasingly in the media. A Danish physician with a private practice in Sweden, Ravnskov had completed his PhD in 1973, *On Renal Handling of Serum Proteins*, at the departments of Nephrology and Clinical Chemistry at Lund University Hospital in Sweden. Since 1979 he had been an independent researcher. Ravnskov published a book entitled *Kolesterolmyten* ('The Cholesterol Myth') in 1991. The following year, reporters burnt his book live on Finnish television after medical experts completely discredited its contents.[42] The auto-da-fé was presumably an ironic way to show that the lipid hypothesis had reached the status of religion in Finnish society. Ravnskov's book was packed with knowledge that questioned the lipid hypothesis by scrutinizing four myths about cholesterol. He claimed, firstly, that there was no such thing as good or bad cholesterol, but that mental stress, physical activity, and changing body weight play an important role in the level of blood cholesterol. He also stated that there was no relationship between the blood cholesterol level and the degree of atherosclerosis in the vessels. Moreover, there was, according to Ravnskov, no evidence that too much animal fat and cholesterol in the diet promote atherosclerosis or heart attacks.

Ravnskov is a founding member and director of the International Network of Cholesterol Skeptics. The network, which was founded in 2003 and had some 100 members in 2014, dispute the lipid hypothesis.[43] According to them, a low-grade inflammation in the body is an important contributory factor in the development of heart diseases. The two camps have ended up in polarized positions with regard to recommended diet. This has led to a polemic, the fat controversy, between the opposed views on both the correctness and standard of existing medical studies, the treatment of heart diseases, and dietary recommendations. The cholesterol knowledge represented by the sceptic school has figured increasingly in the popular media in the past fifteen years, particularly on the internet. This discussion is evident in most industrialized countries, albeit with some variations.[44]

When the cholesterol debate intensified again in *Hufvudstadsbladet* in 2007, Ravnskov was one of the participants. Besides animal versus

vegetable fats, the side effects of statins were on the agenda. Opposite Ravnskov were Pekka Puska and the physician Birger Björkqvist.[45] Björkqvist referred to scientific studies and noted that even if some people experienced side effects from statins, and even if the pharmaceutical industry might be slightly exaggerating the benefits of the medicines, they were still worth taking in view of the overwhelming scientific evidence.[46] This kind of opinion, typical of most physicians, is based on large population-based studies and aims at minimizing risks.

As for the knowledge about cholesterol articulated by Ravnskov, it made headlines but was met with suspicion. One letter to the editor expressed concern that Ravnskov's opinions would cause confusion, conjuring up alarming images of the side effects of statins. Ravnskov was called 'Doctor Butter' in one article, while another was entitled 'Bring on the butter and cream'.[47] The lay people who participated in the *Hufvudstasbladet* debate were mostly opponents of the lipid consensus. Some of the people who wrote letters to the editor spoke from personal experience of the side effects of statins.[48] This, together with reports of a general improvement in health after switching to a low-carbohydrate, high-fat diet, were the most frequent examples of the kind of personal experience that can be regarded a component of private knowledge.[49]

The internet created a new arena for the critics of the lipid hypothesis. On the whole, the role of lay people in the circulation of cholesterol knowledge began changing in the mid-2000s as blogs became an increasingly popular medium for sharing health-related advice. In creating a platform for lay people to share their experiences concerning questions of health, blogs also created a new kind of authority. While some health bloggers cited scientific studies, others explicitly referred to their own experiences when it came to lifestyle and diet. Janne Huovila and Sampsa Saikkonen have identified two types of health bloggers in the Finnish blogosphere: popular nutrition counsellors, and experts contributing to the national Institute of Health and Welfare blog.[50] Of the two, it is the former who represent the kind of 'dietary individualism' that played a role in the transformation of cholesterol knowledge.

Blogs about cholesterol began appearing in the mid-2000s. The most active independent blogger to address the question of cholesterol was

Dr Antti Heikkilä, an orthopaedic surgeon specialized in traumatology. Another early blogger was the biologist Christer Sundqvist. Both criticized the lipid consensus, warned against the side effects of statins, and attacked advocates of the official public health recommendations. The authorities they referred to were Uffe Ravnskov and the American physicist and journalist Gary Taubes.[51] Both bloggers have written popular books on health. Although both represent views which contradict the official nutritional recommendations of the medical and official establishment, their alternative knowledge about cholesterol health has remained sought-after for the past ten years. Many subsequent bloggers in turn refer to Heikkilä and Sundqvist. Typically, bloggers cite scientific studies, but also Ravnskov's and Heikkilä's books as well as self-help books based on authors' experiences.[52]

Intertwined knowledge

Since the 1970s, universalist public knowledge about cholesterol health, based on large trials, has circulated in Finnish society, reaching practically the whole population. The knowledge, based on the lipid hypothesis, has been communicated in a hierarchical top-down fashion, from the medical establishment to the general population. Commercial products such as Benecol margarine became part of this circulation, as knowledge about cholesterol was combined with knowledge of industrial production processes, and eventually simplified in order to suit marketing needs. However, although the lipid hypothesis was accepted by the majority, not everybody trusted this 'state-sanctioned' medical knowledge. When it comes to their health, people often rely on their own beliefs, personal experiences, and observations as well as their own interpretations of theories. Such a lack of faith in the official recommendations can hinder the circulation of knowledge, resulting in blockades or changes.[53] Hence, individuals who question the accepted form of knowledge about cholesterol encounter the 'official' information, which they can pass on by commenting on it, in however critical a fashion, perhaps accompanied by hostile remarks, and thereby adding their own private, experience-based knowledge.

In many cases, the official, universalist knowledge and a personally

experienced, individualistic knowledge correspond to the categories of scientific and popular knowledge. Scientific knowledge about cholesterol has circulated in the media as adverts and in equally popularized forms in newspaper articles and particularly letters to the editor, representing both public and personally experienced knowledge. Although both supporters and opponents of the lipid hypothesis are represented, the focus is on public knowledge. Whenever critics of the lipid hypothesis published their views in newspapers, they were immediately followed by reactions from medical experts, reflecting the public knowledge embraced by the medical community. Like 'official' public knowledge, alternative knowledge is transnational, because the 'fat question' is debated in most industrialized countries. A study of letters to *Hufvudstadsbladet* and a number of critical bloggers shows that knowledge travelled from Sweden to Finland mainly courtesy of the well-known cholesterol sceptic, Uffe Ravnskov.

Bloggers often refer to scientific studies, but if anything even more to personal experience. Bloggers and other laypeople such as the authors of self-help books comment on the cholesterol question in scientific terms, claiming an expertise based on scientific knowledge. On the other hand, private knowledge, based on experience gained by bloggers from experimenting with dietary regimes, has rapidly found its way into the public sphere. Private knowledge is hence transmuted into a form of public knowledge.

A study of the various strands of cholesterol knowledge from the perspective of circulation shows how knowledge changes at various stages in the media that carry it. In the North Karelia project, scientific knowledge, initiated in response to the Seven Countries Study, quickly became popularized through various media and community actions, and was translated into practical knowledge about diet and lifestyle. Benecol margarine was a component in this lifestyle as a result of knowledge produced by the North Karelia project, and by the project's infrastructure, which helped with product testing. As a result, a large number of people trusted the product and bought it. Although official public knowledge about cholesterol figured widely in the media, an alternative strand of medical knowledge entered the knowledge circuit thanks to the cholesterol sceptics. This knowledge was particularly in evidence in newspapers and blogs, where laypeople

mixed their own experiences with scientific knowledge. Here too, diet and lifestyle were the primary topics of interest. While circulating between media and actors, public knowledge, private knowledge, and experience-based knowledge became intertwined.

Notes

1 See, for example, Ancel Keys, A. Menotti, M. J. Karvonen, C. Aravanis, H. Blackburn, R. Buzina, B. S. Djordjevlc, A. S. Dontas, F. Fldanza, M. H. Keys, D. Kromhout, S. Nedeljkovic, S. Punsar, F. Seccareccia & H. Toshima, 'The diet and 15-year death rate in the Seven Countries Study', *American Journal of Epidemiology* 124/6 (1986): 903–15. The seven countries participating in that study were the US, Japan, Italy, Greece, the Netherlands, Finland, and Yugoslavia.

2 Piia Jallinoja, Mikko Jauho & Johanna Mäkelä, 'Newspaper debates on milk fats and vegetable oils in Finland, 1978–2013: An analysis of conflicts over risks, expertise, evidence and pleasure', *Appetite* 105/1 (2016): 274–82.

3 Joseph Palca, 'Getting to the heart of the cholesterol debate', *Science* 247/4947 (1990): 1170, doi: 10.1126/science.2315690; Deborah Lupton, 'The great debate about cholesterol: Medical controversy and the news media', *Australian & New Zealand Journal of Sociology* 30/3 (1994): 334–9, http://search.informit.com.au/documentSummary; Jallinoja et al., 'Newspaper debates'; Jeanette Madarazs-Lebenhagen, 'Medico-politics of Gendered Health: The Case of Cardiovascular Prevention in East and West Germany', 1949–1990, *Social History of Medicine* 28/4 (2015): 869–88; Todd M. Olszewski, 'The Causal Conundrum: The Diet-Heart Debates and the Management of Uncertainty in American Medicine', *Journal of the History of Medicine & Allied Sciences* 70/2 (2015): 218–49.

4 For historical studies about medical knowledge circulation, see, for example, Harald Fischer-Tiné, *Pidgin-Knowledge: Wissen und Kolonialismus* (Zürich: diaphanes, 2013), 593–621; Arjo Roersch van der Hoogte & Toine Pieters, 'Quinine, Malaria, and the Cinchona Bureau: Marketing Practices and Knowledge Circulation in a Dutch Transoceanic Cinchona–Quinine Enterprise (1920s–30s)', *J Hist Med Allied Sci* 71/2 (2016): 197–225, doi: 10.1093/jhmas/jrv009. For a late twentieth-century study on knowledge circulation, see David Larsson Heidenblad, 'Knowledge of the future in circulation: Gösta Ehrensvärd's diagnosis and the Swedish future debate, 1971–1972', *Historisk tidskrift* 135/4 (2015).

5 The debate after 2010 has been studied by Mikko Jauho in 'The social construction of competence: Conceptions of science and expertise among proponents of the low-carbohydrate high-fat diet in Finland', *Public Understanding of Science* 25/3 (2016): 332–45.

6 Pekka Puska, Aulikki Nissinen, Jaakko Tuomilehto, Jukka T. Salonen, Kaj Koskela, Alfred McAlister, Thomas E. Kottke, Nathan Maccoby & John W. Farquhar, 'The Community-based Strategy to Prevent Coronary Heart Disease: Conclusions from Ten Years of the North Karelia Project', *Annual Review of Public Health* 6 (1985):

147–93; Pekka Puska, 'Succesful prevention of non-communicable diseases: 25 year experiences with North Karelia Porject in Finland', *Public Health Medicine* 4/1 (2002): 5–7.

7 Andreas Daum, 'Varieties of Popular Science and the Transformations of Public Knowledge: Some Historical Reflections', *Isis* 100 (2009).

8 S. L. Gilman, 'Private Knowledge', *Patterns of Prejudice* 36/1 (2002): 5–16; see also Stuart Nelson, Kevin O. Hwang & Elmer V. Bernstam, 'Comparing clinician knowledge and online information regarding Alli (Orlistat)', *International Journal of Medical Informatics* 78/11 (2009): 772–7, http://dx.doi.org/10.1016/j.ijmedinf.2009.07.003.

9 See L. Guidotti, *Health and Sustainability: An Introduction* (Oxford: OUP 2015), 52.

10 Ibid. 52.

11 For knowledge-making as a form of communication, see James Secord, 'Knowledge in transit: Halifax Keynote Address', *Isis* 95/4 (2004): 654–72; and 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.

12 According to Ignatowski, the rabbits developed atherosclerosis of the aorta as a result of the diet; see I. E. Konstantinov & G. M. Jankovic, 'Alexander I. Ignatowski: A Pioneer in the Study of Atherosclerosis', *Texas Heart Institute Journal* 40/3 (2013): 246–9.

13 Anichkov was at the time an assistant professor at the department of internal medicine at the Imperial Military Medical Academy in St Petersburg. See G. Finking & H. Hanke, 'Nikolaj Nikolajewitsch Anitschkow (1885–1964) established the cholesterol-fed rabbit as a model for atherosclerosis research', *Atherosclerosis* 135 (1997): 1–7.

14 Ibid. 1–7.

15 Keys, 'The diet and 15-year death rate', 903–915.

16 'Progress, prospects and provender: Chairman's address before the Council on Arteriosclerosis, American Heart Association, Dallas, Texas, November 12, 1969', *Circulation* 4/4 (1970): 723–8; see also Gerald M. Oppenheimer, 'Profiling risk: The emergence of coronary heart disease epidemiology in the United States (1947–70)', *International Journal of Epidemology* 35 (2006): 720–30.

17 Daniel Steinberg, *The Cholesterol Wars. The Skeptics vs the Preponderance of Evidence* (San Diego: Academic Press, 2007), 195; Ann F. La Berge, 'How the ideology of low fat conquered America', *Journal of the History of Medicine & Allied Sciences* 63/2 (2008): 139–77; A. Stewart Truswell, *Cholesterol and Beyond: The Research on Diet and Coronary Heart Disease 1900–2000* (Dordrecht: Springer, 2010).

18 Erkki Vartiainen, Tiina Laatikainen, Markku Peltonen, Anne Juolevi, Satu Männistö, Jouko Sundvall, Pekka Jousilahti, Veikko Salomaa, Liisa Valsta & Pekka Puska, 'Thirty-five-year trends in cardiovascular risk factors in Finland', *International Journal of Epidemology* 39 (2010): 504.

19 Osmo Turpeinen et al., 'Dietary Prevention of Coronary Heart Disease: Long-Term Experiment', *American Journal of Clinical Nutrition* 21/4 (1968): 255–76. The Finnish State Advisory Board of Nutrition had already in 1956 noted the connection between fat consumption and heart disease; Pasi Syrjäläinen, *Rasvataistelu mediassa—Julkinen*

keskustelu ravinnon rasvoista Helsingin Sanomissa 2010 ja 2011 (MA diss., University of Helsinki, 2014), 10. The Seven Countries Study in Finland was preceded by the so-called East–West Study, the early stages of which were conducted in 1953–5. Interestingly, the effect of cholesterol was found to be negligible. See V. Notkola, S. Punsar, M. J. Karvonen & J. Haapakoski, 'Socio-economic conditions in childhood and mortality and morbidity caused by coronary heart disease in adulthood in rural Finland', *Social Science & Medicine* 21/5 (1985): 517–23.

20 Mikko Jauho, '"Give people work, and the blood pressure will sink": Lay engagement with cardiovascular risk factors in North Karelia in the 1970s', *Health, Risk & Society* 18/1–2 (2016): 21–37.

21 Puska et al., 'The Community-based Strategy'; Jauho 'Give people work', 26.

22 Ibid. 24.

23 Ibid. 28.

24 Ibid. 33.

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CHAPTER 2

The circulation and commercialization of sexual knowledge

The celebrity sexologists Inge and Sten Hegeler

Kari H. Nordberg

In 1968, psychologists Inge and Sten Hegeler's book *Spørg Inge & Sten* (*Ask Inge & Sten*), was published in Denmark. The book was a collection of questions and answers about sexuality that the couple had received as experts with an advice column in the newspaper *Ekstrabladet*. At the time, Inge and Sten were becoming a superstar couple, posing on Danish frontpages. They were regarded as 'modern apostles of sex' advocating sexual liberation.[1] The couple had similar advice columns in major newspapers in Sweden and Norway, and their books on human sexuality, most notably *Spørg Inge & Sten*, but also *Kærlighedens ABZ* (1961, *An ABZ of Love*) and *Kærlighedens XYZ* (1971, *An XYZ of Love*), were translated into several languages and republished many times.[2] Inge and Sten also played a major part in Swedish director Torgny Wickman's film series *Kärlekens språk* (1969–1972, *Language of Love*).[3] The circulation of the Hegelers' work was apparently considerable, boosted by the couple's work in different media and their celebrity status.

Inge and Sten were key actors in the circulation of sexual knowledge in the 1960s and 1970s. Although the psychologists had links to academe, they personified sexual knowledge to a broader audience. The couple became a brand, signalling sexual liberation. They were part of a network of circulation that involved media and actors outside the

academic sphere, and their case hence raises questions concerning the authority and legitimacy of knowledge in society at large, and more specifically how the celebrity and commercialization attendant on the circulation of knowledge affect its production and reception. The commercialization served to disseminate the knowledge, but circulation involves more than the spreading of knowledge. In this essay, I discuss Inge and Sten as actors of knowledge, their writing style, self-representation, and status as celebrities, and the way in which the commercial structures they relied on could both reinforce and undermine the authority and circulation of sexual knowledge. This is then a case study of actors and popular knowledge practices in a transnational celebrity culture.

The Hegelers' style and expertise

The female orgasm, male potency, sexual variety, and the use of massage equipment were recurrent themes in the Hegelers' columns and books. The couple received letters from dissatisfied and disillusioned married men and women, and the advice they provided was intended to serve to strengthen the bond between spouses. Their typical remedies were open communication, honesty—and *knowledge* of sexuality. The sexual knowledge that the couple provided was matter-of-fact, presented in an apparently neutral tone. They use the analogy of being a capable driver and a capable lover to illustrate the importance of education. Most people had not seen an 'experienced sex motorist' in action before they started 'driving in the difficult traffic that is the sexual relationship'.[4] A lack of proper instruction resulted in confusion. Analogizing sex with other everyday practices such as eating, drinking, and driving was typical of the Hegelers' prose (and drew criticism). In their defence of sexual massage equipment, they stressed how people gladly took the train, bike, or car instead of walking, or used cutlery when they ate, and by analogy an aversion to technological help in the bedroom did not make sense.[5] Lack of knowledge and misunderstandings of how the male and especially the female sexual organs functioned, together with silence on awkward subjects, were the root causes of despair and bad marriages, according to Inge and Sten.

The contents of their books, advice columns, and films are broadly

similar. Using a letter from a reader, a scene acted out in the films, an anecdote, they often present typical sexual problems. The references to the textbook and lexicon (*An ABZ* and *An XYZ of Love)* link Inge and Sten's work to education and enlightenment, and followed in the tradition of Scandinavian sex reform.[6] In the late 1960s, sex advice columns were not new to Scandinavia. In the interwar period, Karl Evang, a young doctor and later Norwegian director of health, had answered medical questions in a column in the journal *Arbeider-magasinet* ('The worker's magazine'). The many questions on sexual health prompted Evang to start his own periodical *Populært Tidsskrift for Seksuell Oplysning* (1932–1934, 'Popular Journal for Sex Education'), a periodical that became established in Sweden and Denmark too.[7] When Inge and Sten conquered the Scandinavian market, then, there was already a tradition of popularizing sexual knowledge and a transnational exchange of ideas. Like the generation of sexologists before them, Inge and Sten referred to, and employed, ordinary people's thoughts and experiences in their texts, and they collected and edited the material in magazines, newspapers, and books.[8]

The interaction between experts and laypeople was still important in the production of sexual knowledge. A positivist stance—a commitment to reveal the scientific *truth* about human sexuality—was also typical of both the Hegelers and earlier sex reformers. Where Freudianism and Alfred Kinsey's work had been important, it was now the American sexologists Masters and Johnson's research that the Hegelers relied on.[9] Masters and Johnson had 'as the first ones in the world's history measured sexual responses, and we are especially happy that their theories have confirmed many of ours'.[10]

The self-appointed task of the sex experts of the twentieth century, including Inge and Sten, was to counteract mistakes, prejudice, and sexual guilt. Masters and Johnson had, as part of a proud tradition of sex research, managed to grasp true sexuality in their laboratory. To Inge and Sten, this research was crucial, as people were desperate to know whether their sexual thoughts and actions were normal. In their writings, they referred to American sexology and reassured their readers that normalcy had 'stretchable limits'.[11]

The sex experts' mission was the disclosure of true sexuality. If nothing else, this gave them what Foucault called the 'speaker's benefit': if

sexuality is repressed and silenced, those who speak are its liberators.[12] Janice Irvine has argued the opposite, as she finds that sexologists have often suffered from 'the speaker's burden', or 'the stigmatization that attaches to those with any visible connection to sex'.[13] In a scientific community, knowledge of sexuality is often regarded as tainted. The risk of being ridiculed and the social stigma attached to sexual knowledge give rise to questions of authority, presentation, and performance.[14]

Inge and Sten, however, did not appear to be very concerned with the risk of stigmatization.[15] Instead, they embraced their roles as playful, liberated sexologists. Their byline picture, used for their columns, book jackets, and advertising, shows the smiling couple rubbing noses. This was probably because their main stage was not academe. They explicitly distanced their popularization of knowledge on sexuality from drier, duller scholarly prose. For example, in the *ABZ of Love,* the entry 'Anilinctio, anilingus' describes it as

> Kiss on the rear end. A good example of the pseudoscientific methodology that systematizes sexual life. … One may, thank God, still kiss each other both here and there without prior translation. (See Cunnilingtio and Fellatio).[16]

Another example of their sarcastic yet good-natured writing was their reply to the recurring question about whether there was a connection between the size of the penis and the ability to satisfy a woman. The Hegelers referred to Masters and Johnson and stated that the vagina was not a room

> where small penises wander lonely and confused. It is a deflated tube—almost like a bicycle wheel without air—with elastic walls that can enclose both large and small penises. Masters and Johnson may not say it in exactly these words, but that is the point of what they are writing.[17]

The books and columns are humorous, as in the reply to a letter from a woman whose husband was working abroad. The woman was concerned as she had sexual feelings for a female friend. Inge and Sten answered that 'If you are starving hungry, then an old scrap of dogfood is also

delicious—not that we want to compare your woman with that!'[18] Both in their writing and their self-presentations we find a playful tone, in contrast to earlier sex experts. The Hegelers seemed to enjoy using their expert voice, and they were able to laugh and speak of sexuality in the same manner as one might speak of any other everyday activity.

Although Sten Hegeler probably did most of the writing (hence the very distinct prose style), Inge and Sten together appear to have been a very successful *brand*, representing both women, men, mothers, fathers—and of course married couples. Their authority to pronounce on sex derived from their professional background as psychologists and sexologists, but also from being a married heterosexual couple with children.[19] They both had the personal and the professional qualifications for the task. Most of their writings aimed at strengthening relationships, and their private and public life seemed to be in sync.

Although they presented themselves as liberated and laid-back, they revealed that they—like most people—had inhibitions. When it came to subjects such as infidelity and group sex, their self-proclaimed reservations were influenced by the bourgeois society they too were part of.[20] Revelations like this only strengthened their argument that most people, including the experts, could be irrational when it came to sexual matters. Inge and Sten's response to the woman married to a 'lovely', 'half-Spaniard, and very hot-blooded', who regretted how she had scared him away because she panicked when he used his fingers to 'warm her up', was that she had indeed been foolish, but it was 'not her fault as she had received such a prudish and bourgeois upbringing'.[21] Her husband had acted completely rationally, considering how the female sexual organs functioned, as it would most likely increase the chance of her reaching orgasm. Inge and Sten lamented how Western civilization repressed people's natural sexual drives. When they admitted to their own inhibitions, it was probably easier to pinpoint how their readers' sexual life could suffer under the same circumstances. Although knowledge of sexuality as a science may have laid the necessary foundations for their work, their popularity was probably triggered by the Hegelers' amused, straightforward, but sympathetic style.

Actors and celebrities of sexual knowledge

Historians of knowledge have emphasized how a focus on *actors* of knowledge can alert us to how knowledge circulates in society. This is not to limit it to a history of professionalization, but rather to take a broader view of the producers, recipients, and purveyors of knowledge.[22] Knowledge 'does not move on its own volition, hovering over all structures and actors. … It moves through individuals and social groups'.[23] Inge and Sten's case was clearly one of the popularization of knowledge. Andreas W. Daum has called for a history of popular science that studies 'knowledge producers outside the so-called scientific community.'[24] Furthermore, he has emphasized how the popularizing of knowledge, which includes the blending of genres and transfer of knowledge, could be a place 'to study how knowledge was staged and how audiences applauded, rejected, or recreated such performances'.[25] Actors of knowledge may include experts and audience alike, and both groups are important in an analysis of the circulation of knowledge. Although Inge and Sten may be considered experts, they were part of a circulation *together* with an audience. Many people took an active part in that circulation (by writing letters to the couple, by following or not following their advice, and of course by buying or not buying their books and films or the magazines and newspapers that the couple worked for). Inge and Sten were dependent on their audience.

What types of performances, skills, and practices are important in order to attain and keep prestige in a community? In the context of scientific or academic communities, the concept of the *scientific persona* refers to public self-representation, created at the intersection between the individual's biography and the social institution. The concept raises the questions of power, knowledge and self-representation in a scientific community.[26] It is also important in a study of circulation, because power and prestige can increase the circulation of knowledge. However, in the case of Inge and Sten, the field in which they worked was not confined to a scientific community.[27] As popularizers of sexual knowledge, they had to legitimize their work for a broader audience.

Just as a scientific community is crucial for the creation of a scientific persona, there are parallels to the mass media's creation of *star* or *celebrity personae*. Media scholars have pointed to the way that the coverage of celebrity creates celebrities.[28] The media persona 'Inge &

Sten' apparently revealed their private life in their texts and films in a manner employed by other celebrities before them. An example of a human interest story about them as sex experts is found in an interview from 1968, in which the couple talked about their recent book *Ask Inge & Sten*. The readers meet the sexologists at home, cooking: 'Sten inhales the smell of garlic with the intensity of a connoisseur and pours the Bourgogne.'[29] The human interest story, the deliberate presentation of the private self, was by no means new in the media landscape, but for a sex expert, the links between knowledge of 'healthy', 'normal' sexuality and the private life of the experts were perhaps more intriguing than might be the case with other experts.[30]

Certainly, this link was much emphasized in the *Language of Love* films. The opening scene of the first *Language of Love* film (1969) shows the Hegelers together with the gynaecologist Sture Cullberg and sexologist Maj-Briht Bergstöm-Walan in what appears to be the Hegelers' living room. They discuss the taboos and prejudices that affect our attitudes to sexual matters. Inge Hegeler looks out of the window and wonders what we might find behind people's façades today? Then the film cuts to different scenes with actors portraying typical sexual and emotional problems that many couples encounter.[31]

The idea of revealing what went on behind the bedroom door applied to both the audience and the experts, which is why Inge and Sten's private life is also on display in the films. In the first two films, the couple appear in a professional or semi-professional capacity, but in the last film *Love-Play*: *That is how we do it: Letters to Inge and Sten* (1972) the Hegelers are in effect protagonists. The film goes behind the scenes to show the couple at their holiday home going about their ordinary lives, eating breakfast, going swimming with their children, having a sauna, and barbequing with students—and of course constantly discussing sexual matters in this informal setting.[32] In her close reading of the *Language of Love* films, Elisabet Björklund underlines the use of nudity, and especially the scene in *Love-play* in which the Hegelers and their children are filmed swimming in the nude. Björklund argues that by staging themselves as naked, the Hegelers did not appear in their role of experts, and also put part of their intimate life on display.[33] There appeared to be a coherence between what they preached and the way they lived.

However, the voice-over introduces the naked Hegelers as a 'minor sensation'. It is as if the viewers, after watching the earlier films in which the Hegelers appeared as talking heads—formal, serious, smoking, and talking with other experts—can finally see the *real* Hegelers. Inge and Sten seem to have managed to be both experts and celebrities. Their fame rested on their knowledge, and their bodies and performances may have made the knowledge more credible, as it was a display of truly liberated sexuality. That said, the lines between pure commercialism and the presentation of a true, naked, and natural self were blurred.

Historians have noted that sexuality in the twentieth century, in Dagmar Herzog's words, 'became perceived as ever more central to individual identity'.[34] Sexual behaviour and attitudes revealed the person's self, and could be employed in self-representation. Inge and Sten's presentation of self and their writing style seemed to accord with the knowledge they retailed. Sexual knowledge can be counted an integral part of human identity, a type of knowledge that circulates within the individual, and that is more or less consciously expressed. The Hegelers became a symbol for a type of knowledge that served to liberate the individual—the type which, if internalized, probably meant you were sexually liberated, which might be an advantage in a relationship, as a personal ad in the Norwegian newspaper *Dagbladet* hints:

> Lonely man, 63, 5'9", retired, own house, east of Norway, seeks contact with single, lonely woman in her sixties, who might want to be together with me. Preferably, you are slimmish, kind, modest, independent, and *have read 'Inge & Sten'*. Write to 'Quiet Place 1686'.[35]

Being a reader of Inge and Sten signalled a liberated and healthy sexuality. Inge and Sten themselves embodied a liberated attitude. They were not only synonymous with sexual counselling, they were also synonymous with sexual liberation. Their knowledge was the basis for their fame, and the knowledge was linked to their representation of self, and their images and work circulated within different media and in different countries in such a way that Inge and Sten emerge in a dual role, both as experts and as celebrities of sexual knowledge.

Circulation and commercialization

Inge and Sten were a visible couple in the media landscape of the 1960s and 1970s, at a time when sexual texts and images were more evident than even just a few years earlier. Both the rise of scientific sexology and consumerism can be included in analyses of this period of sexual revolution.[36] Censorship and legislation on pornography were liberalized in Denmark and Sweden during these years.[37] The liberalization of pornography, the emerging porn industry, but also state-sponsored sex education and an accepting approach to young people's sexuality were important features of the infamous 'Swedish sin'.[38]

The fact that the Hegelers switched genres had an effect on the influence exerted by the knowledge. This was seen in the way they were marketed, so that an advert for their book *Ask Inge & Sten* said that it consisted of questions and answers taken from their advice columns, but also bolder questions and answers—and of course illustrations and pictures, 'Many not suitable for reproduction in a newspaper or magazine. 100 frank pictures.'[39] The book blurb for *An Adult View on Love and Sex*, an English version of the *ABZ of Love*, is similarly ambiguous: 'Intended for couples in their thirties, not for beginners', while the preface stated that the book was *not* pornographic. The disclaimer 'reflected a long-standing fact about the nature of the market in books and magazines which dealt with sexual matters', according to H. G. Cocks. In the UK, sexology publications and pornography 'circulated along some of the same networks of distribution, exchange and sale'.[40] The advice columns in Scandinavian newspapers and magazines, like the books, did not belong to that type of networks, but the *Language of Love* films were not that far removed from the Swedish sex film industry. When sexual knowledge moved to film, both the genre and the system surrounding the knowledge actualized the tension between education and pornography, and it also raised the issue of whether sex education could be provided by interests that were clearly also commercial.[41]

The most risky part of the Hegelers' career was their involvement in the sex film industry. Elisabet Björklund highlights the tension between commercial sex films and serious sex education films in her discussion of the *Language of Love* series. The director and the producer were simultaneously making sexploitation films, and the *Language of Love*

films were 'clearly part of a context of sex films when they were made'.[42] Within this system, Inge and Sten legitimized their work by referring to sexology as a science, but also by presenting themselves as liberated. The balance between serious science-based sex education and a playful, liberated representation was important for both the marketing and the production of sexual knowledge. Ultimately, the structures that the distribution of the Hegelers' work relied on could be fragile.

In retrospect, according to Stig Hegeler, the couple did not really fit in anywhere: They were 'too moderate' for the feminists, 'too populist' and superficial for the academics, and many people simply considered the couple as 'too far out'.[43] Yet even if Inge and Sten felt that they did not belong in any clear-cut category, they were a household name regardless, signalling sexual knowledge to a large audience. Their work was widely distributed: columns in papers and magazines in three countries, books and films released in an international market. However, does spread imply circulation? The content of the sexual knowledge that the Hegelers communicated did not seem to vary much; the main themes of the books, films, and newspaper columns revolved around the importance of the clitoris, the limits of society's gender roles, misunderstandings about male potency, and the effectiveness of massage equipment. These themes were repeated in all the media they appeared in, and some of their work was reused, with questions and answers from their column in the Danish *Ekstra-bladet* reprinted in Norwegian *Dagbladet*, and later reprinted again in their books. In the afterword of the *XYZ* book, the Hegelers comment on their tendency to repeat themselves, but they argued that repetition was necessary for this type of knowledge to work. They also stressed that it was not enough to leaf through the books on sexuality that they sometimes recommended to their readers—the books had to be studied properly.[44] Old misconceptions and neuroses would not disappear with a cursory reading. However, could it also be that their commercialization served to 'fix' the knowledge? The 'Inge & Sten' brand signalled a form of knowledge that had proved successful, and that could be presented in different media, even if the *content* did not seem to change much.

'When everything else slips away—then try the truth'. This was the epigraph on the first page of *Spør Inge & Sten* (1969). It has been

modernity's mantra in the search for sexual knowledge that sexuality can reveal our true self, our nature. Inge and Sten attempted to portray the truth, through encyclopaedic articles, illustrations, films, and interviews. However, in the circulation, they embodied and staged a 'true sexuality' in a way that also adapted to the commercialization of sexuality and to an emerging celebrity culture.

Concluding remarks and further questions

In contrast to earlier Scandinavian sexologists, Inge and Sten inhabited a star persona. They were part of an emerging celebrity culture, in which the couple personified sexual knowledge. The opening credits of the popular television show *Sex and the City* (1998–2004) show the main character, Carrie Bradshaw, walking past a bus with a huge advert for her own column in a New York paper; almost thirty years earlier, similar adverts for Inge and Sten's column in *Ekstrabladet* could be seen on the buses in Copenhagen. In a culture where we link personhood, sexuality, and knowledge, it can be difficult if not impossible to separate the three. Furthermore, it is a link that can serve as an effective marketing tool, apparently increasing the circulation of knowledge.

The sexual knowledge that the Hegelers proclaimed circulated between different genres, media, and countries. The commercial potential apparently made the circulation intense; however, the modulations of that knowledge are not very clear, for it seems much of it was simply recycled, though in different genres and modes of presentation. Perhaps its commercial potential, together with a 'Inge & Sten' persona that embodied sexual liberation, made it too risky to change or evolve. Inge and Sten appear to have been a very stable trope that signified a type of sexual knowledge intimately linked to sexual liberation and a liberated self.

I have looked at Inge and Sten as specific actors of knowledge. However, like other sexologists, Inge and Sten interacted with their readers. They used the material collected from letters that gave them an insight into people's intimate lives and experiences. Hence, it is difficult to pinpoint where the circulation of knowledge comes to rest, especially when it was so widely distributed and was intended to work on people's bodies and minds. Inge and Sten's emphasis on the female

orgasm was partly a critique of the Western repression of women's sexuality, but was also a very practical response to helping women achieve sexual pleasure. If women reading Inge and Sten actually gained knowledge that helped them achieve orgasm, the circulation of knowledge had served part of it purpose, so to speak.

The Hegelers proclaimed a form of practical knowledge: they emphasized sexual technique, a kind of knowledge that had to be translated into their audiences' own bodily experiences. As knowledge is involved in so many parts of our lives, including our sexual lives, it will never be easy to trace its circulation through all the different pathways. That said, our concern with our bodies and health has not diminished since the 1970s, and the ways to mediate knowledge have become more diverse. The questions of how celebrity and commercialization affect knowledge, and whether it actually increases or decreases the circulation of knowledge, are no less pertinent in today's knowledge society than they were when Inge and Sten Hegeler became Scandinavia's celebrity sexologists.

Notes

1 Gitte Løkkegaard, *Sten Hegeler: Dobbeltbastarden: Erindringer* (Copenhagen: Lindhardt & Ringhof, 2015), 103; 137.

2 The books were translated into several languages. The English versions have titles such as *An ABZ of Love*, *An Adult View of Love and Sex*, and *An XYZ of Love: Frank Answers to Every Important Question about Sex*. Sten Hegeler also wrote sex education books for children that were translated for international publication. In an interview in 1968, Sten Hegeler mentioned that the *ABZ* had been published in Finland, Norway, Sweden, the UK, Italy, the Netherlands, Germany, Canada, Australia, the US, and Mexico. *Dagbladet*, 23 November 1968. The UK version was revised by Alex Comfort and went through nine editions from 1963 to 1968. See H. G. Cocks, 'Saucy stories: Pornography, Sexology and the Marketing of Sexual Knowledge in Britain *c*.1918–70', *Social History* 29/4 (2004): 465–84 at 484. They also had advice columns in the Danish women's magazine *Femina* in the 1960s and in the Norwegian male magazine *Alle menns blad* in the 1970s.

3 I have not tried to trace all the different publications and editions of Inge and Sten Hegeler's work. The main sources for this chapter consist of books, films, and newspaper material. The best-known books that the Hegelers wrote together were *Kjærlighetens ABZ* (Stavanger: Stabenfeldt, 1962), first pub. as *Kærlighedens ABZ* (1961)); *Spørg Inge & Sten* (Copenhagen: Rhodos, 1968); and *La oss elske videre: Sex for erfarne* (Oslo: Ja-forlaget, 1971), first pub. as *Mandens og kvindens XYC* (1971). The films, all directed by Torgny Wickman, were *Ur kärlekens språk* (*Language of*

Love) (1969); *Mera ur kärlekens språk* (*More about the language of love*) (1970); *Kärlekens XYZ* (*XYZ of Love*) (1971); and *Kär lek: Så gör vi: Brev till Inge och Sten* (*Love-play: That's how we do it*) (1972). Their newspaper column was published in the Norwegian daily *Dagbladet.* A larger study of the circulation of sexual knowledge could draw on an even more extensive range of primary material, including the Hegelers' Danish and Swedish newspaper columns, magazine articles, various editions and translations of their books, and private correspondence.

4 Hegeler & Hegeler, *La oss elske videre*, 103–104. All translations are mine unless otherwise stated.

5 Hegeler & Hegeler, *La oss elske videre*, 86; see also Hanne Grasmo, *'Er det normalt?' Samlivsspalten som maktredskap, intimspeil og frigjøringsfane* (University of Oslo, 1993).

6 Among the Scandinavian sex reformers in the 1930s we find the German refugees Max Hodann and Wilhelm Reich. See Atina Grossmann, *Reforming Sex* (New York: OUP, 1995), 28–31, 186–8; Lena Lennerhed, *Sex i folkhemmet: RFSUs tidiga historia* (Hedmora: Gidlunds, 2002), 40, 177–8.

7 Siv Frøydis Berg, *Den unge Karl Evang og utvidelsen av helsebegrepet* (Oslo: Solum 2002).

8 Janice M. Irvine, *Disorders of Desire. Sex and Gender in Modern American Sexology* (Philadelphia: Temple University Press 1990), 2, defines sexology as an 'umbrella term denoting the activity of a multidisciplinary group of researchers, clinicians and educators concerned with sexuality'.

9 Inge and Sten Hegeler also wrote the foreword to William H. Masters & Virginia E. Johnson, *Menneskets seksuelle vanskeligheder* (Copenhagen: Stig Vendelkærs forlag, 1971), the Danish translation of *Human Sexual Inadequacy*. Masters and Johnson were renowned for their research of human sexuality in a laboratory setting, and especially for the human sexual response cycle, a four-phase model of response to sexual stimulation.

10 *Dagbladet*, 23 November 1968. There are similarities to Karl Evang, *Seksuell opplysning: En populær fremstilling av kjønnslivet og dets problemer* (Oslo: Tiden, 1951), 11–12, who emphasized how Kinsey had scientifically confirmed what many already knew.

11 Hegeler & Hegeler, *La oss elske videre*, 13–14.

12 Michel Foucault, *Viljen til viden: Seksualitetens historie*, trans. Søren Gosvig Olesen (Fredriksberg: Det lille forlag 1994), 18.

13 Janice Irvine, 'Is Sexuality Research "Dirty Work": Institutionalized Stigma in the Production of Sexual Knowledge', *Sexualities* 17/5–6 (2014): 632–56 at 634; see also ead., 'The sex lives of sex researchers', *Context* 13/4 (2014): 36–40.

14 Jeffrey Weeks, *Sexuality and its Discontents: Meanings, Myths and Modern Sexualities* (London: Routledge, 1985), 77–8, emphasizes that renowned sexologists were often already established in an 'acceptable discourse' (often medicine) before they made their names in sex research; see also Ivan Crozier, 'Pillow Talk: Credibility, Trust and the Sexological Case History', *History of Science* 46/4 (2008): 375–404 at 391, who mentions that today many sexologists are psychologists, but in the nineteenth century being a doctor was almost a prerequisite for being a credible pundit on sexuality. He quotes the American psychiatrist James Kiernan, who

claimed that the prurient did not exist in medicine, since 'science like fire purifies everything'.

15 Elisabet Björklund, *The Most Delicate Subject: A History of Sex Education Films in Sweden* (Lund: Lund University, 2012) discusses how the films' ambiguous position between sex education and sex films made the RFSU organization reluctant to contribute. The Hegelers did not seem to have had such reservations, however.

16 Hegeler & Hegeler, *Kjærlighetens ABZ*, 16–17, all translations unless otherwise stated are my own.

17 Hegeler & Hegeler, *Spørg Inge & Sten*, 140.

18 Ibid. 41.

19 In his memoirs, Sten Hegeler stated that he wrote *ABZ of Love,* but that they discussed the content and that in certain areas Inge was more knowledgeable than he was, so they should be considered co-authors. Løkkegaard, *Sten Hegeler*, 103, argues that this was also a very effective marketing tactic as 'Inge & Sten' became a very successful brand.

20 Hegeler & Hegeler, *Spørg Inge & Sten*, 53, 110; *Dagbladet*, 23 November 1968

21 Hegeler & Hegeler, *Spørg Inge & Sten*, 41.

22 Johan Östling, 'Vad är kunskapshistoria?', *Historisk Tidskrift* 135/1 (2015): 112. Östling refers to Philipp Sarasin's four analytic approaches to the history of knowledge.

23 Simone Lässig, 'The History of Knowledge and the Expansion of the Historical Research Agenda', *Bulletin of the GHI* 59 (2016): 45, argues that the history of knowledge may make us rethink the relationship between structure and agency, and that this makes it a 'promising analytical category'.

24 Andreas W. Daum, 'Varieties of Popular Science and the Transformation of Public Knowledge: Some Historical Reflections', *Isis* 100/2 (2009): 319–332 at 328.

25 Daum, 'Varieties of Popular Science', 329.

26 Lorraine Daston & H. Otto Sibun, 'Introduction: Scientific Personae and Their Histories', *Science in Context* 16/1–2 (2003): 1–8; Herman Paul, 'What is a Scholarly Persona? Ten Theses on Virtues, Skills and Desires', *History & Theory* 53/3 (2014): 348–71.

27 Sten Hegeler worked for years as external lecturer in 'psychological sexology' at the University of Copenhagen (Løkkegaard, *Sten Hegeler*, 220). In 1981 he was dismissed and there was a conflict about his academic credibility, perhaps indicating the growing professionalization of sexology.

28 Jessica Evans, 'Celebrity, Media and History', in Jessica Evans & David Hesmondhalgh, *Understanding Media: Inside Celebrity* (London: Open University Press, 2005), 24–36.

29 *Dagbladet*, 23 November 1968 (first published in the Danish daily, *Politiken*.) In Hegeler's memoirs *Dobbeltbastarden* there are many examples of the 'private' Hegelers posing for magazine and newspaper pictures (Løkkegaard, *Sten Hegeler*).

30 This is also something that can be seen in popular culture: Both the film *Kinsey* (2004) and the period drama *Masters of Sex* (2013–2016) deal with the relationship between the famous sexologists' private and public lives.

31 *Ur Kärlekens språk/Language of Love,* Torgny Wickman (Swedish Filmproduction Investment AB, Sweden, 1969).

32 *Kär-lek: Så gör vi: Brev till Inge och Sten/Love-Play: That is how we do it: Letters to*

Inge and Sten, Torgny Wickman (Swedish Filmproduction Investment AB, Sweden 1972).

33 Björklund, *The Most Delicate*, 219–20.

34 Dagmar Herzog, *Sexuality in Europe: A Twentieth Century History* (Cambridge: CUP, 2011), 2.

35 Personal ad, *Dagbladet*, 28 January 1970, my emphasis.

36 See, for example, David Allyn, *Make Love, not War: The Sexual Revolution: An Unfettered History* (New York: Routledge, 2001); Jeffrey Escoffier (ed.), *Sexual Revolution* (New York: Thunder's Mouth Press, 2003).

37 Pornography was legalized in Denmark in 1967–9 and in Sweden in 1971, while Norway retained its strict legislation.

38 Klara Arnberg, *Motsättningarnas marknad: Den pornografiska pressens kommersiella genombrott och regleringen av pornografi i Sverige 1950–1980* (PhD diss., Umeå University, 2010); Frederick Hale, 'Time for Sex in Sweden: Enhancing the Myth of the "Swedish sin" during the 1950s', *Scandinavian Studies* 75/3 (2003): 351–74; Lena Lennerhed, *Frihet att njuta: Sexualdebatten i Sverige på 1960-talet* (Stockholm: Norstedts, 1994). Sweden might have led the way in sexual liberation after the Second World War (or decline, as critics said); however, Scandinavia was regarded as a region of liberal attitudes. See Marta Kuzma, Pablo Lafuente & Tonja Boos (eds.), *Whatever Happened to Sex in Scandinavia?* (Oslo: Office for Contemporary Art, 2011). The Hegelers' work clearly lends itself to analysis as part of a much larger circulation of knowledge in Scandinavia. Such an approach could also highlight how the circulation between countries worked.

39 Advertisement, *Dagbladet*, 5 September 1970.

40 Cocks, 'Saucy stories', 465 analyses 'sex education' pornography and a pornographic genre that dealt 'scientifically' with sexual problems and the fusion of the two genres. According to Sten Hegeler, parts of their books were published in censored editions in certain countries. An interesting question is the degree to which the censoring of their work affected circulation and the perception of sexual knowledge as 'filthy' or 'scientific'.

41 Björklund, *The Most Delicate*, 200.

42 Ibid. 178–9.

43 Løkkegaard, *Sten Hegeler*, 188.

44 Hegeler, *Spørg Inge & Sten*, 50.

CHAPTER 3

From content to circulation

Influential books and the history of knowledge

David Larsson Heidenblad

Influential books are rarely neglected in historical research. Rather, they tend to occupy a privileged position among the historian's source material. My own field of research, the history of modern environmentalism, is no exception. For decades scholars have analysed landmark accounts such as Rachel Carson's *Silent Spring* (1962) and Paul Ehrlich's *The Population Bomb* (1968). However, despite these books' reputation as global bestsellers, it is their content and their authors which have attracted most attention from scholars.[1] Hence, we know much more about the intellectual underpinnings of the books than about how they circulated in the 1960s and beyond.[2] Neither is this unique to this particular field of research.

In this essay I propose that historians of knowledge could make original contributions to historical inquiry by substantiating a shift of analytical focus from content to circulation.[3] This implies that the wider importance of certain well-known publications should be empirically examined and demonstrated, rather than assumed.[4] Such research would not necessarily require the historian to analyse a book's contents in depth; rather it is its public circulation that demands a fine-grained interpretation. Where, when, how, and by whom were influential books mentioned and discussed in public? Which parts circulated as knowledge, and how was this knowledge moulded by various carriers and media? Questions of this kind are not new, yet they are in practice often overshadowed by the careful analysis of content, origin, and production. This begs the question of what would happen if public circulation were to be prioritized by historians of knowledge.

In the following I will reflect on this by drawing on my research on the Swedish debate about the future, which raged in 1971–1972.[5] This moment of public preoccupation with the long term was sparked by the Swedish biochemist Gösta Ehrensvärd's short book *Före–Efter: En diagnos* (1971), in which he argued that the technologically advanced societies of the early 1970s would soon become historical parentheses. According to his calculations, which centred on rapid population growth and dwindling natural resources, a global breakdown would likely occur in around 2050. He predicted that global collapse would be followed by centuries of mass starvation and political turmoil, after which a considerably reduced human population would be able to build up a new and stable agrarian civilization.[6] The book became an unexpected commercial success in Sweden, going through seven editions in its first year. It topped the bestseller chart and propelled its author to the centre of public attention. My concern here is to study how Ehrensvärd's forecast circulated as knowledge in Swedish society in the early 1970s.

Operationalizing circulation

The methodology I have employed to study the circulation of Ehrensvärd's predictions is inspired by the Swiss historians Philipp Sarasin and Andreas Kilcher. They define knowledge as an intrinsically communicative phenomenon and stress that it always requires a medium or carrier. Moreover, they distance themselves from concepts such as 'diffusion', 'conveyance', and 'exchange', since these imply that knowledge can easily be shared and transferred. Instead they argue that when carriers and mediums transport knowledge they inevitably mould the knowledge in question.[7] Knowledge is always formatted by its medium.[8] Thus it is important for historians to chart how knowledge has circulated, while remaining alert to its potential transformations.

The empirical focus of my study is the Swedish public sphere in the early 1970s. I have explored the major media platforms of the time—national newspapers (broadsheets and tabloids), magazines, television, and radio—in order to find out where and when Ehrensvärd's predictions were visible in the media landscape. My search began with a thorough examination of the leading newspapers of

the era, from October 1971 to June 1972. This extensive material was not only a valuable direct source, but gave an indirect sense of Ehrensvärd's relative importance in the public debate. In my experience this method is preferable to consulting collections of a more selective kind, such as clippings archives, since they do not have the larger media context in which the texts originally occurred—a lack that makes scholars prone to exaggerate, or misunderstand, the extent of any circulation.[9] However, it is also a time-consuming method and not without its problems. For that reason, I followed my initial survey with searches of the newspaper index *Svenska tidningsartiklar* and the database *Svensk mediedatabas* (audiovisual material). Upon excerpting the data, I came across references to other sources which I duly consulted. I concluded with exploratory readings of a number of popular magazines and specialist publications.

The final body of source material consists of reviews, op-eds, interviews, television programmes, political cartoons, essays, and photographs. Having ordered it chronologically, from the book's release in October 1971 to the early days of June 1972, (when the first UN Conference on the Human Environment was held in Stockholm) I was able to closely examine the circulation of Ehrensvärd's knowledge in the Swedish media.[10]

In answering the guiding questions of when, where, and how Ehrensvärd's forecast circulated as knowledge, and how different media outlets and journalistic genres moulded that knowledge, I paid particular attention to the recurrent themes and cross-references—to the points that moved between various media platforms and demonstrably circulated over a prolonged period of time. At an early stage I also found that the circulation of rival knowledge claims was crucial to how Ehrensvärd's knowledge circulated in the public sphere. I thus sought to unravel the larger discussions in which it featured, while not straying too far away from my empirical theme.

Another key methodological choice was how to deal with rare or unique occurrences, for example certain forms of critique of the ideological basis of Ehrensvärd's predictions. While I found these dissenting voices interesting, my guiding principle was to treat them as contemporaries had done. That is, if something was said publicly once or twice but not more, and met with a continuous silence, my

conclusion was that whatever the historical actor had to say had failed to circulate. Thus I did not follow through on my own curiosity for the particular and instead kept to general or recurring tendencies.

The strict day-by-day chronological sorting differed from my previous work on similar kinds of source material. A cultural historian by training, I have a preference for organizing material thematically, a mode of analysis that lends itself to pinpointing discursive patterns and underlying cultural logics.[11] However, when analysing circulation as a process that continuously moulds knowledge anew, I deemed greater chronological precision a necessity. I also soon established that even though Ehrensvärd's book was not revised between its various printings, the way it circulated in the Swedish media landscape most certainly did change.

To demonstrate this, I divided the period under investigation into four phases of public circulation: the entrance, the breakthrough, the challenge, and the cultural point of reference. While this is a sort of thematic order, it was derived from chronological sequencing and not from discursive affinities. In the following I will present what distinguished these phases from one another and discuss the general merits of the approach.

From urgent knowledge to pessimistic prophecy

In mid-November 1971, when the Swedish media first took notice of Ehrensvärd's predictions, the entrance phase began. Lasting out the year, it was marked by a reverence for Ehrensvärd's scientific credibility, hard facts, and meticulous calculations. However, at this point the media circulation consisted exclusively of book reviews. In this journalistic genre, the predictions were accepted as solid knowledge, but Ehrensvärd was by no means at the centre of public attention.

This changed in 1972, when several leading newspapers began the new year by publishing op-eds on this alarming knowledge. It was noted that Ehrensvärd's book had become a bestseller—topping the chart of Christmas book sales—and public interest intensified markedly. Of special importance in this phase, the breakthrough, was that Ehrensvärd started to give interviews. On 9 January 1972 he appeared on the front page of the Sunday issue of *Dagens Nyheter*, Sweden's most

prestigious newspaper at the time. In the accompanying interview he discussed the urgency of the situation and called for decisive political action.[12] The impact of this on the public circulation of his knowledge was plainly visible a week later, when the same newspaper interviewed the Swedish Prime Minister Olof Palme and the leader of the Liberal Party Gunnar Helén about their response to Ehrensvärd's forecast.[13] By now it was evident that the book had sparked substantial public concern and was regarded as urgent knowledge.

However, the way in which something circulates as public knowledge can change rapidly. During the third phase—the challenge—Ehrensvärd's claims were called into question and became the focal point for a polarized debate. The main reason for this was the publication of another book about the future, *Futurum Exaktum* (1972), by the nuclear physicist Tor Ragnar Gerholm. His vision of the future was rosy, even though he agreed with Ehrensvärd that dire problems loomed large on the horizon. Gerholm argued that human ingenuity, economic growth, and technological progress would provide solutions, come what may.[14]

Gerholm did not shun public attention or controversy. His account sparked several intersecting debates, which Ehrensvärd's predictions became entangled with. Moreover, the two professors' different outlooks were dramatized by tabloids and popular magazines. Gerholm was labelled an optimist, Ehrensvärd a pessimist and prophet of doom, and while he repeatedly sought to portray himself as a realist and long-term optimist it was the negative label that stuck.

In March 1972, though, it was Ehrensvärd who was invited by the ruling Social Democratic Party to speak to their national conference on the subject of the future: 'Is the future possible?' His address there was followed by an appearance on national television alongside high-profile politicians and environmentalists such as Tage Erlander and Hans Palmstierna. In this forum Ehrensvärd was once again acknowledged to be a respected, knowledgeable expert. And he not only spoke urgent words of warning, but also pointed to possible political and technological solutions.[15]

This was a stark contrast to the polarized press debate, and marked the beginning of the fourth phase of circulation—the predictions as a cultural point of reference. By now the Swedish debate about the

future was increasingly directed by other accounts, such as the Club of Rome report *Limits to Growth* (1972) and Paul Ehrlich's *The Population Bomb* (which were published in Swedish translation in the spring of 1972).[16] Ehrensvärd withdrew from public view, while his antagonist Gerholm continued to take a polemic, activist stance. However, Ehrensvärd's predictions remained a significant point of reference in public debate since the book was widely regarded as kickstarting Sweden's debate about the future. While he never entirely shook off the negative labels—pessimist, doomsday prophet—Ehrensvärd was also referred to as a distinguished expert on the future.

Circulation and conflict

The contents of Ehrensvärd's book *Före–Efter: En diagnos* did not change between the autumn of 1971 and the summer of 1972. Every reprint consisted of the same arguments, diagrams, metrics, and tables. However, as we have seen, his predictions did not circulate in the same manner throughout the period. What was considered to be urgent knowledge in November 1971 had been reduced to a pessimistic alternative in a polarized debate in February 1972. This outcome could not have been reached by an ever so close reading of Ehrensvärd's book; rather, the empirical result is directly dependent on a shift of analytical focus—from content to public circulation.

In Sarasin and Kilcher's discussion of circulation, they argue that the carriers and the media that transport knowledge invariably mould it.[17] This trait is discernible in the source material which I have studied, but of even greater importance is how the various knowledge claims interacted with one another. The most dramatic change in how Ehrensvärd's knowledge circulated was a direct consequence of Tor Ragnar Gerholm joining the public fray: Gerholm's rival knowledge claims radically altered the way Ehrensvärd's predictions and expertise circulated in the public sphere.

The important relationship between conflict and knowledge has attracted considerable attention in both the history and sociology of science.[18] It has repeatedly been stressed that the making of knowledge is a collective phenomenon, and is marked by competition.[19] In recent years there have also been studies of how public conflicts have been

deliberately staged about issues such as climate change and smoking in order to unsettle the public's trust in scientific findings.[20] While such conclusions cannot be drawn from my study, it is nevertheless evident that the public conflict between Ehrensvärd and Gerholm had a profound effect on how knowledge of the future circulated in the Swedish media in the early 1970s.

Transferability and prerequisites

How useful, then, are my findings to the development of the history of knowledge? Could the methodology I have employed be applicable in other empirical cases or fields of historical inquiry? What about its geographical and chronological scope? Could the circulation of knowledge in, say, early modern European societies be studied with a similar method? How about the contemporary digital landscape? Questions such as these are critical to the development of new analytical concepts. First, though, to some other possible lessons to be learnt from focusing on public circulation.

Other than the study outlined above, I have employed the concept of circulation in an essay that dealt with the advent of public environmental concern in Sweden in the autumn of 1967.[21] This study is centred on, but not limited to, the public discussion of Hans Palmstierna's book *Plundring, svält, förgiftning* (1967, 'Looting, starving, poisoning') and the edited volume *Människans villkor: En bok av vetenskapsmän för politiker* (1967, 'The human condition: A book by scientists for politicians').[22] My analysis makes evident that while the content of these books, and the scientific credibility of the authors, was similar, they circulated in distinctly different ways. While Palmstierna's book was widely lauded as reasonable and constructive, *Människans villkor* sparked political controversy. In this particular case, as in the debate about the future in 1971–1972, the concept of circulation was decidedly helpful in unravelling and analysing the differences.

However, I have also conducted studies where circulation has failed as a guiding concept, notably about the Swedish diplomat Rolf Edberg's pioneering account *Spillran av ett moln* (1966, *On the Shred of a Cloud*).[23] This book has been described as something of a public breakthrough for an ecological worldview in Scandinavia.[24] Yet, in

comparison with the autumn of 1967 and the spring of 1972, public interest in Edberg's book in the autumn of 1966 was lukewarm at best. As a result, I could not muster a sufficiently large, dynamic body of source material for the kind of circulation analysis I have outlined here. Instead, I decided to analyse the contents of the book and study its reception in a comparative Scandinavian perspective.[25]

Hence, as even my own small sample shows, there are limits to the applicability of the concept of the circulation of knowledge in historical research. It has served well in empirical cases where there was an intense, sustained public interest in a certain body of knowledge. In addition, I have found it particularly interesting to explore how related knowledge claims of various sorts circulated simultaneously and affected one another. It is also evident that knowledge and expertise tend to be thought indistinguishable in public circulation processes.[26]

Yet the larger historiographical question remains. Is my take on circulation relevant to other historical periods and settings? Is the existence of a modern public sphere necessary to explore the circulation of knowledge in this way? What about periods where exact dates are difficult or impossible to pin down? And what about historical instances where the potential source material is enormous? Where, for example, to begin a public circulation analysis of knowledge and expertise about climate change in the mid-2010s?

My answer is that there are most certainly limits to this understanding of the circulation of knowledge, and that the methodology will have to be properly adjusted if applied to other historical settings. It is my conviction, though, that historians of knowledge are well positioned to develop new alternatives to established research practices. If we decide to focus on how things circulated as public knowledge in the past, we will have to ask ourselves whether the source material we have gathered was of any real concern to contemporaries.[27] How many read it or came into contact with it? If the answer is very few, our first response will have to be to search for other kinds of material to analyse. True, if applied rigorously, this would severely restrict our view of the past. Yet, in my experience, it can still help us to ask new questions and explore new avenues—a good place to start if we plan on developing the history of knowledge.

'So should we not read influential books?' This question—and it's

a good one—has been raised at several conferences and seminars. My answer is that we should, but perhaps not for reasons we are used to, and not as the first thing we do. Rather, I would argue that it is particularly rewarding to read an influential book *after* analysing the public circulation of the relevant knowledge. By doing this, the historian will be able both to recognize the content that did circulate and to identify the content that did not. I would say the latter is the more interesting, as it is something that I have not previously encountered in my analyses of circulation. On several occasions it has struck me just how little of a book's content it is that actually enters public circulation. To me, this observation is yet another argument for us to shift focus away from knowledge as it was crafted and produced to knowledge as it was read and discussed.

Notes

1 John McCormick, *The Global Environmental Movement: Reclaiming Paradise* (London: Belhaven, 1989); Linda Lear, *Rachel Carson: Witness for Nature* (New York: Holt, 1997); Ramachandra Guha, *Environmentalism: A Global History* (New York: Longman, 2000); Matthew Connelly, *Fatal Misconception: The Struggle to Control World Population* (Cambridge, Mass.: Belknap, 2008); Thomas Robertson, *The Malthusian Moment: Global Population Growth and the Birth of American Environmentalism* (New Brunswick: Rutgers University Press, 2012).

2 Gary Kroll, 'The "Silent Springs" of Rachel Carson: Mass Media and the Origins of Modern Environmentalism', *Public Understanding of Science* 10/4 (2001); Tuomas Räsänen, 'Converging Environmental Knowledge: Re-evaluating the Birth of Modern Environmentalism in Finland', *Environment and History* 18/2 (2012).

3 This study was supported by the Crafoord Foundation and is part of the project 'The History of Knowledge Cultures: A New Programme'.

4 James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004): 659.

5 David Larsson Heidenblad, 'Framtidskunskap i cirkulation: Gösta Ehrensvärds diagnos och den svenska framtidsdebatten, 1971–1972', *Historisk tidskrift* 135/4 (2015).

6 Gösta Ehrensvärd, *Före–Efter: En diagnos* (Stockholm: Aldus, 1971).

7 Philipp Sarasin & Andreas Kilcher, 'Editorial', *Nach Feierabend: Züricher Jahrbuch für Wissensgeschichte* 7 (2011); Philipp Sarasin, 'Was ist Wissensgeschichte?', *Internationales Archiv für Sozialgeschichte der deutschen Literatur* 36/1 (2011).

8 Johan Östling, 'Vad är kunskapshistoria?', *Historisk tidskrift* 135/1 (2015).

9 For newspaper clippings and their survival, see Johan Jarlbrink, 'Historien i tidningsklipp—tidningsklipp i historien', *Historisk tidskrift* 130/2 (2010); Anke te Heesen, *The Newspaper Clipping: A Modern Paper Object* (Manchester: MUP, 2014); Johan Jarlbrink, 'Historievetenskapens mediehantering', in Mats Hyvönen, Pelle Snickars &

Per Vesterlund *Massmedieproblem: Mediestudiets formering* (Lund: Mediehistoriskt arkiv, 2015).

10 Lars-Åke Engfeldt, *From Stockholm to Johannesburg and Beyond: The Evolution of the International System for Sustainable Development Governance and its Implications* (Stockholm: Government Offices of Sweden, Ministry of Foreign Affairs, 2009).

11 David Larsson Heidenblad, *Vårt eget fel: Moralisk kausalitet som tankefigur från oo-talets klimatlarm till förmoderna syndastraffsföreställningar* (Höör: Agerings 2012).

12 Björn Berglund, 'Uran, kol, olja—allt sinar', *Dagens Nyheter*, 9 January 1972.

13 Björn Berglund & Carina Fredén, 'Kan ni rädda oss?', *Dagens Nyheter*, 16 January 1972.

14 Tor Ragnar Gerholm, *Futurum exaktum: Fortsatt teknisk utveckling? Spekulation om problem som måste lösas före år 2000* (Stockholm: Aldus, 1972).

15 'Kvällsöppet', *SVT2*, 7 March 1972.

16 Donella H. Meadows, Dennis L. Meadows, Jørgen Randers & William W. Behrens III, *Tillväxtens gränser: En rapport utarbetad för Romklubbens projekt 'Mänskligheten situation'*, trans. Margareta Eklöf (Stockholm: Bonnier, 1972); Paul Ehrlich, *Befolkningsexplosionen*, trans. Marianne Faxén (Stockholm: Jordens vänner, 1972).

17 Sarasin & Kilcher, 'Editorial'.

18 David Bloor, *Knowledge and Social Imagery* (Chicago: University of Chicago Press, 1991); Harry Collins, *Changing Order: Replication and Induction in Scientific Practice* (Chicago: University of Chicago Press, 1992); Harry Collins & Trevor Pinch, *The Golem: What You Should Know about Science* (Cambridge: CUP, 1998); Sergio Sismondo, *An Introduction to Science and Technology Studies* (Malden: Blackwell, 2004).

19 Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse: Feminism and Technoscience* (New York: Routledge, 1997); Staffan Bergwik, *Kunskapens osynliga scener: Vetenskapshistorier 1900–1950* (Gothenburg: Makadam, 2016).

20 Naomi Oreskes & Eric M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York: Bloomsbury, 2010).

21 David Larsson Heidenblad, 'Mapping a New History of the Ecological Turn: The Circulation of Environmental Knowledge in Sweden 1967', *Environment and History* (in press).

22 Hans Palmstierna, *Plundring, svält, förgiftning* (Stockholm: Rabén & Sjögren, 1967); Karl-Erik Fichtelius (ed.), *Människans villkor: En bok av vetenskapsmän för politiker* (Stockholm: Wahlström & Widstrand, 1967).

23 Rolf Edberg, *Spillran av ett moln: Anteckningar i färdaboken* (Stockholm: Nordstedts, 1966)

24 Jonas Anshelm, *Socialdemokraterna och miljöfrågan: En studie av framstegstankens paradoxer* (Stockholm: Symposion, 1995); Eva Friman, *No Limits: The 20th Century Discourse on Economic Growth* (Umeå: Institutionen för historiska studier, 2002); Björn-Ola Linnér, *Att lära för överlevnad: Utbildningsprogrammen och miljöfrågorna 1962–2002* (Lund: Arkiv, 2005): Bredo Berntsen, *Grønne linjer: Natur- og miljøvernets historie i Norge* (Oslo: Unipub, 2011).

25 David Larsson Heidenblad, 'Ett ekologiskt genombrott: Rolf Edbergs bok och det globala krismedvetandet i Skandinavien 1966', *Historisk tidsskrift* 95/2 (2016); David Larsson Heidenblad & Isak Hammar, 'A Classical Tragedy in the Making: Rolf Edberg's Use of Antiquity and the Emergence of Environmentalism in Scandinavia', *International Journal of the Classical Tradition* 24/2 (2017).

26 Paul Warde & Sverker Sörlin, 'Expertise for the Future: The Emergence of Environmental Prediction *c.*1920–1970', in Jenny Andersson & Eglė Rindzevičiūte (eds.), *The Struggle for the Long-Term in Transnational Science and Politics* (New York: Routledge, 2015).

27 Andreas Daum, 'Varieties of Popular Science and the Transformations of Public Knowledge', *Isis* 100/2 (2009).

CHAPTER 4

Political knowledge in public circulation

The case of subsidies in eighteenth-century Sweden

Erik Bodensten

In a recent article, Johan Östling and David Larsson Heidenblad introduce a Swedish audience to a key concept in knowledge history—circulation.[1] They argue that historians' recent interest in knowledge circulation should specifically be directed towards *public k*nowledge circulation. In line with the theoretical discussion seen in recent years in fields such as the history of science, the history of knowledge, and global history—which has begun to converge into a certain degree of consensus—they argue that the clear distinction between the production and the communication of knowledge should be abandoned, as should the simple model of diffusion. The focus should furthermore be shifted from the origins and the production of knowledge towards the circulation process and the context in which this knowledge was or became significant. Here, the historian should keep in mind that knowledge has potentially changed in the circulation process, both in terms of content and form, which is why the analysis should also focus on how knowledge has changed as it moved between locations, actors, media and genres. In addition to the social, spatial, and media dimensions of circulation, the analysis should also include factors such as power relations in society, which may have limited the circulation of knowledge in various ways: one cannot assume that knowledge has circulated freely, equally accessible to all.

However, following the historians of science James Secord and

Andreas Daum, Östling and Larsson Heidenblad argue that the circulation process should be studied specifically in a societal context, as an important societal phenomenon.[2] When, where, how, and why has knowledge historically been societally significant, seen as legitimate and relevant to larger groups of people? And in what ways has this knowledge been reshaped in the process of societal circulation? Östling and Larsson Heidenblad argue that these are questions that should be at the forefront for historians studying the circulation of knowledge.

Herein lies an implicit critique of previous research, which often, although to a lesser extent, has clarified the relationship between the analysed knowledge and society at large. Sometimes the claims regarding societal relevance and scope have simply been too great. Östling and Larsson Heidenblad argue that instead of studying knowledge of lesser obvious impact on society and how it circulated in relatively small social and geographical contexts—frequently within the scientific community—historians of knowledge should to a greater extent focus on aspects such as societal discoveries and knowledge breakthroughs, in addition to how crises such as war and epidemics have affected the circulation of knowledge. In some cases, this necessitates a shift in emphasis to other actors, practices, arenas, time periods, and sources. This perspective also broadens the concept of knowledge, beyond science, to the point where knowledge as a religious belief or economic theory also becomes highly interesting. The focus is on the kind of knowledge that Andreas Daum refers to as 'public knowledge', that is, the widely accepted, albeit not uncontested, understanding of a much wider group of people.

For a cultural historian like myself, with an interest in the general rather than the particular in society, Östling and Larsson Heidenblad's approach is both attractive and important. But is it also applicable to an early modern context? To eighteenth-century Sweden, my own field of research? Did the circulation of knowledge in this time period leave enough traces in the sources to enable such an analysis? Is it possible to follow the knowledge in transit, throughout early modern society, via media read by larger groups of people and arenas they frequented? Is it possible, as Larsson Heidenblad has done for a much later period, to analyse how the knowledge in an influential book circulated and was mediated, reshaped, and received?[3] Can this type of influence be

judged when we lack information concerning geographical distribution and the size of the editions, when it is impossible to accurately date texts, and when the names of the knowledge actors in question are frequently not known to us? And what is the effect if the analysis is extended to include politically controversial knowledge, which was subject to strict censorship?

In this essay, I do not claim to answer these questions. Instead, I aim to demonstrate one possible approach to the problem of the public circulation of knowledge in the early modern period, namely to analyse the processes and the moments when public access and communication of a particular body of knowledge increased significantly. This more modest approach differs from Östling and Larsson Heidenblad's in that it is restricted to the public sphere, an important, if limited, part of society.

My empirical case concerns the eighteenth-century equivalent of the modern field of international relations, and, more specifically, political knowledge of subsidies (sums of money paid by one state or prince to another, in return for military or political assistance) and the Franco-Swedish subsidy alliance. The guiding questions are why, when, and how this particular body of knowledge began to circulate as public knowledge and became prominent in the eighteenth-century Swedish public sphere; what was the content and nature of this body of knowledge; and to what extent did it change in the process of public circulation.

The when and why

For much of the seventeenth and eighteenth centuries, Sweden was aligned with France as the junior partner in a political and military subsidy alliance. This determined Swedish foreign policy to a considerable extent. With the help of extensive French subsidies, impoverished Sweden was in a position to significantly increase its military capabilities and implement an activist policy that would have been impossible otherwise. In exchange, Sweden was forced to become a part of the European system of alliances, and to partially conform to the interests of France. Within a small group of Swedish statesmen and military leaders, there was full knowledge of the great importance of

the French subsidies in terms of Sweden's military abilities and foreign policy orientation. For a long time, however, this knowledge did not circulate in the Swedish public sphere. There was a strong view that only a handful of statesmen should have knowledge of such state secrets.[4]

Then in 1735–43, and again and more importantly in 1769, this changed. Before and during the 1769 session of the Swedish Diet, a stunned public was able to read about the long-standing Franco-Swedish subsidy alliance in a large number of texts of different genres and published in different media. Here, a vast field of knowledge concerning subsidies, their history, and their function in the international system was laid bare in print. In order to understand why this came about, and why at this particular time, we must take into account a number of overlapping political factors.

One such factor was that the Swedish political system had been moving in the direction of parliamentary democracy ever since 1720 or so, the result being a much less powerful monarch and a more limited concentration of power. This altered the conditions for political knowledge circulation on a structural level.[5] Since the 1730s, the Diet was dominated by two parties—the Hats and the Caps—where the former strongly supported the Franco-Swedish subsidy alliance, whereas the latter tended to lean more towards Russia and Great Britain, and sought to carry out a more cautious policy, balancing between the major European powers. This party political conflict soon drew in more and more people, and spread beyond the closed doors of the Diet. From 1735 until the next session of the Diet in 1738, the Hats, in collaboration with the French ambassador, used the promise of French subsidies to mobilize political support and overthrow the Cap-dominated government. This scheme was successful as the Diet dismissed the government and replaced it with one that was friendlier towards France.[6] The old Franco-Swedish subsidy alliance from the seventeenth century was renewed, and in the event lasted until the 1760s. During these critical years, knowledge of the subsidies was still almost exclusively circulated by means of handwritten pamphlets. Official censorship prior to publication mostly stopped political knowledge circulation in printed texts.[7]

The domestic and foreign political situation of the 1730s and early 1740s soon altered, and with it the once great interest in discussing

the subsidy alliance in the pamphlet literature. During these years, knowledge of the subsidies only appears to have circulated sporadically, and it was definitely not at the centre of the political debate, as was the case previously. In the 1760s, however, the political situation started to change. The fiscal chaos that followed the Seven Years War (1756–63), in addition to other factors, forced France to suspend its subsidy payments to Sweden—a significant setback for the Swedish government. During the Diet of 1765–66, the Caps finally managed to break the Hats' hold on government, which had lasted for several decades, and form a new government of their own. However, they failed in their efforts to replace the suspended French subsidies with British equivalents. The political situation of the 1730s thus seemed to be about to repeat itself. The Hat opposition prepared itself to mobilize political support and take back the government by using the issue of subsidies at the next Diet, scheduled for April 1769. Meanwhile, the anti-French position of the Cap government renewed France's interest in helping the opposition in its endeavour. Pro-government forces likewise prepared to defend the current policy and criticize the Franco-Swedish subsidy alliance. As a result, both sides received substantial financial support from their respective foreign backers. There are good reasons to believe that some of these funds were directed into lobbying on the once again key political issue of subsidies.[8]

Thus it was that a large number of printed texts started to appear in 1769 arguing either for or against the Franco-Swedish subsidy alliance, as well as subsidies in general. Just as in 1735–43, the political actors, both foreign and domestic, now had strong reasons for circulating this body of knowledge. However, there was a crucial difference compared to the knowledge circulation thirty years prior, and that was the new and exceedingly far-reaching Freedom of the Press Act, introduced by the new Cap government in December 1766.[9] At this point, the session of the Diet was just about to end, so it was not until the following Diet of 1769 that it became clear to what extent the new law had actually changed the conditions for the public circulation of political knowledge. For the first time in Swedish history, the authorities now allowed the public circulation of knowledge concerning something as politically sensitive as the subsidy alliance, even though the ban on libelling the government, the Diet, and foreign powers remained

in place, which is why the authors sometimes still used some caution when expressing their views.[10]

In pinning down when this body of knowledge had its public breakthrough, and why, we should also take into account the economic crisis that had continued to worsen throughout the 1760s.[11] At its root was the Swedish intervention in the Seven Years War, which resulted in fiscal chaos in Sweden just as in many other parts of Europe.[12] The crisis was aggravated by the inflationary policies that were the Hat government's response to their abysmal finances. The situation became truly disastrous after the change of government in 1765–66 and the deflationary policies launched by the Diet, and by the time of the Diet of 1769 things had come to a head. Even more tryingly, France first suspended and then completely cancelled its subsidy payments, which were crucial for the Swedish state budget. And all the while, the crisis fuelled the need for economic knowledge and debate. This is evident in the pamphlet literature, which in these years devoted a great deal of attention to monetary and fiscal issues.[13] The question of the subsidies also had a given place.

How knowledge circulated

So far, it appears as if the final breakthrough of public knowledge in 1769 is best explained by the particular political situation, both domestic and foreign; by gradual and more sudden changes in the political and media system; and by a complex and serious socio-economic crisis.[14] However, when we proceed to the question of *how* this knowledge circulated, we are able to conclude that these changes seem significantly less dramatic. The new Freedom of the Press Act meant that knowledge concerning subsidies, as well as knowledge concerning international relations more generally, also began to circulate in printed media. In addition to the previously completely dominant handwritten pamphlet[15]—which continued to play an essential role in terms of political knowledge circulation—the printed pamphlet[16] and the printed newspaper,[17] which was usually issued weekly or semi-weekly, and which may more accurately be described as a periodic pamphlet,[18] became the primary forms of political media.

However, the fact that the knowledge was reformatted as it was

transferred from one medium to another does not seem to have changed its content in any major way.[19] It is for instance hard to detect any commercial adaptation in terms of appeal or format. The letter pamphlet, usually eight pages long, remained the most common format. Only rarely did the authors try to make their texts more appealing by using humour or other stylistic devices. Just as before, there were no images. The probably most noticeable expression of the fact that there were now commercial interests associated with the publication of these texts is the fact that the printers in question—about a dozen in total and primarily working out of Stockholm—do not appear to have paid all that much attention to party political loyalty; instead they printed whatever came their way. Only one printer, Peter Hesselberg, exclusively offered his services to a particular camp (in his case, the pro-French opposition). In terms of timing, and as before, the political texts tended to be concentrated to the parliamentary sessions, which took place every three years—or even more frequently—and often lasted up to a year. The first weeks of the session and the time immediately preceding it seem to have been particularly important. The pattern whereby the number of political publications drastically subsided after and between parliamentary sessions still existed.[20]

Furthermore, the political authors almost exclusively also chose to continue publishing their work anonymously or by using a pseudonym, seemingly uncertain concerning the protections of the new law and well aware of previous political legal actions against unwanted political writers. The anonymous format also had the benefit of enabling the harsh polemics prevalent in the handwritten pamphlets. The genre convention whereby anonymous authors ruthlessly attacked each other's character and motive was here transferred from an older medium—the handwritten and illegal pamphlet circulating by means of loans—to the new medium of the printed, legal and sold pamphlet. These polemics were commonly sarcastic in tone, as when the anonymous Johan Lorens Odhelius praised the French subsidies—a friendly gift that Sweden paid back in the form of the lives of just a few thousand poor subjects, one of Sweden's cheapest export goods.[21]

Another important feature of the texts dealing with the subsidies was that the authors adopted a knowledge-based approach to the subject—clearly characterized by rationalism and empiricism—involving both

definitive claims about the world as well as accompanying instructions for action. This issue was consistently discussed with references to evidence, reason, logic, rationality and truth, and not infrequently with a significant measure of objectivity. The authors pointed out misconceptions, errors and inconsistencies in the arguments of others, while they themselves provided facts in the case supporting their various perspectives. They generally recognized the truth in, for example, historical data concerning past subsidy treaties, while simultaneously pointing out why these data did not undermine their key argument.

The pamphlets were often of an educational, sometimes also authoritative, character. In general, however, this type of knowledge was not presented as exclusive and new, and the reader was expected to be familiar with the subject. It was pointed out that the arguments of the opponents reflected a remarkable level of ignorance, that they in fact could and should possess knowledge concerning, for example, the fact that a minor power such as Sweden needed to align itself with a major power and that the European system of states was bipolar in this respect—that Sweden was really only able to choose between a couple of alternatives. The authors typically laid down a form of social law of nature, which on the basis of rationality either forced Sweden to re-establish its links to France and thereby receive subsidies or once and for all cut off this dependency.[22] For instance, an anti-French author argued that each boy at the school of St. Jacob knew what *Aristarchus* apparently was unable to understand—that Sweden's position had nothing but declined during the last 30 years of being allied with France.[23] Everyone knew, countered a pro-French author, that the French subsidies had enabled the Swedish victories during the Thirty Years War.[24]

An expression of the knowledge-based approach was the tendency to quote, which used to be less common in the earlier handwritten pamphlets. It is easy to conclude that the accuracy and the larger editions brought on by the printed reproductions resulted in increasing requirements in terms of quoting other sources correctly, while it also became more effective to display errors by using direct quotes now that the readers could easily consult their own copies. There were different ways of using quotes. One author for instance chose to bolster his arguments by using a long quote from the minutes of the Council

of the Realm, where the Lord High Chancellor, Axel Oxenstierna (1583–1654), warned about French subsidies and rhetorically asked whether there could possibly be anyone who did not fully understand the deceitfulness of France.[25] Using quotes could also provide a basis for criticism, like when the magazine *Den politiske Aristarchus* ('The Political Aristarchus') critically but correctly quoted the pamphlet *Bref Til en Befullmägtigande i wigtige Ärender* ('Letter to a Member of Parliament Concerning Important Matters'), which had shortly before concluded that war was inevitable as long as the Estates continued to rely on alliances and subsidies. This was not just factually wrong, *Aristarchus* argued, anyone with a knowledge of history knew that there had been a period at the beginning of the century—when Sweden had not been allied with France but instead conformed to an 'unnatural' and 'unfortunate system'—when Sweden's provinces, freedom, armies, reputation and inner strength had been lost. *Aristarchus* was also critical of his antagonist's dishonest ways in terms of his argumentation. There was no reason to try to hide the occasions when France had betrayed Sweden, but there was certainly no reason to 'against all facts' slander an ally, which had also for long periods of time faithfully stood by Sweden, and present this country as a general enemy of Sweden.[26]

The exchange of rhetorical blows brought on by this letter pamphlet is interesting, as it also gives us an insight into just how fast the circulation could take place, which is frequently difficult to ascertain in other cases, as it is rarely possible to date these texts with a high level of accuracy. The pamphlets are usually simply dated with a particular year (in this case 1769). Nevertheless, this particular pamphlet, which initiated this exchange of views, was probably published already in January of this year, as it was addressed in *Den politiske Aristarchus* already at the beginning of February. This is also supported by the fact that the pamphlet resulted in a critical pamphlet in response, which in turn received a response that was just as critical. This final pamphlet in fact contains an exact date (10 February), which is uncommon. The pamphlets were printed in either Stockholm or Uppsala.[27] The Estates were not called to the Diet until 22 April, but the public political debate was already in full swing in terms of shaping the political agenda.

Another common feature of the 1769 texts discussing subsidies

is that they all belong to a political, and very polarized, context. The authors may have looked upon the Franco-Swedish subsidy alliance as a question of knowledge, but they were hardly involved in any unbiased quest for knowledge. These texts were without exception politically biased—frequently directly inflammatory—which is noticeable in how they chose facts and perspectives, how they refer to other texts, etcetera. It is illustrative that the authors—despite the protection offered by being anonymous—chose to take a clear position, either for or against the Franco-Swedish subsidy alliance, rather than adopting a more problematizing position beyond or between these two views. Here, the exceedingly polarized Swedish (two-)party system of that time clearly limited the form of knowledge being circulated. It was not infrequent that the authors touched upon the great complexities of international relations, even though they still soon resorted back to an unambiguous for or against. Furthermore, behind many of the most important publications (e.g. *Den politiske Aristarchus*, and *Uplysning För Swenska Folket* ('Enlightenment for the Swedish People'), there was also a direct political client with a clear political agenda.[28]

The particular political context also had an effect on how this body of knowledge circulated. Rather than offering their readers a fair and full account, the authors instead commonly chose to focus on some aspect that seemed advantageous to argue against. The common format of the pamphlets—mostly eight pages in quarto—probably contributed to this trend, as it hardly facilitated more nuanced and detailed accounts. Anders Nordencrantz' authoritative book running to several hundred pages, *Tankar Om Krig i gemen Och Sweriges Krig i synnerhet* ('Thoughts Concerning Wars in General and Sweden's Wars in Particular'), the first part of which was published in 1767, was in 1769 only referred to with regard to short fragments and not in a particularly large number of other texts.[29] Nordencrantz' text was perhaps the first to discuss the subsidies more comprehensively, and previous research has often highlighted it as being particularly important for the contemporary debate concerning Swedish foreign policy.[30] The fact that this book does not appear to have had all that much influence over the circulation of knowledge concerning subsidies may therefore seem surprising. However, if we take the mediation into account, perhaps it is not all that remarkable. The texts that resulted in

longer exchanges are instead united by their significantly shorter—and cheaper—format. They were also significantly less overburdened with footnotes and educated digressions than Nordencrantz' opus.

The case of Nordencrantz also serves as a good illustration of a few more general conditions. No single individual or text intervened and made a significant mark on the 1769 circulation of knowledge concerning subsidies. Instead, it was the sheer number of texts suddenly concerned with subsidies that became a part of public political discussions at this time, which is why it is accurate to speak in terms of a public breakthrough for this particular body of knowledge. Furthermore, the form of knowledge circulating in printed media during this year was relatively insular in nature. This means that Nordencrantz' book was atypical also in this regard. On the contrary, the vast majority of Swedish texts rarely looked beyond the Swedish experiences of the last two centuries. But there were exceptions. For instance, one pamphlet critically reminded its readers how Charles II (1630–85) had sold out English interests in exchange for French subsidies.[31] An equally critical pamphlet brought up the argument that both Rome as well as the Persian kings had used subsidies to suppress the Greek states when their arms failed to do so.[32] It was even more unusual that the Swedish texts referred to foreign texts or what authorities such as Samuel von Pufendorf, Christian Wolff and Johann Jacob Moser had to say on the subject. The Swedish texts instead almost exclusively engaged in a dialogue with one another, on the basis of an unambiguous and short-sighted political agenda, and frequently clearly joined—usually already in the title—some clearly identifiable exchange of views, either as the initiating text or as a subsequent text in reply. At the same time, a substantial portion of the texts do not seem to have been circulated nor left any traces whatsoever at the time.

Knowledge in circulation

With regard to the content and nature of this body of knowledge, we see that it was generally more detailed, as well as in some senses also more analytical, compared to the body of knowledge circulating in handwritten pamphlets thirty years before. In 1769, for example, the readers were told who the two main donors were—France and

Great Britain—and that states such as Denmark and Prussia had also received subsidies. The historical analysis of the Franco-Swedish subsidy alliance was detailed. The readers were informed of the birth of the alliance and the important initial treaties signed in Bärwalde in 1631 and in Heilbronn in 1633. The size of the many transactions was discussed, as was the importance of the subsidy alliance for political decision-making in Sweden; for example, how the subsidies had had an impact on Sweden entering the Franco-Dutch War (1672–78), which turned out to be a disaster for Sweden. French subsidies were said to have been spent primarily on military matters, such as fortifications, which would otherwise have been impossible to pay for.[33]

It is striking that the subsidies were not defended as commercial ventures. On the contrary, profit was the basis for criticism and something that the subsidies' opponents used to discredit them. One such text, in answering a recent pro-French proponent of subsidies, scoffed at the Swedish desperation to form long-distance alliances. It sarcastically concluded that Swedish auxiliaries should simply be offered to China and transported to Canton, where they could bring in large subsidies as a garrison.[34] This pamphlet is also an example of how it is possible to identify fragments of an individual text entering public circulation. In a surviving diplomatic report, the British minister in Stockholm, John Goodricke, stated that he 'gave a few guineas to an author to set their [the proponents] position in a ridiculous light … which he executed with such humour that above 2,000 copies of it were sold in twenty-four hours.'[35] As for the issue of profit, the subsidies, as argued by Peter Wilson, were primarily vehicles for the advancement of political ambitions, such as security or territorial expansion. Only rarely did they provide the recipient state with any type of fiscal profit. More commonly, they in fact resulted in large deficits, as the costs came to far exceed the subsidies.[36] The Swedish authors were aware of this, and those who argued in favour of the Franco-Swedish subsidy alliance did so for reasons of politics, arguing that the subsidies lowered Swedish expenditure, even though they did not cover it completely. Some publications also discussed the discrepancy between France's subsidy payments and Sweden's higher outlay—a good illustration of how this body of information circulated as knowledge:

A few days before the opening of the Diet in April 1769, the periodical

Den politiska Aristarchus asked how much the Seven Years War had actually cost the Swedish Crown. This question had been raised not long before in the published minutes of the Council of the Realm from 1756, in which an anonymous author named the staggering sum of 70 million daler silvermynt.[37] This was dismissed by *Aristarchus*, claiming that the war had instead cost 62 million. However, the tributes that Sweden had demanded in Prussia must be deducted from this sum, a statement that is supported by a reference to the national audit of 1765.[38] Furthermore, French subsidies had covered a considerable portion of the costs. Nevertheless, *Aristarchus* was sceptical, especially of the claim that the subsidies had only covered one-sixth of the costs, and said that the publisher of the Council minutes had not offered any support for this figure or some form of reference.[39]

It did not take long for a reply to be published. An anonymous author, allegedly identical with the publisher of the council minutes, viciously attacked *Aristarchus*. His first line of criticism concerned his antagonist's deliberately misleading ways of reporting others' writings in order to conceal the truth, and he urged everyone to compare the two texts themselves. This was followed by a critical account of his counterpart's calculations, among other things, it was said that the tributes had already been deducted. He had also collected the data on the relatively small French subsidies from the same national audit that served as the basis for *Aristarchus*' calculations—something *Aristarchus* was said to be very well aware of. At the same time, the anonymous author reminded his readers that out of the French subsidies for the war, 10 million livres had still not been paid out, as the Swedish contingent of troops was said to have been smaller than Sweden had initially promised. This was something *Aristarchus* himself had in fact acknowledged in his eighth point (page 32). One should certainly be careful, the author scoffingly reminded his readers, not to forget what you have already said in public. He then went on to the larger question of the socioeconomic costs of the war, which must have exceeded 100 million. One could read about this in several detailed government accounts and documents. He finally challenged *Aristarchus* to refute this calculation if he could, and to have this refutation printed and released to the public—for a simple no was definitely not enough to dismiss his hypothesis.[40]

This debate was linked to the wider issue of the relationship between the Franco-Swedish subsidy alliance and the aforementioned socio-economic crisis. Whereas some texts stressed that the subsidies had significantly strengthened Sweden's state finances, others claimed that the subsidies—or more specifically, the Franco-Swedish subsidy alliance and the wars it resulted in—were what caused this problem, now and in the past.[41] The pro-French texts objected to what they perceived as an overly narrow perspective on economic utility. One periodical thus attacked the Caps' primary mouthpiece, *Uplysning För Swenska Folket*, for its criticism of the subsidies, which was described as unreasonable. Arguably, a strong defence costs money, but was nevertheless necessary in order not to lose all your possessions. Surely, you made sure to buy both locks and keys to keep thieves out, the author asked rhetorically.[42]

If we adopt a bird's-eye perspective and instead examine the wider truth claims in this body of knowledge, we find a rationalist and mechanistic ontology, which at this time also dominated many other fields of knowledge. As if obeying the laws of Newtonian physics, nation-states were here seen as linked in a self-contained, static, well-ordered and predictable system, like the workings of a machine. Just as in nature, there were natural laws that regulated how the system of nation-states operated. A key aspect of this form of knowledge was the concept of reason of state, *raison d'état*, which assigned various interests to the states—dictated by geopolitical, demographic, and commercial factors—guiding the way they acted and how they related to one another. This system resembled Hobbes' state of nature, in so far as nation-states were all involved in a violent and lawless struggle with one another, which out of necessity compelled them to pursue their own self-interest and reject any form of idealism. What brought some stability to the system was that it was in the common interest of all actors that no individual nation-state, or constellation of nation-states, should be allowed to be powerful enough to dominate part or all of the continent. Before this happened, one could expect that the other European nation-states, acting purely in self-preservation, would mount a united resistance. This mechanism was conceptualized as the balance of power. Any change that might possibly upset the power equilibrium was carefully watched. Every shift of power was seen as

propagating itself throughout the system, forcing the other nation-states to adapt in a never-ending balancing act.[43]

This form of knowledge was expressed in many different ways. One pamphleteer for instance warned about what he had recently read in a newspaper, that the French annexation of Corsica risked fanning the flames of war in Europe, which in turn would presumably spread further—first to the Ottoman Empire, then to Russia, and finally to Sweden. As long as Sweden relied on subsidies and alliances, it would always face this type of risk, being drawn into a war as the result of something peripheral in the system of states.[44] Another author in a typical way based his argument on the anarchy of the system of states and stressed the importance of alliances with faraway powers as a guarantee of good relations with neighbours whose intentions one could never trust; unlike the latter, the former always had a common interest in defending and helping one another.[45] Another pro-French author concurred: of course Sweden, just like any other European state, could not go it alone, without treaties with allies.[46] Two subsequent texts in response strongly opposed the conclusion that Sweden should therefore ally itself with France, but nevertheless agreed on a principal level that this was a 'political axiom'.[47]

Both those defending and opposing the Franco-Swedish subsidy alliance were careful to point out that their opinions were based on an analysis of the best interests of the two countries. One pro-French author admitted that France's long-term assistance to Sweden had been based on its own self-interest, which was absolutely natural. In fact, it would be foolish to think that states or princes ever acted for any other reason, or that friendships between states reflected anything but shared political interests.[48] The same form of knowledge prompted an author critical of subsidies to conclude, after a long historical account, that France always acted solely in its own interest: 'However, I wonder not at this. It is so natural that it is ignorant to convince oneself and others that the matter is different.' The same author argued that for this reason one should not talk in terms of natural friends or enemies at all. These two terms were commonly used in this way, but gave a misleading picture of the nature of international relations.[49]

In these polemics, we can also see traces of a different and conflicting

form of knowledge, which instead viewed international relations in terms of moral rationality, and explained the giving and receiving of subsidies as expressions of friendship and loyalty or deceit and envy. This body of knowledge only had a few clear advocates and thus primarily circulated in the form of refuted knowledge. Interestingly, one exception was the important Cap magazine *Uplysning För Swenska Folket*, which pronounced the relationships between nation-states and individuals to be much the same: just as traits such as being helpful and sincere formed the basis of a friendship, traits such as reluctance and deceit could also destroy the said friendship. This analogy may appear foolish, the author concurred, but it was nevertheless true, as history showed.[50] Here it should be noted that the older form of knowledge, which explained war and peace as extensions of human sin and divine intervention—with the purpose of communicating a normative moral order to the populace—and which still existed in a few other contexts, was here entirely absent.

However, the underlying claim concerning the primacy of the interests of the state in no way settled the political matter at hand. The authors opposed to the Franco-Swedish subsidy alliance did so based on this perspective. For example, several authors linked the subsidies to trade policy and suggested that Sweden should instead orient itself towards Great Britain. The Swedish trade surplus with Great Britain was said to be three times larger than the French subsidies had been. At the same time, Sweden was also said to have a large trade deficit with France, which also far exceeded the subsidies.[51] However, the opponents' strongest argument was that France's primary interest was to hold Russia in check, with Swedish assistance, and by extension Russia's Habsburg ally. This was the absolute opposite of Sweden's primary interest, which was said to be detente with Russia. In as much as Sweden and France had had any shared interests, they had evaporated as a result of the Franco-Austrian rapprochement of 1756.[52]

This so-called diplomatic revolution was only one of several factors that now fundamentally transformed the international system. By the end of the Seven Years War in 1763, the European states system had become a multipolar system, with France's power on the wane and Prussia and Russia having assumed the status of great powers. Instead of the previous balance of power between France and her enemies

Great Britain and Austria, the states system collapsed into a western and an eastern part, outside which none of the five powers had all that much direct influence. Together, however, they came to dominate the system in a qualitatively new way; a relationship that now gave rise to the concept of the 'great powers'. The role of the second-rate powers, such as Sweden, was heavily reduced as a result. These changes made it increasingly difficult for minor powers to form alliances with the great powers, which is why the importance of the nation-state's own instruments of power instead increased. The reach of the great powers grew at a considerably faster rate. Together, these changes resulted in the disappearance of much of the relative predictability and stability that had characterized the states system hitherto; the most obvious result being the partitions of Poland.[53]

However, with the exception of Franco-Austrian detente, these changes were nowhere to be seen in the knowledge circulating in Sweden. For example, the authors continued to refer to the old accepted knowledge concerning a European balance of power, albeit including the fact that Great Britain had now taken over the traditional role of the Habsburg Empire as a counterweight to France. Nor is the new concept of the great powers found in the Swedish texts. The fact that Russia's power had increased very rapidly, and now far exceeded Sweden's, was considered indisputable. However, the knowledge that the states system also guaranteed a regional balance of power—that no single power would be allowed to dominate a region such as the Baltic—was still regarded as authoritative. The authors were also unable to see how Great Britain, despite its newfound strength and its successes in the Seven Years War, now actually had far less influence in the Baltic region than it had had earlier in the eighteenth century, as a result of its withdrawal from continental affairs and its focus on colonial consolidation. In a similar manner, obsolete knowledge continued to circulate in the texts. Nowhere, however, was the inability to see how reality had changed greater than in the case of France. For someone in 1769 getting all of his or her knowledge of international relations from the Swedish print media, it would have been impossible to understand just how much France's military, political, and financial influence and prestige had declined since the Seven Years War, to the point of evaporating

altogether in eastern Europe. Not a single author—not even any of those opposed to the Franco-Swedish subsidy alliance—appears to have doubted the vast power of France.

Concluding remarks

So, is it fruitful to analyse the processes and moments when public access to a particular body of knowledge and its communication increased significantly, even in an early modern context? I would argue that it is, but that it also has its limitations in terms of methodology. Nor is it difficult to understand why the circulation perspective has only rarely been applied to the public politics of the period, this in spite of its proponents, most notably Robert Darnton, whose 'multi-media feedback system' for all intents and purposes corresponds to the circulation perspective discussed here.[54] A particularly difficult aspect is following knowledge circulation beyond the print media, when the available traces lead to the handwritten or even oral dimensions of the public sphere, which then played such an important role. Such an intermedial circulation analysis was a focus in my own doctoral dissertation, even though, generally speaking, it has been uncommon in the Swedish historiography of the eighteenth-century public sphere.[55] Instead, it has been usual for the different genres and types of (print) media to have been studied separately, and without privileging the circulation process itself.[56] Neither is it obvious how best to analyse the ways knowledge in individual texts circulated or was received in printed public sources. The source material certainly contains many remnants of this type of circulation. However, these fragments—for example, information that a text was printed in a second edition or resulted in prosecution under the censorship laws—only rarely enable historians to perform a full circulation analysis. Establishing the public impact and influence of specific texts is arguably a difficult task.[57]

Nevertheless, there are also benefits associated with a circulation analysis. The most important perhaps is that it draws attention to something that may perhaps be a truism, but which has rarely had any analytical consequences in practice, namely that the political public sphere of this time comprised not only the print media, but also other types of media, practices, sites, and actors. This is why we

also need to consider other periods and sources than the ones that usually spring to mind. By highlighting the handwritten pamphlets, for example, it becomes clear that the breakthrough of public knowledge considered here was both more gradual and more complex—and can be attributed to other factors than the ending of censorship in 1766. On the contrary, circulation analysis shows that there may be reasons for problematizing this periodization of Swedish historiography. The analysis demonstrates that even though political knowledge was being mediated in a new way at this time—which undoubtedly increased its public impact—its circulation was in many respects characterized by a high degree of continuity.

A focus on the political knowledge in public circulation also has the potential to enrich the historiography of early modern politics. For a long time, Swedish historians have largely been interested in these types of authoritative assumptions concerning the world, which also created the framework for political opinion and action. However, the focus has primarily been on the content of the political perceptions—the concept of knowledge has rarely been used—and the conceptual origin of the ideas. An analytical shift towards questions concerning the public circulation of knowledge would here constitute a valuable, perhaps even necessary, complement. Without empirical understanding of how and where in the public sphere such knowledge circulated, at what frequency and intensity, and for how long, one cannot say that the former type of study has reached its full potential. For example, the fact that (a certain type of) knowledge concerning these subsidies and international politics circulated with a high frequency and intensity and suddenly emerged in 1769 is not insignificant for someone trying to understand the contemporary decision-making process regarding foreign policy. The same may be said of someone studying the ongoing democratization process—the group knowing of this important political dimension, and thus in a position to lay claim on a much more comprehensive citizenship, was almost certainly much larger and more heterogeneous than in the past.

I say almost certainly, because at this point we are approaching the limits of what this sort of circulation analysis is able to accomplish empirically. Studying the public communication of a particular body of knowledge and the public access to it—one might say the public supply

of knowledge—should not be confused with the public impact of this knowledge or even the demand for it. Here we encounter some of the problems already mentioned, such as the difficulties determining the size of the editions, the number of readers or listeners per copy, the social profile of the readers or listeners, and so on. To what extent these analysed texts actually found their way to readers and listeners, and the outcome of this encounter, are some of the questions that elude a closer empirical analysis. It must suffice to remember that the analysed texts were essentially propaganda, and primarily followed a political, rather than a commercial, logic. That is why a high public frequency and intensity among those most affected does not necessarily mean that the demand was as great.

Obviously, the analysis also becomes much more uncertain whenever we take a step back and look at society at large and the role of knowledge therein. This is certainly the case when it comes to the early modern period. And yet the knowledge history project should not flinch from doing so. Here the circulation of public knowledge constitutes an important first step.

Notes

1 The research for this essay received support from the Crafoord Foundation and the Wahlgrenska Foundation. Johan Östling & David Larsson Heidenblad, 'Cirkulation—Ett kunskapshistoriskt nyckelbegrepp', *Historisk tidskrift* 137/2 (2017).

2 James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004); Andreas W. Daum, 'Varieties of Popular Science and the Transformations of Public Knowledge: Some Historical Reflections', *Isis* 100/2 (2009).

3 David Larsson Heidenblad, 'Framtidskunskap i cirkulation: Gösta Ehrensvärds diagnos och den svenska framtidsdebatten, 1971–1972', *Historisk tidskrift* 135/4 (2015); David Larsson Heidenblad, 'Ett ekologiskt genombrott? Rolf Edbergs bok och det globala krismedvetandet i Skandinavien 1966', *Historisk tidsskrift* 95/2 (2016).

4 Peter H. Wilson, 'The German "Soldier Trade" of the Seventeenth and Eighteenth Centuries: A Reassessment', *International History Review* 18/4 (1996), 772; Patrik Winton, 'Parliamentary Control, Public Discussions and Royal Autonomy: Sweden, 1750–1780', *Histoire & Mesure* 30/2 (2015); Erik Bodensten, *Politikens drivfjäder: Frihetstidens partiberättelser och den moralpolitiska logiken* (Lund: Historiska institutionen, 2016), 132–4; Erik Bodensten, 'The Problems with Receiving Subsidies: Sweden and the Lesser Powers in the Long Eighteenth Century', in Svante Norrhem & Erik Thomson (eds.), *Subsidies, War, and Peace: Financial Transactions and Political Influence in Early Modern Europe* (Manchester: Manchester University Press, forthcoming 2018).

5 Bodensten, *Politikens drivfjäder*, ch. 3, also *passim*.
6 Ibid. 163ff.
7 Ibid. 132ff; Anders Burius, *Ömhet om friheten: Studier i frihetstidens censurspolitik* (Uppsala: Institution för idé- och lärdomshistoria, 1984).
8 Arndt Öberg, *De yngre mössorna och deras utländska bundsförvanter 1765–1769: Med särskild hänsyn till de kommersiella och politiska förbindelserna med Storbritannien, Danmark och Preussen* (Stockholm: Svenska Bokförlag 1970); Michael F. Metcalf, *Russia, England and Swedish Party Politics 1762–1766: The Interplay between Great Power Diplomacy and Domestic Politics during Sweden's Age of Liberty* (Stockholm: Almqvist & Wiksell, 1977); Marie-Christine Skuncke, 'Medier, mutor och nätverk', in Marie-Christine Skuncke & Henrika Tandefelt (eds.), *Riksdag, kaffehus och predikstol: Frihetstidens politiska kultur, 1766–1772* (Stockholm: Atlantis, 2003); Marie-Christine Skuncke, 'Press and Political Culture in Sweden at the End of the Age of Liberty', in Hans-Jürgen Lüsebrink & Jeremy D. Popkin (eds.), *Enlightenment, Revolution and the Periodical Press* (Oxford: Voltaire Foundation, 2004).
9 See, for example, Jonas Nordin, *1766 års tryckfrihetsförordning: Bakgrund och betydelse* (Stockholm: Kungliga biblioteket, 2015).
10 *Kongl. Maj:ts Nådige Förordning, Angående Skrift- och Tryck-friheten; Gifwen Stockholm i Råd-Cammaren then 2. Decembr. 1766* (Stockholm: Tryckt uti Kongl. Tryckeriet, 1766), §3.
11 See Winton, 'Parliamentary Control'.
12 James C. Riley, *The Seven Years War and the Old Regime in France: The Economic and Financial Toll* (Princeton: PUP, 1986); Franz A. J. Szabo, *The Seven Years War in Europe, 1756–1763* (Harlow: Pearson, 2008); Hamish Scott, 'The Seven Years War and Europe's *Ancien Régime*', *War in History* 18/4 (2011); Patrik Winton, 'Sweden and the Seven Years War, 1757–1762: War, Debt and Politics', *War in History* 19/1 (2012).
13 Jan Herlitz, 'Nordencrantz, Christiernin och den monetära debatten på 1760-talet', in Skuncke and Tandefelt *Riksdag, kaffehus och predikstol*, 131–42; Winton, 'Parliamentary Control'.
14 See also Östling & Larsson Heidenblad, 'Cirkulation', 283–4.
15 See Bodensten, *Politikens drivfjäder*, 48–53, 123–154.
16 See Anna Gustafsson, *Pamfletter! En diskursiv praktik och dess strategier i tidig svensk politisk offentlighet* (Lund: Språk- och litteraturcentrum, Lunds universitet, 2009).
17 See Claes-Göran Holmberg, Ingemar Oscarsson & Jarl Torbacke, *Den svenska pressens historia*, i: *I begynnelsen (tiden före 1830)* (Stockholm: Ekerlid, 2000), 150–3; Ingemar Oscarsson, '"Rikets frihet, borgerlig frihet, skrif-frihet": Gjörwell och Den politiske Aristarchus 1769–72', in Skuncke & Tandefelt, *Riksdag, kaffehus och predikstol*, 315–38.
18 Skuncke, 'Press and political culture', 87.
19 Cf. Johan Östling, 'Vad är kunskapshistoria', *Historisk tidskrift* 135/1 (2015).
20 For the people and commercial interests involved, see Bo Bennich-Björkman, 'Affärer i politiskt tryck: Offentlighetsprincipen och spelet om den politiska makten 1766–72', in Skuncke & Tandefelt, *Riksdag, kaffehus och predikstol*.
21 [Johan Lorens Odhelius], *Bref Til Författaren af Swaret uppå et Betydeligit Bref ifrån*

en Wän i Stockholm (Angående Alliance-Wärket) Tryckt hos Peter Hesselberg (Stockholm: Kongl. Finska Boktryckeriet, 1769), 1–4.

22 For example, *Kärnan Af Några Riksdags-Mål* (Upsala: Johan Edman, 1769); [Christian Habbaeus von Lichtenstern/Daniel Helsingius], *En Swensk Mans Tankar Om Dess Fädernes-lands Tilstånd, År 1675: Öfwersättning ifrån Latin, Med korta Anmärkningar, lämpade til närwarande tid* (Stockholm: Carl Stolpe, 1769); [Anders Schönberg], *Bref til en Wän, I anledning af et i Upsala tryckt Bref til en Befullmäktigande I Wigtiga Ärender* (Stockholm: Peter Hesselberg, 1769); *Under På Den så kallade Swenska Patriotiska Under-Stolen* (Stockholm: Peter Hesselberg, 1769).

23 [Lichtenstern/Helsingius], *En Swensk*, 9–10.

24 [Anders Odel], *Echo och Återskall På Uplysningen för Swenska Folket Om Anledningen, Orsaken och Afsigten med Urtima Riksdagen 1769* (Stockholm: Peter Hesselberg, 1769), n.p. [10].

25 [Johan Hartman Eberhardt], *Sweriges Rikes Naturliga och Sanskyldiga Interesse uti Förbund med Kronan Frankrike, Granskat Uti Bref Ifrån En Wän i Stockholm til des Correspondent I anledning Af hans Swar På Des förra betydeliga Bref* (Stockholm: Kongl. Finska Boktryckeriet; Hos Johan Arvid Carlbohm, 1769), 19–20.

26 *Den politiske Aristarchus* (Stockholm: Peter Hesselberg, 1769–70), 9–12, nos. 2–3; *Bref Til en Befullmägtigande i wigtige Ärender* (Upsala: Johan Edman, Kongl. Acad. Boktr., 1769).

27 *Den politiske Aristarchus*; *Bref Til en Befullmägtigande*; [Schönberg], *Bref*.

28 Holmberg, Oscarsson & Torbacke, *Den svenska pressens historia*, 151; Oscarsson, '"Rikets frihet"', 320–1; Skuncke, 'Press and political culture', 91–2.

29 [Anders Nordencrantz], *Tankar Om Krig i gemen Och Sweriges Krig i synnerhet, Samt Hwaruti Sweriges Rätta och Sanskyldiga Interesse består: Skrifwit År 1758, och hörer til et Större Wärk, som på Hög Wederbörlig Befallning blifwit Författadt, men icke förr kunnat komma i Dagsljuset. Första Delen* (Stockholm: Lorens Ludvig Grefing, 1767).

30 For example, Olof Jägerskiöld, *Den svenska utrikespolitikens historia*, II:2: *1721–1792* (Stockholm: Norstedt, 1957), 36; Jonas Nordin, 'L'esprit de paix ou la naissance d'une opposition contre la guerre en Suède au XVIIIe siècle', *Revue d'histoire Nordique—Nordic Historical Review* 14/1 (2012): 113–115.

31 [Odhelius], *Bref*, 1.

32 [Eberhardt], *Sweriges*, 9.

33 For example, *Den politiske Aristarchus*; [Eberhardt], *Sweriges*; [Lichtenstern/Helsingius], *En Swensk*; [Odel], *Echo*; *Partiers Ursprung och Wärkan I Swerige* (Stockholm: Kongl. Finska Boktryckeriet, hos Johan Arvid Carlbohm, 1769); [Esbjörn Christian Reuterholm], *Uplysning För Swenska Folket Om Anledningen, Orsaken och Afsigterne Med Urtima Riksdagen 1769* (Stockholm: Carl Stolpe, 1769); [Erik Stenius], *Bref Til En Utlänning, Om Mössornas Ursprung Och Upförande In til Närwarande Tid: Skrifwen 1765. Och Fortsatt til Närwarande Tider. Andra Uplagan* (Stockholm: Lars Wennberg, 1769).

34 [Odhelius], *Bref*, 5–6.

35 Quoted in Skuncke, 'Press and political culture', 92.

36 Wilson, 'The German "Soldier Trade"'.

37 *Protocoll, Hållit i Kongl. Maj:ts Råd-Kammare Den 2 November 1756, Om Sweriges*

Rikes Då warande tilstånd Och Wådeliga belägenhet (Stockholm: Kongl. Finska Boktryckeriet, 1769), 6.

38 *Secrete utskottets til riksens ständer upgifne berättelse om stats-werkets tilstånd* (Stockholm: Lorens Ludvig Grefing, 1765).

39 *Den politiske Aristarchus*, no. 12.

40 [E. M. Bromell], *Swar, Uti Bref til Aristarchus, På Dess 12:te Nummer den 13 April 1769* (Stockholm: Kongl. Finska Boktryckeriet, 1769).

41 For example, [Eberhardt], *Sweriges*; [Odel], *Echo*, nos. 9–12; [Reuterholm], *Uplysning*, 54–8; [Carl Johan Strand], *Tankar Af En Landsbo Til Dess Wän I Stockholm* (Stockholm: Johan Georg Lange, 1769), 6.

42 [Odel], *Echo*, no. 11.

43 Peter H. Wilson, 'War in German Thought from the Peace of Westphalia to Napoleon', *European History Quarterly* 28/1 (1998), 8–22; Jeremy Black, *European International Relations 1648–1815* (Basingstoke: Palgrave, 2002), 6–9; H. M. Scott, *The Birth of a Great Power System 1740–1815* (Harlow: Pearson, 2006), 138–40.

44 *Bref Til en Befullmägtigande*.

45 *Under På Den så kallade*.

46 [Carl Eric Wadenstierna], *Swar Uppå et Betydeligit Bref Ifrån En Wän i Stockholm* (Stockholm: Peter Hesselberg, 1769), n.p.

47 [Eberhardt], *Sweriges*, 8; [Odhelius], *Bref*, 4.

48 *Kärnan*, 5–6.

49 [Eberhardt], *Sweriges*, 10, 18.

50 [Reuterholm], *Uplysning*, 61.

51 [Reuterholm], *Uplysning*, 67; [Lichtenstern/Helsingius], *En Swensk*, 11.

52 [Eberhardt], *Sweriges*; [Lichtenstern/Helsingius], *En Swensk*; [Reuterholm], *Uplysning*.

53 Scott, *The Birth*, 35–8, 117–21, 143–50.

54 Robert Darnton, 'An Early Information Society: News and the Media in Eighteenth-Century Paris', *American Historical Review* 105/1 (2000).

55 Bodensten, *Politikens drivfjäder*. See, however, Jonas Nordin, *Frihetstidens monarki: Konungamakt och offentlighet i 1700-talets Sverige* (Stockholm: Atlantis, 2009); Annie Mattsson, *Komediant och riksförrädare: Handskriftscirkulerade smädeskrifter mot Gustaf III* (Uppsala: Uppsala universitet, 2010).

56 For example, Magnus Nyman, *Press mot friheten: Opinionsbildning i de svenska tidningarna och åsiktsbrytningar om minoriteter 1772–1786* (Uppsala: Uppsala universitet, 1988); Peter Hallberg, *Ages of Liberty: Social Upheaval, History Writing and the New Public Sphere in Sweden, 1740–1792* (Stockholm: University of Stockholm, 2003); Gustafsson, 'Pamfletter'; Tilda Maria Forselius, *God dag, min läsare! Bland berättare, brevskrivare, boktryckare och andra bidragsgivare i tidig svensk veckopress 1730–1773* (Lund: Ellerströms, 2015). The same can be said of later periods, see Jonas Harvard & Patrik Lundell, '1800-talets medier: System, landskap, nätverk', in eid. (eds.), *1800-talets mediesystem* (Stockholm: Kungliga biblioteket, 2010).

57 See also Larsson Heidenblad's essay in this volume.

II

CONDITIONS OF CIRCULATION

CHAPTER 5

Theoria, praxis, and poiesis

Theoretical considerations on the circulation of knowledge in everyday life

Anna Nilsson Hammar

The history of knowledge, *Wissensgeschichte* or *kunskapshistoria*, is a young research field, but nevertheless revolves around topics that have been a vital part of many academic disciplines for a long time.[1] Partially emanating from the history of ideas and sciences, the history of knowledge often attempts to deepen the understanding of how scientific and other forms of rational knowledge were produced and disseminated in the past. Moreover, it confronts more traditional histories of progress, originality, and the (male, Western) prodigy using postcolonial, global, and feminist perspectives, among others. Arguably this has led to a more nuanced way of writing the history of (scientific or rational) knowledge, more in tune with theories of globalization, mediation, and (mass) communication.[2] For historians with a background in cultural history, however, the history of knowledge serves a slightly different purpose. It has been noted that it offers 'something new without necessarily breaking with the fundamental assumptions of cultural history'.[3] But what, precisely, does it have to offer? In what ways can the history of knowledge become a source of inspiration, conceptual clarity, and methodological aid to the multifaceted tradition of cultural history? In this essay, I will argue that if we are concerned with the circulation and relevance of knowledge, we would do well to elaborate further on its role in everyday life. I propose that one way of doing this is by questioning the relationship between different forms of knowledge and how they shape our lifeworlds, our subjective realities, and the everyday life that knowledge, in order to

be socially relevant, must become part of. In order to explore such processes, I would argue that the tripartite concepts of *theoria*, *praxis*, and *poiesis* are valuable analytical tools.

Knowledge and the lifeworld

The lifeworld or everyday life plays an ambiguous, yet important, role in cultural history. One might argue that it has always been at the heart of the enterprise, for example, within the practice of micro history or in the reverberation of Clifford Geertz's cultural anthropology. It also served in the late nineteenth century as a starting point for historically oriented folklore studies and ethnology, the cradle of cultural history.[4] In line with Hans Ulrich Wehler, however, one might also point to its death as an analytical perspective. In an interview with Andreas Daum, published in 2000, he concluded, 'It has been clear for some time that the *Alltagsgeschichte*, or "history of everyday life", has been a failure, theoretically speaking. All of the smart people have moved on to the New Cultural History.'[5] As has been pointed out, Wehler's statement should be seen against the backdrop of the substantial criticism of German *Alltagsgeschichte* in the mid-1980s, Wehler being the 'doyen of German social historians'—the adversaries in what has been described as a heated debate.[6] As Alf Lüdtke, on the other hand, has stressed, the conflicts of the 1980s concerning the life or death of *Alltagsgeschichte* are 'passé', and the perspectives of the everyday have become an essential part of the historical sciences.[7] The history of everyday life has found new uses, and its ability to take into account subjective experiences and everyday action, as well as to illustrate the lived origins of global processes, has been accentuated.[8]

The concepts of 'lifeworld' and 'everyday life' have been used freely in cultural history, yet here I will proceed from a rudimentary conceptual orientation. The concept of lifeworld emanated from phenomenology and especially Edmund Husserl, but has also been developed by the likes of Alfred Schütz, and by Jürgen Habermas in his theory of communicative action. It denotes an interest in reality as it is understood by the acting subject; a preoccupation with the 'everyday' world as it is experienced and lived. For Husserl, the concept was linked to a sort of foundation: 'the life-world constitutes above all the emergence of

the quotidian, of the precategorical, of the antepredicative, that is to say, of all that which precedes scientific and philosophical rationality'.[9] The lifeworld, Husserl stated, 'for us who wakingly live in it, is always there, existing in advance for us, the "ground" of all praxis, whether theoretical or extratheoretical.'[10]

As noted by Michael Hampe, the Husserlian lifeworld is the source of all meaning and has 'a systematic and historical *priority* over any scientific theory or worldview.'[11] For Schütz, the concept of the lifeworld accordingly implies a '"common-sense reality" of the social world' as it is lived. In Habermas's theory, the lifeworld is synonymous with the world of everyday communicative interaction.[12] Needless to say, this is not an unproblematic concept, and we can indeed question it in several ways. Austin Harrington, in his encyclopaedic article on the topic, lists critiques such as the questions of transcendence and scope. Can phenomenological investigations into the lifeworld, he asks, 'address a virtualized world of near-ubiquitous digitalized information systems? Is the notion now a redundant "old European" naivety—after post-structuralism, post-modernism, post-colonialism, post-humanism?' Hampe, in turn, cautions that the idea of a lifeworld may give us the illusion that philosophy can establish how humans come to understand themselves, without taking into consideration the institutional, emotional, and cultural particularities of different societies. Such a notion could result in an 'anthropological essentialism and fundamentalism' that would harm rather than benefit the historical analysis. [13]

Hampe's argument seems valid on this issue, especially considering the more particular uses of the concept in the phenomenologies of Husserl and Habermas, which also serve the purpose of criticizing modern, Western society.[14] There is, however, a promise of a less holistic and more pragmatic notion to be found in the concept of everyday life. Rather than rehearse the extensive discussions on the topic in the 1990s, I will limit myself to the appraisal published by Rita Felski in 1999. Felski points to the need for a more neutral notion of the everyday, stating that we need to take 'the ordinariness of everyday life' seriously without idealizing or demonizing it. It has, Felski argues, a tradition of either being 'painted in glowing colours' or being seen as 'the realm of ultimate alienation and dehumanisation'. The everyday

ought instead to be seen as an indispensable aspect of experience and human life. Felski describes it in processual terms, concluding that the everyday is the process by which assumptions, behaviours, and practices become self-evident or taken for granted. Everydayness, then, according to Felski, 'is not an intrinsic quality that magically adheres to particular actions or persons (women, the working class). Rather, it is a lived process of routinization that all individuals experience'.[15]

With such a definition we can move beyond totalizing and essentializing claims to focus on the 'becoming' of the everyday. The everyday, contrary to the Husserlian notion as I perceive it, is not something that is already there, rather it is constantly happening. And if what is experienced as everyday life, that is as routine or ordinariness, is in flux, then it surely makes sense to ask for the role of knowledge in this process. It makes even more sense to ask how knowledge operates on different levels of this routinization, and how different forms of knowledge interact with our everyday lives, becoming a part of what we take for granted.

How, then, does knowledge circulate in people's ordinary lives? How is knowledge used and made relevant, even meaningful, on an everyday basis? To pursue this line of inquiry, I suggest we look to the conceptualization of knowledge, and, more specifically, that we elaborate on a possible typology of knowledge. The proposed answers and solutions to these questions and challenges offer nothing conspicuously new; however, I believe, they deserve to be revisited and brought to the fore in this particular context.

Defining knowledge

As Johan Östling has pointed out, knowledge is an 'essentially contested concept' and thus, what is to be considered knowledge needs to be historically and contextually determined. He, however, goes further, and concludes that a definition might even be harmful to the historical inquiry.[16] I would like to propose that there is a difference between what you may call philosophical/epistemological definitions of knowledge and sociological/historicist ones. As has been noted by epistemologists, the question of what knowledge is 'is not a question with a single clear purpose'.[17] We therefore have to ask ourselves what

kind of definition is called for. What, indeed, will be the purpose of the definition? In the case of historical analysis it is clear that we need a definition that advances the historical inquiry, one that may elucidate our questions to the past.

Looking to epistemology, one might encounter definitions such as the so-called JTB theory, which sees knowledge as justified true belief. However, the questions of whether a statement is justified or true is hardly well suited for historians. We are, after all, in the business of writing about the past, not about the truth in any absolute sense.[18] As Helen Longino has noted, philosophers are interested in 'the relation between representational content and the intended objects of representation'. Sociologists, and historians for that matter, 'are quite content to call knowledge whatever the communities they study call knowledge.' What becomes important is 'the relation between the representation and its users: successful content is content accepted in a community'.[19] This correlates with the conditions for knowledge mentioned by Östling. Teun van Dijk has in a similar fashion suggested that (social) knowledge is 'the shared beliefs of an epistemic community, justified by contextually, historically and culturally variable (epistemic) criteria of reliability.' This, he continues, implies that what is considered knowledge or truth in one community may be deemed false belief, prejudice, or superstition in another. Knowledge then, is *relative* to the epistemic criteria of the epistemic community in which it operates.[20]

Historians of knowledge seem to agree that knowledge is in constant flux. It changes, it is mediated, and it is influenced by the manner in which it is produced, disseminated, used, politicized, etcetera.[21] The definition suggested above is therefore in line with the presuppositions common to many historians of knowledge. The main focus for a history of knowledge in everyday life needs to be, and I return to Van Dijk, 'knowledge as it is being used by *real people in real situations and in real epistemic communities*'.[22] This analysis, however—and here I am not in complete agreement with Van Dijk—should not overlook the importance of epistemic claims (or truth claims), nor should it reduce culture to statements, claims and discourse. Human conduct and indeed 'culture' must be seen as *embodied* cognition, *and* as actions and practices. Van Dijk stresses that the latter are to be defined as

'units of socially situated conduct and mental representations such as mental models, featuring individual or shared intentions, plans and goals, which are in turn based on general knowledge or other beliefs.'[23] I agree that there most likely is a discernible link between scientific/rational knowledge and practice/action. But, as Michel Foucault argued in the case of nineteenth-century psychiatric practice, discourses are not necessarily reflected in practice. Instead, in Foucault's case, truth becomes a possession of the institutionalized power, which is added to the relationship between science and madness (or indeed the actual people deemed mad). This possession does not define practice, but it becomes a 'surplus-power of reality', Foucault states.[24] The mental model of psychiatry, featuring certain intentions, plans and goals (as Van Dijk wishes to express it) does not correlate with its practices and technologies. The specialized, theoretical knowledge of the psychiatrist instead becomes a possession of 'the criteria of verification and truth' that by itself affirms its superior position, rather than influences psychiatric practice.[25] The relationship between scientific/rational knowledge and practice, then, can be put into question, and the need to carefully consider what causal connections we presuppose becomes apparent.

In the history of knowledge, the main focus still seems to be analyses of what has been labelled scientific or rational knowledge.[26] Östling and Larsson Heidenblad have suggested that we pay more attention to knowledge that gains 'societal' attention, that is more widely spread and that reaches and is relevant to a quantitatively larger number of people. Thus they wish to pursue the concept of the 'public circulation of knowledge'. In Östling and Larsson Heidenblad's view, not only science but also religious truth claims and economic theories become every bit as interesting as for instance scientific findings or medical practices.[27] Even this perspective, however, builds upon a definition of knowledge that favours that which has circulated *as* knowledge, that is, *claims* to knowledge or truth. However wide in scope, this type of knowledge is still fairly limited, especially if we want to take into account the more non-discursive parts of everyday life where knowledge might be more tacit, or is used instrumentally, as a means to an end. It is therefore my contention that we need to make room for the differences between scientific/rational knowledge on the one hand and different forms of

practical knowledge on the other when investigating the circulation of knowledge in everyday life.

To more fully grasp the role of knowledge in everyday life then, we need typologies to better understand knowledge as such. No matter if we pursue a philosophical or sociological/historicist definition, broadening our concept of what knowledge is and what it does should prove beneficial. There are several views on how to do this. A quite common differentiation used in epistemology is the one between propositional, procedural, and personal knowledge. When we make claims to knowledge or truth, it is *propositional* knowledge. 'I know that the earth is about to come to an end', is one such proposition; 'Sea creatures are sent by God to warn mankind of its sins', another, if we adopt the above definition of knowledge as relative to the epistemic criteria of a certain community. Propositional knowledge will be mediated through discourse and is, of course, one of the main historian's sources when studying changing ideas and common truths, power relations etcetera. *Procedural* knowledge, know-how, or practical knowledge is by definition of a more tacit kind. It is not necessarily articulated in words, but rather demonstrated through action.[28] For cultural historians, different forms of know-how and procedural knowledge are also of great importance.[29] *Personal* knowledge, which is also sometimes referred to as knowledge by acquaintance, is understood as the type of knowledge where the subject is in experiential contact with the perceived reality. Such knowledge does not only include knowledge of persons and things, but also knowledge of the mental states of the experiencing subject. Epistemologists have even argued that the knower's own mental states are 'the most directly knowable portion of reality'.[30]

When Schutz and Luckmann discuss the role of knowledge in the lifeworld, they see subjective experiences as being fundamental.[31] This suggests using the concept of personal knowledge or knowledge by acquaintance when engaging in an analysis of the circulation of knowledge in everyday life. However, in order to broaden the concept of the everyday, and to highlight its processual features and to take into account the element of circulation, I suggest that we need a typology of knowledge that addresses not only experience, but knowledge as a societal activity. The model I propose that we revisit is that of *theoria*,

praxis, and *poiesis*. This threefold division has been used by different academic fields in order to categorize and understand knowledge, for example in education research to highlight the multifacetedness of what we call knowledge, and in different kinds of historical analysis.[32] The concepts primarily serve the purpose of elucidating the difference between theory and different forms of practice in a way that directs our attention to the doings and makings, the actions and materializations of knowledge, rather than singularly to the mediation of epistemic claims. They should prove useful in understanding how knowledge circulates in everyday life, taking into account not only theoretical claims, mediated through discourse (which tells us much of power relations and legitimacy in public speech), but also practical, interactive knowledge and productive, goal-oriented knowledge, two forms that most certainly play an important role in the everyday.

Theoria, praxis, and poiesis

As Bernt Gustavsson has pointed out, theoria, praxis, and poiesis may overlap, but they nevertheless denote three different discussions of knowledge.[33] In their basic form they represent the activities of man, aimed at producing different forms of knowledge. These activities have corresponding virtues of thought. Theoria is associated with *episteme*—that is, theoretical/epistemic knowledge of the kind that has already been discussed, and that tends to be the centre of attention in histories of knowledge. Praxis is in turn connected to the virtue of *phronesis*, or the practical wisdom related to social and political interaction. Poiesis is linked to *techne*, or practical/productive knowledge, a knowledge of how to make something. For Aristotle this was the artisan's knowledge, a certain kind of creative skill.[34] Practical knowledge is thus divided into two distinct categories. In the *Nicomachean Ethics* this is conceptualized as the capacity to act and the capacity to make:

> In the variable are included both things made and things done; making and acting are different … so that the reasoned state of capacity to act is different from the reasoned state of capacity to make. Hence too they are not included one in the other; for neither is acting making nor is making acting.[35]

The distinctions have been applied to different areas of society. Wilfred Carr and Stephen Kemmis differentiate between the theoretical, productive, and practical sciences and state that the theoretical ones pursue truth through contemplation, the ultimate aim being knowledge for its own sake, while the practical disciplines deal with ethical and political life, with the purpose of practical wisdom and knowledge. The productive sciences make things, their aim being the production of artefacts[36]

Yet does that mean that this threefold conceptualization can also be applied to the role of knowledge in everyday life, or to the micro level of society? In order to answer this, and to find a way of putting the concepts to use in an historical analysis, we need to look for further inspiration, going beyond the scope of the classical tradition. The issue of the relationship between these three forms of knowledge also needs to be further elaborated on. The aim here is not to provide a totality or clear-cut categories, but to recognize different forms in order to ask questions about how they interact and what relationship they have between themselves.[37] This interrelation, I believe, is not a philosophical question, but one that must be tried empirically (historically), and is indeed most relevant for historians of knowledge in general and for anyone interested in the circulation of knowledge in particular.

Regimes of truth, practice, and technology

Looking for inspiration for how to operationalize the discussion on theoria, praxis, and poiesis, it is hard to disregard the works of Michel Foucault. He remains influential for many historians of knowledge, and has, in regard to these different forms of knowledge and their internal relationship, made some significant points. As is well known, the question of knowledge is intimately linked to the question of power, especially in Foucault's later production. Knowledge is therefore considered, by Foucault, in the light of the discourses, practices, and technologies by which knowledge/power is established. In *The Order of Things*, Foucault, in investigating the discourse of the human sciences, states his mission as follows:

> In short, I tried to explore scientific discourse not from the point of view of the individuals who are speaking, nor from the point of

> view of the formal structures of what they are saying, but from the point of view of the rules that come into play in the very existence of such discourse: what conditions did Linnaeus (or Petty, or Arnauld) have to fulfil, not to make his discourse coherent and true in general, but to give it, at the time when it was written and accepted, value and practical application as scientific discourse—or, more exactly, as naturalist, economic, or grammatical discourse?[38]

Discourse, then, is viewed not in light of its coherency or truthfulness, but in consideration of its practical value and use. Foucault here wishes to draw attention to the framework by which the subject is restricted, and the circumstances that make scientific discourse (and indeed 'discoveries' and 'truths') possible. In Foucault's view, these are to be defined not only as theoretical limits, but as practices.

In a published conversation with Gilles Deleuze, the question of the relationship between theory and practice is further addressed. Deleuze calls attention to the circulation of scientific theories and how they overcome obstacles when passing into new and different domains:

> The relationship which holds in the application of a theory is never one of resemblance. Moreover, from the moment a theory moves into its proper domain, it begins to encounter obstacles, walls, and blockages which require its relay by another type of discourse (it is through this other discourse that it eventually passes to a different domain). Practice is a set of relays from one theoretical point to another, and theory is a relay from one practice to another. No theory can develop without eventually encountering a wall, and practice is necessary for piercing this wall.[39]

Responding, Foucault questions the role of the contemplative intellectual who engages in episteme and analyses the world from a distance, thus questioning the pure form of theoria as an activity. Theory 'does not express, translate, or serve to apply practice: it is practice', he says. Furthermore this practice is part of the struggle for power; it is not aimed at the illumination of others from a safe distance, but 'an activity conducted alongside those who struggle for power': 'A "theory" is the regional system of this struggle.'[40]

The relationship between theory and practices then, is of fundamental importance to Foucault. Theory as a contemplative activity with the aim of producing knowledge for its own sake is disparaged, and practice is emphasized. Foucault, however, does not make use of the concept of phronesis, as Bent Flyvbjerg has pointed out.[41] He does employ the concept of techne, though, and regularly returns to discussions on techniques and/or technologies in order to understand and problematize power/knowledge. As has been noted, Foucault 'described power as dispersed throughout society, inherent in social relationships, embedded in a network of practices, institutions, and technologies—operating on all of the "micro-levels" of everyday life.'[42] His frequent use of the concepts of technology and technique, which are important to the functioning of power, has also been pointed out. Techniques are here seen as a set of skills that are used to realize a given object, much like in the classical use of the term poiesis/techne. As Flyvbjerg has argued, Foucault's main concern in *The Order of Things* was with the possibilities that the study of human affairs had of becoming scientific or epistemic; later, in *The Archaeology of Knowledge*, he shifted focus from episteme to techne, however resisting the traditional view of episteme being a pure form of science and techne an applied one. Instead he pointed to the autonomy of techne, or, in Flyvbjerg's words, 'studied *techne* without the superstructure of *episteme*'.[43]

The threefold division between theory, practice, and technology serves an important purpose in the analysis of the power/knowledge relationship. It marks a societal dimension of knowledge that puts emphasis on use, relevance, and application. However, there is a distinction between practice and technology that is less developed, as a consequence of Foucault being more occupied with the relationship between theory and practice. This distinction between praxis and poiesis, I believe, holds possibilities for a more detailed historical inquiry into the circulation of knowledge.

Praxis, poiesis, and the *vita activa*

The revival of the Aristotelian concepts of praxis and poiesis has been credited to Hannah Arendt.[44] In Arendt's *The Human Condition*, the priority of praxis and the *vita activa* over the traditionally more

respected *vita contemplativa* (the life which engages in the pursuit of truth in a detached, contemplative manner) becomes vital. She also differentiates between praxis and poiesis, and emphasizes praxis, that is, action or doing, as the main objective of political action. Contemporary theories of action, Allan Parsons has pointed out, tend to define political practice instrumentally or tactically, seeing politics as persons setting up goals and adjusting means towards an end. This is more in line with the act of poiesis, of making.[45] Arendt's suggestion is that the understanding of political action as 'making something' is a dangerous mistake. In her introduction to *The Human Condition,* Margaret Canovan concludes that the act of poiesis, or making, 'is something a craftsman does by forcing raw material to conform to his model'. To conceive of politics in a similar manner is to 'ignore human plurality in theory and to coerce individuals in practice'.[46] The truly human condition then, lies within human relationships guided by practical wisdom, phronesis, which does not only engage in interaction as a means to an end, but in the constant creation of new beginnings: humans acting together create new stories and new ways of moving forward towards a better society and life.[47]

Jürgen Habermas has used Arendt's conclusions in his theory of communicative action, but has also received substantial criticism for misinterpreting them.[48] His contention, however, is that the distinction between praxis and poiesis enables the distinction between instrumental, goal-oriented work on the one hand, and praxis understood as interaction—as a situation where intersubjective norms are tried in relation to their suitability for the common good—on the other. For Habermas this is tied into a larger theory of how rational interaction can create a better society:

> Under work, rationalization means increase of skills and productive forces, the extension of disposable power. Under interaction, rationalization means the progress of emancipation, the liberation of humanity, individualization, domination-free communication and the abolition of repressiveness and rigidity. The intention of rationalization under interaction is not a better functioning of the industrial economy but what Plato and Aristotle called the good life, of living well, and with it a change in the institutional framework.

> Given this, technical progress has a potential for liberation only when it is embedded with such a change in institutional framework.[49]

In order to make use of the conceptualizations suggested above, we first have to acknowledge that there are different levels to the discussion. For Arendt, as for Habermas, the conceptualizations are part of a normative theory of (political) action. The concepts of praxis and poiesis indeed help them both to make a point about how to view and conduct politics for the common good.[50] For the history of knowledge and from a more methodological standpoint, the concepts of theoria, practice and poiesis, however, will not necessarily function as components of a theory of society and life, but as heuristic concepts, as tools designed to aid the historical inquiry on a smaller scale. In other words, I have no intention of suggesting that we need to apply normative theories to the practice of cultural history, rather that we need conceptualizations that advance the study of everyday life.

The circulation of knowledge in everyday life

In order to be relevant to cultural history, I have argued, the history of knowledge needs to establish a conceptual framework to address knowledge in everyday life. Everyday life has been defined as a process of routinization through which that, which is perceived to be ordinary, routine, and commonplace, is established. What is considered everyday, then, depends on historical context, and there can be no temporal, spatial, or intellectual demarcations as such. Instead, what comes into focus is an ongoing process. When it comes to everyday life, the different ideological connotations contributed to it call for an awareness of how the discursive battle over the everyday has been fought in specific historical contexts. However, seeing the everyday as a purely historical concept, and thus only analysing its use, seems unwarranted.

Using the everyday as a starting point for the history of knowledge resonates with the tenets of Berger and Luckmann, stressing the centrality of everyday knowledge. The role of knowledge in the process of routinization that best characterizes everyday life is a complicated but necessary research question. To grapple with it, I have suggested that knowledge must be seen, not only as epistemic claims to knowledge,

but as practices and technologies that in different constellations help determine whether knowledge is meaningful, relevant, and circulated on an everyday basis.

With a more differentiated concept of knowledge, one that takes more than epistemic claims and propositions into account, we can gain more insight into the transformation and circulation of knowledge. The different formations of knowledge suggested in the *Nicomachean Ethics* and used by various theorists, help us do so. The conceptual triad of theoria, praxis, and poiesis may invoke the following kinds of questions and discussions.

First, theoria. Given its prominent position in the history of knowledge (and elsewhere), in an historical inquiry of the circulation of knowledge in everyday life we might ask how scientific/rational, theoretical/epistemic knowledge, or indeed truth claims, are being repeated and turned into common truths or common knowledge. What is the relationship between common truths and epistemic claims? How is common knowledge mediated and circulated? What power relations are at play in the use and circulation of certain common truths? What, say, are the political or personal consequences of a certain epistemic content becoming commonplace or routinely integrated into popular discourse?

To add the level of praxis, I would argue in line with Foucault, is to add a level of relevance. Understanding how knowledge is given meaning means taking the practical and interactive use of knowledge into account. A history of the circulation of knowledge in everyday life must thus take note of the many practical aspects of knowledge, and the tacit knowledge being used and circulated through practice. There is, furthermore, reason to investigate the relationship between theoria and praxis. Whichever comes first or is accredited more value needs to be historically and empirically determined. Such investigations can indeed serve as a way of furthering the analysis of the circulation of knowledge in everyday life.

Finally, if we consider poiesis to be the art of making something, of directing knowledge (skill or competence) to the production of an object, it will direct our attention to the everyday instrumentality of knowledge. This will provide us with insights into how knowledge becomes materialized and how it is put to use as a means to an end. This aspect differs from praxis, predominantly because of its direction

and goal orientation, but is also a vital part of how knowledge is used on an everyday basis, in work, art, or craft. Poiesis can be taken to denote a materialization of knowledge; however, it may also be interpreted as a more general instrumentality, thus allowing for an analysis of different types of knowledge phenomena, ranging from politics to self-fashioning to the production of artefacts.

Paying greater attention to different forms of knowledge and their interrelatedness in everyday life, we come one step closer to examining the circulation of knowledge. However, as has been clearly demonstrated in this volume, there are different takes on what circulation theoretically implies. So what does it mean in this particular case? Circulation, I propose, invokes the question of how knowledge takes different shapes and forms in everyday life, thus being transformed in the more literal sense of the word. The transformation of knowledge, not only in the sense that certain scientific knowledge is translated and communicated and thus receives (popular) attention, but as an actual shift from epistemic to practical or productive knowledge, or the other way around for that matter, strikes me as essential for an understanding of how knowledge influences lives, decisions, judgements, beliefs, actions and creativity on an everyday basis. Do technologies exist and evolve separately from scientific/rational knowledge? Does everyday practice necessarily involve theoretical knowledge? What are the historical conditions for the relationship between different forms of knowledge? How have cultures and contexts diverged with regards to the prioritization of different forms in relation to a certain knowledge content? There are many questions to be posed when engaging in this perspective. The historically fluctuating relationship between these different forms is the heart of the matter when we address the circulation of knowledge in everyday life.

Notes

1 By 'recently formed' I mean in the past fifteen years or so. For a discussion on the role of knowledge in different disciplines, see Teun A.van Dijk, *Discourse and Knowledge: A Sociocognitive Approach* (Cambridge: CUP, 2014), 6–10. The theoretical implications of this paper will be further elaborated in a forthcoming monograph with the preliminary title *Shared knowledge? The theoria, praxis and poiesis of conscience in early modern Sweden,* presenting the results of a project funded by the Swedish Research Council (Vetenskapsrådet) 2014–2018.

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10 Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An introduction to phenomenological philosophy* (Evanston: North Western University Press 1978), 142.

11 Michael Hampe, 'Science, philosophy, and the history of knowledge: Husserl's conception of a life-world and Sellars's manifest and scientific images', in David Jalal Hyder & Hans-Jörg Rheinberger (eds.), *Science and the life-world: Essays on Husserl's 'Crisis of European sciences'* (Stanford: SUP, 2010), 154.

12 Harrington, 'Lifeworld', 341.

13 Hampe, 'Science, philosophy, and the history of knowledge', 163.

14 For the concept and its uses, see, for example, Dermot Moran, *Edmund Husserl: The Crisis of the European Sciences and Transcendental Phenomenology: An Introduction* (Cambridge: CUP, 2012), 222–74, doi: 10.17/CB09781139025935; Constantin G. H. Ion, 'Husserl, Habermas, and the Lifeworld as the Overall Horizon within which Individuals Act', *Linguistic & Philosophical Investigations* 14 (2015): 115–19. For a more nuanced discussion of its uses and the implications of the lifeworld for the social sciences, see Karin Dahlberg, Nancy Drew & Maria Nyström, *Reflective Lifeworld Research* (Lund: Studentlitteratur, 2001).

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17 Linda Zagzebski, 'What is Knowledge?', in John Greco & Ernest Sosa (eds.), *The Blackwell Guide to Epistemology* (Malden: Blackwell, 1999), 95.
18 For a nuanced discussion, see Michael Dummet, *Truth and the Past* (New York: Columbia University Press, 2004), 1–39.
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34 Ibid. 54–5; Mark K. Smith, 'What is Praxis?', in *The Encyclopaedia of Informal Education* (1999/2011): http://infed.org/mobi/what-is-praxis/; Volanen, *Theory, Praxis, Poiesis*, 114–15. Aristotle lists five virtues of thought: techne, episteme, phronesis, sophia, and nous. For sophia and nous, see Walter A. Brogan, *Heidegger and Aristotle: The Twofoldness of Being* (Albany: State University of New York Press, 2005), 173–7.

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CHAPTER 6

Unwelcome knowledge

Resistance to pedagogical knowledge in a university setting, *c.*1965–2005

Anders Ahlbäck

In the late modern era, universities have become increasingly important nodes in the circulation of academic and professional knowledge. In the process, the transition from higher education for a small elite to mass higher education has put unprecedented pressure on university teaching and curriculums across the Western world. The massive rise in student numbers, especially in the 1960s and 1970s, posed a serious challenge to the traditions of university education and gave rise to critical questions about their efficiency and adequacy.[1] Politicians and students all over western Europe called for radical reforms of higher education. As one part of this reform agenda, the new subdiscipline of university pedagogy rose to prominence in many critical debates.[2] The proponents of university pedagogy—policymakers, student activists and pedagogics researchers—called for more engaging, interactive, and student-centred educational methods, basing their claims on academic research into learning processes among students in higher education. The general response from the old university establishment was marked by scepticism towards this new field of knowledge.

This essay presents a case study of how the circulation of knowledge even within an expert organization such as a modern research university can be slowed down and even blocked for a range of institutional and cultural reasons. It focuses on local reactions to the attempts to expand the circulation of knowledge about academic teaching at Åbo Akademi University in Turku, Finland, from the 1960s to the 2000s. The essay investigates how disagreements among actors inside and outside

the university over the nature, function, and tasks of the university as an institution counteracted the circulation of a species of knowledge that might seem obviously relevant to university teaching staff. The scarcity of research into this phenomenon makes comparisons difficult, but Åbo Akademi University appears to have been typical of a conservative university environment in its rather reluctant reactions to the external pressure to adopt knowledge of this kind.

The circulation of knowledge as an analytical concept brings several shifts of perspective to the study of this process. Firstly, the perhaps most fundamental shift occurs in the basic understanding of the character of the university as a societal institution. University history has often emphasized the role of modern universities as centres of innovation and the creation of new knowledge. Yet from the perspective of the history of knowledge, and through the conceptual lens of the circulation of knowledge, an equally if not even more important societal function of universities has been to serve as intersections in its global flow. Universities are places where knowledge is received, filtered, evaluated, modified, and channelled into the fora of academia as well as broader society. Academic staff spend a great deal of their time finding, responding to, and disseminating knowledge that originates elsewhere. The idea that knowledge circulates thus redirects the university historian's focus away from 'heroic' scientific discoveries to the more mundane yet crucially important and complex daily routines of university work. In this context, university teaching and university education move centre stage. It is through their graduates, more than through any other channels, that universities seed society with academic knowledge as well as academic modes of thinking.

Secondly, the circulation of knowledge as an analytical perspective replaces a hierarchical understanding of knowledge with a more contextual understanding. In traditional history of science narratives, the failure or refusal to accept new discoveries is often explained in terms of lack of understanding, the defence of vested interests, the inability to transcend old ways of thinking, or sheer incompetence. The idea that knowledge circulates replaces this normative and hierarchical binary opposition of new versus old knowledge with an image of knowledge as situated, as connected with local circumstances and specific groups of actors. Where and when, and for whom and for what reasons, do

specific forms of knowledge become relevant, legitimate, and welcome in a particular social context?[3] If there is reluctance or indifference in one context towards knowledge circulating in another context, how do these contexts differ in terms of practical requirements, institutional structures, and cultural concepts of reality? In the case of Åbo Akademi University and the reception of pedagogical knowledge, this calls for a scrutiny of the differences between academic staff and their critics when it comes to personal experiences, institutional priorities, cultural notions, and material resources.

Thirdly, the concept of the circulation of knowledge pushes analysis beyond a simplistic model of active senders and passive recipients. Instead, the concept helps us see how several different knowledges circulate in parallel, partly interacting and partly counteracting one another. In my case study, I use the term microcirculation for the local, informal, and often unwritten circulations by which practical knowledge about teaching methods was shared, and countercirculation for how academic staff circulated critical knowledge amongst themselves that questioned the legitimacy and applicability of formalized knowledge about university pedagogy. An important part of this perspective is to observe how the actual circulation of new knowledge requires its application, adaption and transformation in each local context. Equally, the lack of circulation, for example the sluggish reception of university pedagogical knowledge, must be seen in connection with the lack of adaption and application to particular local needs and circumstances. In this case study, it therefore becomes evident how knowledge cannot always be distinguished from the practices where it is put to use or transmitted.[4] It is thus also difficult to make a distinction between knowledge about teaching and teaching skills. I use the term 'formalized knowledge' for articulated or published knowledge about teaching and learning, but I also regard teaching skills based on imitation and non-articulated traditions as a form of knowledge in their own right.

Attitudes towards university pedagogy have attracted surprisingly little interest in the field of university history. This might be because the history of the university in the nineteenth and twentieth centuries has often been written as the history of scientific progress. This narrative emphasizes the 'heroic' aspects of academic work at universities: the innovation and creation of new knowledge, the proliferation of

academic disciplines, and the organizational expansion of universities. Questions about the possible reluctance towards a professionalization of teaching and resistance towards research-based knowledge about student learning processes might be difficult to fit into this master narrative. The available depictions of the rise of university pedagogy in the sixties, seventies, and eighties are largely based on the personal reminiscences of people who were themselves involved in clearing the way for the discipline. Although they hint at resistance and recalcitrance, their accounts are usually constructed as success stories, echoing the narrative form of the steady advances and growing importance of the fields that have been their life's work.[5]

Apart from documentary sources from the period, the depiction of academic tradition and organizational culture in this essay builds on 33 interviews with former teachers, students, and administrators at Åbo Akademi University (ÅAU), conducted in 2015.[6] Since their experiences and reminiscences of particular departments and disciplines are for reasons of space limited to broad generalizations in this essay, references to individual interviews are only given for direct quotes or individual claims.

Microcirculations of traditional knowledge

Methods of teaching and learning have always varied between disciplines at modern universities.[7] Teaching in the different departments at ÅAU was nonetheless characterized by some common traits for most of the twentieth century. Firstly, academic teaching methods were based mainly on tradition, intuition, and tacit knowledge. Teaching qualifications had no formal relevance for recruitment to academic positions, and there was no organized teacher training or instruction for new academic staff. Interviewees from across different academic fields all told basically the same story about how they taught their first courses: nobody told them what to do or how to do it. They were only given a course name, and there was sometimes a pre-existing reading list. Under these circumstances, it was only natural that most new teachers had recourse to their own memories and experiences, imitating their own teachers in the past, and even basing their teaching on lecture notes from their own time as undergraduates.[8]

This way of being socialized into the teaching profession made for strong continuity, especially since departments at ÅAU recruited most of their academic staff from among their own students. As the American historian of education Larry Cuban has pointed out, there is generally a strong inherent conservatism among teachers, since the profession tends to attract those individuals who appreciated their own teachers and were successful within the existing framework of teaching practices.[9] Cuban was commenting on elementary and high schools, but the same mechanism arguably applies in higher education—perhaps even to a greater degree, since new university teachers often proceed straight from studying their subject to teaching it to their youngers, without any intermediate phase of formal teacher training. In the period of most rapid expansion at ÅAU, during the explosion in student numbers in the 1960s and 1970s, it was not uncommon for talented students to be employed as part-time teachers even before they had graduated.

A second trait that was common to academic culture across subject boundaries was the 'private' nature of teaching. There was a pronounced contrast between the publicity, critical peer review, and debate that surrounded an academic's research on the one hand, and the lack of peer oversight or external evaluation of that same academic's teaching practices on the other hand. What happened in the lecture hall or seminar room was strictly a matter for the lecturer and his students. One informant, who started teaching literature studies in the early 1970s, recalled that when he attempted to discuss teaching methods and student assessment practices with older colleagues, they seemed to find his questions almost impertinent. 'It was like they raised a wall [around their teaching] … They reacted as if I was interfering in something that they thought was highly personal territory.'[10]

All of this was evidently characteristic of the broader university system in Finland and nothing peculiar to ÅAU. According to the first national inquiry into the pedagogical training of academic staff at Finnish higher education institutions, published in 1979, junior lecturers were usually given no training in how to plan, execute, and evaluate the courses they were supposed to teach. The objectives of individual courses and their significance to the larger curriculum was never explained to new lecturers. Beginners had to base their teaching

mainly on personal experiences. The inquiry also pointed out that there were no incentives for young lecturers to improve their teaching skills or attend pedagogical courses: 'Who advances in his or her career is almost completely determined by research work. The development of education and teaching is not always viewed as meaningful, since it does not bring any success in one's university career.'[11]

Knowledge of teaching methods and students' learning processes in the 1960s and 1970s was non-verbal, tradition-based, and locally situated in each department, and thus largely restricted to the professors, who in the Finnish university system, as in many countries, did almost all of the lecturing. The way knowledge about teaching methods was transmitted can be described in terms of horizontal and intergenerational microcirculations within departments. Students observed and imitated their lecturers, and close colleagues occasionally had informal discussions on their courses and teaching during coffee breaks or after work at the pub. These microcirculations were specific to each discipline and department, although obviously interconnected with larger circulations through staff mobility between different universities and informal exchanges with colleagues at other institutions in the context of academic networks and conferences. These larger circulations were nonetheless sporadic, fragmented, and seldom mediated through public written media. The variations in teaching culture between the few existing universities in Finland were in any case probably rather insignificant, due to the historic dominance of Helsinki University. As many former teachers recalled when being interviewed, the most important impulses to revitalize teaching methods often came from abroad, when staff from ÅAU spent time at universities in Scandinavia, Germany, the UK, or the US, witnessed alternative practices, and encountered new ideas and recently published textbooks.

Mounting challenges and failed interventions

Challenges towards the traditional university teaching culture started mounting in the 1960s. The subsequent developments aptly illustrate how a new societal situation, causing new problem definitions and rising perceptions of crisis, sets knowledge in motion and triggers the need for new knowledge.[12] There was a marked political will to invest

in the expansion of higher education, since it was seen as key to higher productivity and economic growth. Yet the rapid increase in student numbers also led to an increased public interest in the cost efficiency of the higher education system from the mid-1960s on. Politicians and state officials started drawing attention to the protracted period of study at Finnish higher education institutions. The university dropout rate was increasingly seen as an indication of a failing university system rather than as the shortcomings of individual students. Student activists were increasingly angry about disorganized courses, non-existent study guidance, the poor standard of compulsory mass lectures, and lack of individual guidance.[13]

Actors both outside and inside the university sector started pushing Finland's universities into adopting research-based, formalized knowledge about education, teaching, and learning, attempting to force new circulations between academic lecturers, higher education experts, and political decision makers. The government made an early intervention through a statement in 1966, demanding that the universities act in order to shorten the length of study, reduce dropout rates, develop teaching methods, and rationalize the structure of university degrees. This, however, had little effect.

At the time the professors at ÅAU, just like their colleagues at other universities, were busy trying to cope with the ever-increasing number of students pouring into the university, which had caused acute shortages of teaching and office space as well as academic and administrative staff. Student numbers tripled at ÅAU in the 1960s, from about 1,000 in 1960 to 3,000 in 1970. Amid this onslaught, few professors were prepared to consider major overhauls of structures and methods at the departmental level. Neither was there yet much of a central university administration at ÅAU that could have pushed for wide-ranging reforms. The university in the 1960s was still very much a 'republic of professors', where each professor governed his own discipline as a sovereign territory. The professors were the sole members of the university council and the faculty boards that were the main decision-making bodies at the university. They were resistant to all bids for external or top-down control, and appalled by the idea of interfering with the educational methods of their colleagues.

Student politics, meanwhile, was a university arena that was firmly

connected with the national stage and its political debates. Here critique of traditional forms of higher education and new ideas about the university circulated with increasing speed in the late 1960s. Inspired by similar actions at other Finnish and European universities, the Socialist Students' Association at ÅAU published a manifesto in October 1968, called '18 indictments of the old teaching'. They scorned the 'compulsion to passively receive knowledge', the scarcity of genuine interaction between students and lecturers, and the lack of any clear conception of the aims and effects of the education students received.[14] This was an exception, though, for most of the student activism at ÅAU at the time was directed either at the democratization of the university council and faculty boards, or at larger political, societal, and cultural issues beyond the walls of the university. Even the most radical students did not at this stage imagine that the forms of teaching and learning could be radically different from traditional practice.[15]

The first blast from the emerging field of university pedagogy only really reached the students and professors at Finnish universities with the major reform of the university degree system, which was launched in 1973 and continued throughout the 1970s. This project, urged on by left-leaning officials at the Ministry of Education, activists at the National Union of University Students, and educationalists, constituted the first material intervention that created public awareness of university pedagogy and the existence of alternative teaching methods. Given our interest here in how knowledge circulation can be blocked and counteracted, its fate is illustrative.

Launched on the back of an ambitious committee report drafted by educationalists, young professors, and student representatives, Finland's degree reform was intended to adapt university degrees to better meet the demands of the labour market, combining theoretical study with its practical application. The committee proposed introducing progressive educational methods to higher education, including problem-based learning, group work, and cross-disciplinary projects on topics such as environmental protection, community planning, and cybernetics. In spite of widespread scepticism among the professoriate, the reformers pushed on with a massively laborious planning process, as the contents and structure of courses and degree programmes throughout Finnish higher education were overhauled.

In the heated political atmosphere of the early 1970s, marked by a strong belief in central planning, social engineering, and the power of politics to shape a socially just society, even those opposed to the specific ideas advanced in the reform proposal seem to have accepted the inevitability of a major reform.[16]

The working parties tasked with planning the new degree structure at ÅAU began in an atmosphere of optimistic enthusiasm. Students and junior lecturers were for the first time included in the planning process on an equal footing with the professors. Yet a year or two into the cumbersome reform work, the process turned sour. The ministry provided no additional funding to realize the lofty visions of new pedagogical methods. The working parties got caught up in technicalities that diverted attention from the substantial issues of course content and educational methods. The national student movement started protesting that the reform would shackle students to 'drainpipe' degree programmes, removing their freedom of choice to select their own courses. A successful national campaign against the reform by right-wing political forces gave confidence to professors at ÅAU who had passively opposed the reforms.

The implementation of the degree reforms eventually turned into a massive demonstration of the resilience of local knowledge and traditional attitudes towards top-down reform. It was nominally implemented at ÅAU, but its radical potential was watered down until the result, according to many informants who had participated in the process, was old wine in new bottles. In hindsight, what derailed the reforms was that they represented a fundamentally different view of university education from the one held by academic staff. The reformers were wedded to the notion that all higher education degrees should be job-oriented, interdisciplinary, and designed along the same, universal educational principles. This ran contrary to the fundamental idea of university education as a free quest for knowledge for the sake of *Bildung,* the formation or education of a free mind, as well as the primary identification with one's own discipline that marked the academic mindset. The reforms, and the pedagogical ideas they embodied, were in effect stalled by a combination of tacit and explicit denials of their relevance and legitimacy in a higher education context.

Leaks and countercirculation

Even if local knowledge regimes successfully resisted external attempts to force them to tap into the circulation of formalized university pedagogy, developments in the 1980s and 1990s demonstrated that cracks were beginning to show. Stretching the metaphor of circulation, one might talk of leaks of external knowledge into the local university context, which academic staff tried to avoid by countercirculating local knowledge.

The degree reforms in the 1970s had done little to upset the traditional forms and 'private' nature of teaching at ÅAU. Yet both lecturers and students had been involved in a reform process during which the purposes and methods of university education had been critically and openly discussed. Even if the research presented by university pedagogy and the solutions it proposed were found wanting, the need for new methods and an awareness of university pedagogy as a distinct body of knowledge had taken root.

The professoriate spent much of the 1980s rolling back the changes in the degree structure that had been implemented. Yet the ÅAU Student Union moved in another direction, invoking the critical national debates in the wake of the degree reform and making 'the quality of education' a new key issue—even a new *raison d'être* for student politics after the battle over participation in decision-making had been won, and other thorny political issues of the 1970s had lost their appeal. In several reports and publications during the 1980s, the Student Union called attention to the allegedly deficient pedagogical skills of teaching staff.[17] The students' critique gained more weight after a reform of the university's decision-making bodies in 1981, which weakened the professors' oligarchical power and included student and staff representatives on the university and faculty boards. Yet in the face of the professors' continued authority and expertise, it proved difficult for the student representatives to force the university into adopting a decisive, top-down programme of action.

Pedagogical training for university lecturers had been a controversial issue at ÅAU ever since the early 1970s, when the elected student representatives of the so-called Study Council first called for compulsory training for teaching staff—evidently inspired by contemporaneous discussions of university reform at the national level.[18] These proposals

were never adapted by the university council, however, and the perceived fiasco of the degree reforms a few years later only reinforced staff unwillingness. Although the pedagogical ideas behind the reform proposals were never truly realized, many professors equated them with the attempted overturn of traditional academic ideals.[19]

There were naturally individual lecturers at ÅAU who were interested in new pedagogical approaches. In the 1980s, they participated in national teaching courses or found new models during periods as visiting scholars abroad. However, one main obstacle to the adoption of university pedagogy in the 1980s and 1990s was that the ÅAU lecturers who did participate in seminars and courses on the subject were often disappointed. The courses were perceived as overly theoretical and poorly adapted to the special requirements of higher education and individual academic subjects. When disappointed participants reported back to their students and colleagues, a countercirculation of negative knowledge about university pedagogy was set in motion. As one informant remembered of his first contact with a pedagogics course, 'they taught us stuff that probably works very well in junior school, but which had little to do with the challenges I faced on the courses I taught'.[20] This local knowledge about university pedagogy, resisting its truth claims and relevance to the actors' local context, usually circulated in spoken, informal exchanges. Yet sometimes it was also found in official documents, usually when resisting demands for compulsory training for lecturers.

Even lecturers who declared their willingness to expand their knowledge about pedagogics denied that formalized knowledge was the key to enhancing the quality of education, pointing instead to structural and institutional constraints. Some claimed there was already sufficient awareness of the need to update teaching methods, and the real and pressing need was not for further investigations or pedagogical courses, but for better material resources, in the shape of teaching assistants.[21] Other ÅAU lecturers referred to the contradiction between teaching and research as they saw it, and to the low status of teaching in the academic world. There were no rewards or incentives for a young scholar to invest time and effort in improving his or her teaching; on the contrary, the system indirectly punished such 'idealists', who were overtaken in the career race by more 'realistic' competitors exclusively focussed on doing research.[22]

A back door for new knowledge about adult education and university pedagogy opened into ÅAU with the establishment of a centre for open university courses and continuing education in the early 1980s. The initiative and funding came from the Ministry of Education, which from around 1980 pursued a policy of 'democratizing' higher education by making it available to all. Since most of the students on open university and continuing education courses were adult, experienced professionals, and the ÅAU lecturers were often younger or junior staff, the relationship between lecturers and students became more equal and dialogical than in regular university courses. The planners at the so-called Course Central were not researchers and scientists, but rather administrators who increasingly saw themselves as professional organizers of adult education. They enthusiastically cast about for progressive pedagogical knowledge, methods, and teaching media, making study visits to countries such as the UK, Germany, the Netherlands, and Belgium, and bringing in Swedish and home-grown experts to address staff training seminars at ÅAU.[23]

ÅAU's Course Central became an experimental field for student-centred, constructivist teaching methods and problem-based learning. Many younger university lecturers, who taught open university courses on the side, first encountered new ways of teaching in this environment. The circulation of pedagogical knowledge from the Course Centre to the wider university was nonetheless checked by the gulf between open university courses and the 'proper' university courses. As the head of the Course Centre recalled, there was deep scepticism of the Centre on the part of some older professors, who thought that continuing education courses debased the status of the university and contributed to a 'de-academization' of higher education. Even in the late 1990s, the new pedagogical methods used on open university and further education courses were seen as 'slightly suspect and not quite on the level' by other parts of the university.[24]

There was an obvious connection between the safeguarding of the distinctive character of university education and the rejection of pedagogical knowledge among university lecturers. It is a commonly known phenomenon from studies in the sociology of higher education that academic staff at modern universities have been eager to uphold the unique nature of teaching and learning at university level

in comparison to the lower levels of the education system. Research is argued to be crucial to the maintenance of academic quality—a way of asserting the superior social status of university staff over teachers at other levels. The professional identity of university professors and lecturers as scientists and scholars became even more visible at ÅAU in the 1990s, when the obstacles to the circulation of academic pedagogical knowledge were finally removed by external pressures.[25]

Breakthrough or bust?

The flow resistance between local and external knowledge about university teaching finally started to decline in the late 1990s and 2000s. A number of educationalists, university lecturers, and student activists had been chipping away at that resistance for years, but ultimately what was needed was a fundamental change in the context and institutional incentives. The Ministry of Education, frustrated by lengthening study times and stubbornly high university dropout rates, embraced a new paradigm for public management in the mid-1980s, based on simulating market-like conditions for public services. For Finnish universities, this meant that their funding was increasingly tied to measurable and quantifiable results. The annual numbers of completed Master's and Doctor's degrees became key criteria of productivity. Unless universities significantly increased their turnover in graduates, they would soon see their government funding slashed.[26]

The central administration of ÅAU had expanded significantly in the 1970s and 1980s, and had become a new powerful factor in the internal dynamics of the university. The gradual transition to the new university funding regime had no immediate impact on academic practices, but the administration reacted swiftly, if not very forcibly, to the new ministry policy. After the ministry's new policy had been revealed in 1986, the first sign of change at ÅAU was a brand-new section for the 'qualitative assessment' and 'enhancement' of teaching, which appeared in the university's strategic plan in 1988. In another unprecedented move, the university board appointed a committee of professors of pedagogics and psychology and student representatives to evaluate the quality of teaching and propose improvements.

According to the committee's report, published in 1991, students

found teaching and examining methods to be dated and uninspiring, guidance to be unskilful and insufficient, and many lecturers to be unprepared and unmotivated to teach since they always prioritized their research. For the first time, university lecturers had been surveyed about their experiences. The findings indicated that many found their students' conservatism and lack of commitment an obstacle to innovative teaching. Students were described as poorly prepared, more interested in gaining good grades than new knowledge, and reluctant to actively engage in critical discussions and alternative teaching methods. Lecturers called for more interactivity in the shape of seminars and tutorials, but pointed out that this would only be possible with smaller student groups and significantly increased teaching resources. They also called attention to the fact that ÅAU lacked a system for rewarding good teaching. Academics who prioritized quality teaching were inexorably punished in the career race.[27]

The 1991 committee report listed several specific measures to improve teaching quality, yet its most significant and controversial proposals concerned the incentives for good teaching. It proposed that pedagogical qualifications should be taken into consideration when scholarships were granted and appointments made, as well as salary rises for lecturers who demonstrated excellence in teaching. Requiring formal pedagogical qualifications from university lecturers was evidently still seen as unnecessary or even counterproductive, however: the committee laid down that pedagogical training and further education should always be completely voluntary for university lecturers.[28]

Most of these proposals were welcomed by the university board and included in various university position papers, but again, little happened in practice. The Finnish economic downturn slashed university funding in 1992–1994, and amid the cuts and temporary lay-offs no one paid much attention to the development of teaching. As soon as the worst financial crises had been weathered, however, the Ministry of Education renewed its pressure on the universities to implement new methods in order to meet its rapidly rising 'examination targets'.

In 1995, the issue of pedagogical qualifications in university appointments was still such a hot potato that the university board could only manage to agree on a non-binding recommendation. A proposal in 1999 that training in university pedagogy should be made compulsory

for newly appointed university lecturers was heavily criticized by several faculty boards. For example, the Faculty of Chemical Engineering stated that lending weight to pedagogical qualifications when recruiting teaching staff would lead to 'persons with formal competence overtaking persons with practical experience and natural talent'. In other words, formal, academic knowledge about university pedagogy was still claimed to be of little relevance to the real-life demands on a professor or lecturer.[29]

Following strategic decisions by the rector and vice-rectors, ÅAU nonetheless started regularly offering voluntary courses in university pedagogy for its staff in 1995—more than twenty years after compulsory courses had been proposed by the Study Council. In the late 1990s and early 2000s, the threat of cuts in state funding led to a further flurry of initiatives to 'improve student throughput' by developing teaching methods and study counselling. Ever more lecturers took the courses on offer. They increasingly recognized the general value of pedagogical knowledge, but often expressed the view that traditional teaching methods in their own subject were still somehow uniquely suited to the peculiar nature of their discipline. The experts who taught the courses thus often encountered what one of them described as a 'Yes, but not in my subject' attitude.[30]

It was in around 2000 that the pressure from the new funding regime began to be felt at the level of departments and individual professors. Dropout rates and the number of 'eternal students' were exposed in internal evaluations, and became a very real embarrassment in the competition between different university departments for status and resources. 'Loss-making' academic subjects were the object of increasing scrutiny and censure from faculty and university management. This forced even the most reluctant lecturers to consider what could be done to boost student motivation and prevent students from dropping out. Professors and lecturers did not necessarily abandon their critical attitude, but now at least were prepared to listen to what the external experts had to say.

Change was gradual, and sometimes glacial, and there was continued scepticism towards university pedagogy. Yet a breakthrough of sorts came in the 2000s. An important factor was that, following feedback from academic staff, the teaching courses on offer now better met

the practical needs of university lecturers. Many professors still never attended a substantial course in the subject, but among a younger generation of junior lecturers and PhD students a certain minimum of pedagogical qualifications was increasingly seen as indispensable for those wishing to land a university job in the future.

Circulation and flow resistance

An analysis of the fortunes of university pedagogy in terms of the circulation of knowledge shows that academic staff, politicians, educationalists, and student activists each inhabited quite different institutional and ideological contexts. The divides between these contexts, in terms of the interests, value systems, incentives, practical requirements and constraints, and even concepts of reality of different groups, were simply too great for circulation to take place.

The structural transformation of society in the 1960s and 1970s rapidly increased the demand for professionals with an academic education. Decision-makers involved in formulating government education policy increasingly viewed the university system from an economic perspective. In their view, the university should educate as many young people as possible as cost-efficiently as possible in order to meet the current needs of the labour market. Here, expert pedagogical knowledge was seen as a means of rendering higher education more goal-oriented and efficient, just as the industrial processes in a factory could be streamlined by external consultants with expert knowledge.

Within the cultural and institutional context of the university, however, such external pressures to reshape higher education were seen as menacing the value and authority of highly specialized scholarship. It was the fate of university pedagogy to be associated with demands from outside the university that were perceived as threatening the autonomous pursuit of knowledge and thus the very soul of the university.

The people who taught at the university had actively chosen this career and been recruited because of their interest and prowess in research, not in teaching. They saw the distinctive quality and superior status of university education as following from the fact that students were taught by active researchers who were distinguished scholars in their respective fields. Adequate teaching methods were

seen as intricately linked with the specific nature of the discipline in question, and best chosen by the foremost experts in the field. Traditional knowledge of teaching methods, transmitted by micro-circulation within disciplines and local departments, was seen as particularly well suited to these requirements and to the practical constraints of the lecturer–researcher's work—in other words, that one had to find time for one's research as well. The formalized knowledge about teaching offered by university pedagogy, on the other hand, was understood as too general in nature and nearly impossible to adapt, given the scarcity of human and material resources that characterized academic life.

A further explanatory level concerns the self-reinforcing nature of both blockages and circulations of knowledge. In order for knowledge to become relevant and legitimate, it needs to be 'translated' and adapted to the concerns, understandings, and needs of the community. If knowledge is not in circulation, the adaptation process will be blocked as well. In the period when departmental microcirculation and the larger international circulation of pedagogical knowledge rarely converged, there were no university teaching courses and new literature in the field was rarely read or discussed among colleagues. The adaptation process was thus non-existent, at least locally at ÅAU. However, the discipline of university pedagogy continued to evolve elsewhere in the world to respond better to the specific challenges and needs of universities and specific disciplines, and this was a significant factor in the eventual breakthrough in the 2000s.

Finally, changing power relationships in the university context must be taken into account when gauging why the blockages in circulation were eventually removed. The power of the professoriate increasingly lessened from the 1980s onwards, first by the inclusion of student and staff representatives in formal decision-making bodies, and subsequently by the growing size and clout of the university's central administration. For students and administrators, university pedagogy did not seem a threat; if anything, it was a vehicle for the desired changes in organizational culture. The autonomy of the university in relation to the Ministry of Education also changed over time. Although the ministry never assumed direct power over teaching methods, the intense financial pressures on the university,

born of the new results-based funding system in the 1990s, pushed the university into adopting new educational approaches. The funding regime also forced it to reassess its priorities for research credentials in the academic recruitment system. Few departments could now afford to hire professors and lecturers who were not deemed to be skilled educators as well as researchers.

Notes

1 Martin Trow, 'Reflections on the Transition from Elite to Mass to Universal Access: Forms and Phases of Higher Education in Modern Societies since World War II', in Michael Burrage (ed.), *Twentieth Century Higher Education: Elite to Mass to Universal* (Baltimore: John Hopkins University Press, 2010), 554–610.

2 In German, this field of knowledge is called *Hochschulpädagogik* (lit. university pedagogy), and equivalent terms are used in both Finnish (*korkeakoulupedagogiikka*) and Swedish (*högskolepedagogik*), the two national languages of Finland. Since Åbo Akademi University, founded in 1918, is a university for the Swedish-speaking minority in Finland, its working language has always been Swedish.

3 Philipp Sarasin, 'Was ist Wissensgeschichte?', *Internationales Archiv für Sozialgeschichte der deutschen Literatur* 36/1 (2011): 165, 169–70.

4 For a discussion of knowledge as cognition versus practice, see James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004): 665–6.

5 See, for example, Johannes Wildt, 'Entwicklung und Potentiale der Hochschuldidaktik', in Matthias Heiner & Johannes Wildt (eds.), *Professionalisierung der Lehre: Perspektiven formeller und informeller Entwicklung von Lehrkompetenz im Kontext der Hochschulbildung* (Bielefeld: Bertelsmann, 2013), 27–57; Eva Åkesson & Eva Falk Nilsson, *Framväxten av den pedagogiska utbildningen för universitetets lärare: Berättelser ur ett lundaperspektiv* (Lund: Lunds universitet, 2010); Arto Jauhiainen, 'Korkeakoulupedagogiikka suomalaisen yliopiston historiassa ja rakenteissa', in Arto Jauhiainen (ed.), *…Sekä antaa siihen perustuvaa ylintä opetusta: Näkemyksiä ja kokemuksia korkeakoulupedagogiikan tavoitteista ja todellisuudesta* (Turku: Turun yliopiston kasvatustieteiden laitos, 1997).

6 Åbo Akademi University (ÅAU), Åbo, Cultura Archive for Cultural Studies, IF mgt 2017/007–2017/041.

7 Ludwig Huber, 'Disciplinary Cultures and Social Reproduction', *European Journal of Education* 25/3 (1990), 242.

8 For similar observations on the national level, see the committee report *Korkeakouluopettajien pedagoginen koulutus*, Komiteanmietintö 1979:24 (Helsinki, 1979), 99–105.

9 Larry Cuban, *How Teachers Taught: Constancy and Change in American Classrooms 1890–1980* (New York: Longman, 1984), 243–4.

10 ÅAU, Cultura Archive for Cultural Studies, IF mgt 2017/027.

11 *Korkeakouluopettajien pedagoginen koulutus*, 80.

12 Johan Östling & David Larsson Heidenblad, 'Cirkulation—Ett kunskapshistoriskt nyckelbegrepp', *Historisk tidskrift* 137:2 (2017): 283.
13 Marja Jalava, *The University in the Making of the Welfare State: The 1970s Degree Reform in Finland* (Frankfurt am Main: Peter Lang, 2012), 71–2.
14 'Alla professorer är papperstigrar', *Åbo Underrättelser*, 19 October 1968.
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CHAPTER 7

Conflict, consensus, and circulation

The public debates on education in Sweden, *c.*1800–1830

Isak Hammar

In this essay, I consider the role played by conflict and consensus in the circulation of knowledge. Using the challenge to the classical paradigm of school education in Sweden as an example, my purpose is to demonstrate how the interplay of conflict and consensus can provide an analytical approach when charting the patterns of knowledge circulation.[1] Neither concept, I would argue, has received enough attention as cultural catalysts in the perpetuation or transformation of knowledge and knowledge claims.[2] The case of the Swedish debates on education in the early decades of the nineteenth century, however, demonstrates the usefulness of elaborating on both forces as part of a symbiotic relationship.

Conflict, consensus, and value

To start with the basics of the inquiry, what, in general, is the more potent accelerant for the circulation of knowledge—conflict or consensus? On the one hand, scientific and cultural agreement might very well be seen as a prerequisite for a far-reaching circulation of knowledge in society. Consider for instance the broad scholarly and political agreement on climate change. On the other, controversy and public dispute can just as easily be argued to be a potent driving force for the spread of ideas and learning.[3] Using the same example, knowledge

claims about climate change, when disputed, tend to come to the fore as a public concern. True, the interplay and relative weight accorded to conflict and consensus in the process of knowledge transfer and transmutations necessarily differ according to the historical date of the case, yet here I would also like to pursue certain general characteristics. The issue seems to have been only rarely explored by scholars. In any case, if the history of knowledge wants to claim circulation as a theoretical perspective of choice, exploring the dichotomy of conflict and consensus seems a promising way forward.[4]

In order to discuss these questions, I will revisit a favourite topic—and source of conflict—among historians of education: the challenge to and defence of classical education in the nineteenth century. The debates on education that raged over the issue of the classical curriculum in many European countries provide an apt example of the dynamics between disputed and accepted knowledge. I would argue that this particular perspective on knowledge circulation can shed new light on this well-trodden field of academic enquiry. The disputes over the future of education in early nineteenth-century Europe are also interesting for an altogether different reason. Unlike many controversies about knowledge, the main schism over education then was not, in essence, about truth claims, but rather value claims.[5] This is an aspect of the history of knowledge that warrants further consideration. As a new scholarly field, it has tended to gravitate towards truth claims, but I would argue there is no reason to ignore the potential relevance of value claims.[6] The circulation of knowledge in the disputes about classicism and modern education reform is not the circulation of just one knowledge, nor, as it happens, was the primary aim the circulation of any form of new knowledge. In short, neither classical knowledge (for instance Latin) nor modern knowledge (for instance natural history or Swedish) were part of the circulation, which was instead characterized by arguments about the merits, teaching methods, curricular order, and quantity of different forms of knowledge. I will argue that this did not prevent new knowledge from circulating as a result of the conflict—in fact, debating the value of knowledge in the public sphere led in this case to the circulation of a specific form of knowledge—and that the key to illuminating this process is to consider the role played by both conflict and consensus.

The conflict of the century

From the turn of the nineteenth century, conflicts about education were a common feature of several European public spheres.[7] Classical knowledge, deeply embedded in European culture and learning from the Renaissance onwards, now faced both political and academic threats. Ultimately, the conflict was rooted in various demands to include new forms of knowledge in higher education curricula, in which the study of Latin and Greek ruled supreme. By the nineteenth century, the practical use of classical languages had faded, providing an opportunity to claim the relevance of other forms of knowledge including modern languages, the natural sciences, and practical knowledge.

Yet amidst this conflict, there was also a powerful consensus. Faced with the threat of modern reform, rather than simply yield its hegemonic position, classicism in Europe found a new basis for its supremacy that aligned perfectly with the accepted goal of education—to train the mind. The idea, frequently referred to as *Formale Bildung*, spread across Europe, finding its way to Sweden, where educators and academics on both sides of the educational divide embraced the idea.[8] The relevance of considering both conflict and consensus as forces relevant to circulation of knowledge in this particular context is thus evident.

In most cases, these struggles proved long-lived, becoming increasingly intense and at times even bitter. Despite, or perhaps indeed because of, insistent demands for reform, classical studies were in fact strengthened in many school curricula across Europe over the course of the nineteenth century.[9] In fact, the similarity of the challenges to the classical paradigm of European education is one of the most illustrative examples of a public feud over knowledge before the twentieth century, and perhaps ever. In Sweden, the main example in this essay, the hegemonic position of classical studies was not wrested away until the early twentieth century, with an almost parallel turn of events in Denmark.[10] Although Norway implemented reforms that substantially diminished the place of Latin as early as 1869, there too the classical paradigm had been strong in the early decades of the century.[11]

Conflict and circulation

There can be no doubt that conflict is an integral part of the history of knowledge.[12] As a case in point, while the stimuli were fluctuating and complex, the dynamics of conflict seem seared into the historical process of transforming the school system. In other words, conflict was the primary reason anyone in Sweden's academic, political, or public arenas talked about the merits of a classical education versus a modern education. Whether seen as primarily ideological, scientific, or pedagogical, the fact that there was disagreement on a wide range of issues ensured the debate remained relevant. Consequently, conflict would also have had a profound impact on the circulation of knowledge that was a result of this societal schism.[13]

Above all, it appears that the longevity of the conflict was a key factor in the circulation of knowledge. Since the conflict was not one that could easily be resolved, it remained high on the agenda for the reformers, and persuaded them that their defence of classics needed constant repetition. Conflict, in other words, kept fuelling knowledge circulation in the public sphere.

While conflict has undeniably been at the heart of previous scholarship, it is perhaps not surprising to find that the general focus has mainly been on one side, that is, reform and modernization.[14] To borrow from David N. Livingstone's description of the general tendency in studies of science and knowledge, accounts can be described as having been 'touched with a progressivist brush'.[15] Furthermore, the conflict has traditionally been read as a form of class struggle. The questions that have loomed large are when the change in European school ordinances took place, who argued for change and who for tradition, and what political decisions facilitated or obstructed modernization: in Sweden in particular, the debates on education have been the focus of a long series of studies that to various degrees have adopted such perspectives.[16] Conversely, as pointed out by Jürgen Leonhardt, very little interest has been shown in classicism as an educational movement in Europe.[17] Arguably, the continuing attraction of classics—and thus the basis for the continuation of the conflict—has long been overlooked. In part, this can be explained by an overly strong focus on the element of conflict in the education debates of this era. A close reading, however, reveals that consensus also had a part to play.

Educational consensus

While conflict seems to be a key factor in analysing the history of education, it is perhaps less obvious that the study of these public feuds in the early nineteenth century also reveals great consensus.[18] In general terms, both sides of the debate agreed on the common goals of education, and a set of basic assumptions for how to reach those goals.[19] While in the nineteenth-century case the consensus crystalized around a particular notion of education, similar points of agreement can surely be found in most conflicts over knowledge.

In order to illustrate this point, let us turn to the inescapable question of how the classical paradigm of education endured, and even thrived, for so long in the face of this stout and tenacious opposition. While previous scholarship has tended to point towards the strength of conservative ideas, or, in the Swedish case, the influence of the Church over the school system, another explanation may be sought in the fact that Latin, in the intellectual milieu of the time, was given a brand new educational logic that allowed classical study to retain its hegemonic position.[20] Ultimately, this new position rested on consensus. The logic, formulated in full by Friedrich Gedike, dictated that the goal of studying Latin was no longer to learn the language, but rather to train the mind of the young pupil, ultimately ensuring his growth into a moral, productive citizen.[21] As a consequence, classical languages, along with the study of Greek and Roman civilizations, became part of the Humboldtian ideal of *Selbstbildung*.[22] The notion of *Formale Bildung* merged perfectly with the neohumanist ideals prevalent during this period. Based, in essence, on a philosophical discussion of the faculties of the mind, *Formale Bildung* stipulated that the mental faculties could be trained, much like muscles, and that this was the ultimate goal of education. Latin, because of its logical grammar and structure, was widely believed to be the most suitable tool for this task. With the theory of formal education, which spread like wildfire across Europe, the classical paradigm had a new and powerful defence in the face of hostile opposition. From such a perspective, the strength of classical study hardly seems all that surprising.[23] In Sweden, as the literature shows, this view of the purpose of education was almost unanimously shared by reformers and classicists alike.[24]

So, which one of these perspectives is the more crucial in studying the circulation of knowledge in this era? If the history of education has

anything to gain from the perspective of circulation, it would appear that the twin perspectives of conflict and consensus have a part to play. What, in turn, can the study of circulation gain from the analysis of such bipolarities? In order to propose answers to these questions, let us turn to Swedish events at the start of the nineteenth century.

From division to circulation

With the introduction of a new School Ordinance in 1807, the circulation of documents pertaining to the education conflict in Sweden began to intensify. From this point on, a pattern can be distinguished where official documents functioned as nodes that fuelled the circulation of knowledge in the public sphere. In other words, for every action the government took, there was a reaction in the public sphere. In the following, I will look at three such nodes and the circulation they produced: the school ordinances of 1807 and 1820, and the (failed) attempt at their revision by a government education committee, which reported in 1828. In all three cases, unresolved conflict and educational consensus were part and parcel of the circulation they inspired.

The continued attempts at reform during the nineteenth century originated in the preceding century. In the eighteenth century, humanism and classical education had come under fire in several public spheres of Europe. As public debate intensified in the mid-eighteenth century, a committee for educational reform was convened, which advocated a more practically oriented school with an emphasis on mathematics, the natural sciences, and economics. The committee was a response to the utilitarian trend in society that in itself posed a threat to classical and humanist education all over Europe.[25] Comparable developments were, as noted by Susan Marchand, seen in Germany; from Irmline Veit-Brause we learn that the 'the natural sciences in Germany "responded" to the perceived *pre-eminence* of a literary, "humanist" culture'.[26] Similarly, Caroline Winterer has shown that contemporary classicists in the US were actively combating what they considered the 'cancers of modernity', including materialism, industrialization, and the loss of civic virtue.[27]

Reflecting these international concerns, the reforms proposed by the Swedish committee were, with the exception of the inclusion of

modern languages, rejected. Moreover, the prominence of the natural sciences, practical knowledge, and the gospel of utility was later weakened, and by the end of the eighteenth century the humanist paradigm of education had regained its ascendency.[28] However, by including modern languages a societal schism had been accentuated, and events were set in motion that carried over into the nineteenth century. In Sweden, the School Ordinance of 1807 replaced the School Ordinance of 1724; in Denmark, the school regulations were changed in 1805 and 1809. None of this succeeded in placating those calling for reform. If anything, the contrary was true. The reason these attempts at reform powered the public debate, and the circulation of knowledge that followed from it, was their inability to overcome this divide.

The reforms of 1807

The first phase of the circulation of knowledge under scrutiny dated to the School Ordinance of 1807. While the reform stipulated that a separate programme be created in order to accommodate industry and business, Latin remained untouched in the standard programme for higher learning. This was to become a common thread in the Swedish attempts at reform: there were public calls for less Latin while the official rulings maintained or even strengthened its importance. As a case in point, after only five years a new committee was convened to revisit the new reform, but almost immediately issued a report confirming the great value of studying Latin. Meanwhile, as the main conflict remained unresolved, the circulation of knowledge increased.

As a general rule in this pattern of circulation, educators responded to the official attempts at reform by proposing amendments. One of the first to react to the 1807 School Ordinance was Gustaf Abraham Silverstolpe. In a series of published texts he outlined what he considered the preferable school organization, which he believed should be open to everyone, not just future priests or civil servants. While these types of proposals naturally contained and thus circulated a variety of information and arguments about education, Silverstolpe and his peers' main concern was with the issue of the value of knowledge. For instance, he argued that the current ordinance should be immediately revoked as it was fundamentally inadequate for the education of the

common people, did not accommodate the needs of the middle classes, and lacked the means to train the minds of civil servants. With that, Silverstolpe professed his belief in the pedagogical perspective of formal education. Furthermore, despite being an influential reformer, Silverstolpe argued that classical languages were indeed the most effective tool for training the mental faculties.[29]

It is important to note that these first years of conflict coincided with the expansion of the public stage and with the growth in the number of publications that circulated in the public sphere. It was common for two or more authors to engage with one another's texts, reiterating the arguments and either confirming or rejecting them. Thus, the viewpoints themselves—not least those that pertained to the value of knowledge—were stated repeatedly in the public domain. Silverstolpe's arguments were soon picked up and reviewed by another influential educator, Carl Ulric Broocman, the first to publish an education journal in Sweden. They agreed on several points, chief of which was the need for a school system that was open to every citizen. They also agreed on the need to, as Broocman put it, 'awaken the dormant forces of the soul' in the child.[30] Although not discussed at any length, Broocman's preference for the pedagogical theory of formal education was unmistakable.

It is particularly interesting that the pamphlet genre at this time seemed to formalize conflict as both a pedagogical and as a rhetorical device. It was a common rhetorical model to describe and then dispute the arguments attributed to the opposing side. As a result, debaters often ended up reiterating the contentious issues, keeping the conflict alive discursively. In other words, an element of conflict, although often courteous in tone, was built in from the start. Critical of Silverstolpe's and Broocman's shared vision of a school open to all citizens, Erik Gustaf Geijer instead professed that the state had no obligation towards commerce or trade. Nevertheless, he too joined the consensus on the value of knowledge, assuming the new knowledge of formal education to be correct and classical languages to be the best tools available. Geijer was a conservative, but when it came to formal education it seems ideology did not matter.

Predictably, as more and more people began to voice their concerns, the conflict became more complicated, splintering into issues

of government funding, teaching methods, and organization. At the same time, as we have seen, certain themes, ideas and opinions were frequently addressed. One thing all debaters agreed on was that formal education was the bedrock of any successful school system.

The reforms of 1820

The intensified circulation of knowledge also inspired change at the political level. In 1812, a new committee was appointed to revisit the 1807 ordinance.[31] As a result, more and more official documents appeared in the public sphere. For example, the committee found it necessary to publish its views as early as the following year. Then in 1817 another approach to reaching consensus was attempted by the committee, which circulated a proposal for a new school ordinance. Another rule of knowledge circulation can now be observed as literary magazines also began to review the official documents about the reforms. Furthermore, after the School Ordinance was issued in 1820, the committee also published a teacher instruction—which reused several passages from the proposal—on how to interpret the new ordinance. These documents bore the marks of the wider conflict, referring, for example, to the impatience of those who wanted to limit the amount of Latin taught in schools.

Yet, they also professed consensus. The three documents—the proposal, the School Ordinance of 1820, and the instruction all included passages that upheld the idea of formal education. Moreover, people's investment in this educational knowledge now became more pronounced. In the proposal of 1817, for example, the introductory passage confirmed that only school subjects that led to the improvement of the mind were considered useful, while enumerating the faculties which were to be trained. This knowledge can be traced across different media. When the proposal was reviewed in *Swensk Litteratur-tidning* the following year, we again find formal education to be the common denominator.

All of the documents mentioned above, in some shape or form, arose in a societal disagreement about knowledge. Due to its commitment to classical languages, the conflict over the School Ordinance of 1820 was particularly heated, but although intensely disliked by several

groups, it remained the key document until the middle of the century. For every official document that confirmed the status quo, frustrated educators responded with new and old arguments about the need for reform. Thus, the circulation of knowledge was perpetuated. Both the proposal and the School Ordinance were reviewed in literary magazines, and prompted individual debaters to publish pamphlets. Some of the latter in turn entered circulation, chief of whom was arguably Anders Fryxell, who in 1823 was deeply critical of both the School Ordinance and the classical paradigm of education in general. Enumerating, as per the rhetorical model previously mentioned, all the faulty arguments of the classicists, Fryxell, unlike many other reformers, denied that Latin had the superior qualities it was often credited with as a tool for shaping young minds. Following its publication, Fryxell's text was frequently mentioned by both his critics and sympathizers, and thus was not only the product of a conflict, but furthered the circulation of knowledge of that conflict by being a polemical account of recent education decisions, which others felt obliged to defend or repudiate. As an example, in an analysis of several recent pamphlets that had voiced concerns about the School Ordinance, the reviewer of a literary magazine rejected Fryxell's critique on the basis that he had misunderstood the purpose of education, thinking it was to procure practical knowledge when in fact the goal was to train the mind.

The Genius Committee

Political criticism of the status of classical languages remained fierce, and as early as 1823 the School Ordinance was back on the agenda. Once again, an official report was produced that restated the value of classical languages. That same year a new committee was convened that soon came to be known as the Genius Committee, so named because of the celebrity of several of its members. And when that committee published its report, there was a curious break in the pattern of knowledge circulation that the issue had stimulated thus far.

The divisions over the question of education had only grown with the School Ordinance of 1820. The Genius Committee, just like the previous committee of 1812, was a response to the larger schism over education. More than its predecessor, however, the Genius Committee

came to embody the conflict as a whole. From the very start, the committee was publicly characterized by its discord. The familiar battle lines were drawn, with those who wanted reform to meet modern needs pitted against those who were adamant that classics met all the needs of the state and the individual. When the committee finally published its report, the divisions were so pronounced that only a slim majority passed the main report, while a minority (who had lost by two votes) stated their concerns in the appendices. The report itself, acknowledging its lack of mandate, was a toothless compromise—'the opinion of no one', as Carl Adolph Agardh wryly remarked. Ironically, among its severely limited findings the report suggested that each school introduce a modern programme alongside the existing classical programme, a suggestion that would have writ large the divisions that had first called the Genius Committee into existence and then doomed it.

Similar to the debate that had preceded the ordinance of 1820, both the report and the appendices showcased conflict *and* consensus. As an example, the introduction of the committee's report was careful to state that there was no disagreement on the goal of education, merely on the means. Both sides professed their unambiguous belief in the pedagogical knowledge of the faculties of the mind. The report as whole, then, also became part of the same knowledge circulation that kept reaffirming the values and goals of education.

Looking specifically at the circulation relating to the report of the Genius Committee, however, reveals something unusual. Unlike the publication of official documents pertaining to the School Ordinance of 1820—which itself fuelled circulation—the report of 1828 created an impasse. For a brief period, the circulation of knowledge stopped. Conflict and consensus, again, seem to offer the key to this. The profound divisions between the members were papered over by their (strained) consensus. As long as everyone agreed on the basic tenets of formal education, the reformers had to argue that new subjects and modern knowledge could provide the same mental training as Latin. This did not come easy to them. Thus, the overlap between conflict and consensus in the public sphere resulted in stalemate. As a result of the committee's disagreements, the government did nothing in the immediate term, neither implementing nor disregarding the compromised findings in the report. Both sides seemed to hold their breath.

Ultimately, it was the government that ended the stalemate, and as it were rekindled the circulation of knowledge in the public sphere. In 1832, to provide material for revisions to the ordinance, the King in Council officially requested that all those who had an interest in the subject submit their opinions of the report of 1828. The circulation—and with it both conflict and consensus—began anew. Of the dozen or so pamphlets that were sent in to the King in Council, both classics and modern subjects were advocated passionately. But in the circulation of knowledge at the prompting of the King in Council, it was not conflict that stood out, but consensus. They all declared their agreement on the merits of formal education.

Conclusions

To sum up, let us return to the question of which was the more powerful catalyst for the public circulation of knowledge, conflict or consensus? Knowledge and academe have of course often been analysed as sites of competition.[32] As noted by Nickelsen and Krämer, however, so far there have only been a few studies analysing 'how cooperation and competition are interrelated in specific contexts of science', since research has tended to focus on either one.[33] In this essay, I have argued for the significance of analysing both of these binary forces as part of a symbiotic relationship. From the example of the Swedish debates on education between 1807 and 1832, we can discuss the duality of conflict and conflict on three different levels. Firstly, general societal conflict was the primary impetus for any form of circulation of knowledge. If the various stakeholders had agreed on all matters of education, there would have been far fewer pamphlets, articles, and official reports, and in all likelihood far fewer lectures, speeches, and ordinary conversations on the topic. Yet, as I have argued, while this conflict about knowledge was largely focused on the relative worth of classical versus modern knowledge, the consensus on one specific pedagogical idea—formal education—meant that this new form of knowledge circulated with increasing intensity.

Secondly, we can consider the conflict and consensus professed in print by individual debaters. The likes of Silverstolpe and Fryxell consistently reacted to both official and individual statements, and,

agree or disagree, it did not change the fact that in doing so they drove the circulation and created an observable web of connections between publications. This level of interplay seems likely to be echoed in other knowledge disputes as well, where it too might perhaps provide the empirical basis for a study of the circulation of knowledge.

Thirdly, while in this case it is perhaps specific to the historical period, we should not ignore the rhetorical genre. In nineteenth-century Sweden, the usual courteous yet antagonistic genre meant that both conflict and consensus were built into the individual publications. The arguments of the opposing side were set out and countered, but in a tone that played up the points of agreement. One might expect that similar rhetorical considerations will be found in other historical contexts.

In light of these findings, certain general aspects deserve elaboration. As the example of Sweden shows, publicly questioning the nature, use, or value of knowledge not only produces texts and speeches that promote certain views and actions about knowledge, it is almost guaranteed to produce a reaction. Indeed, conflict can thereby sustain and intensify a particular pattern of circulation, as public protagonists engage one another in argument on the public stage. As long as the conflict is deemed publically relevant, it continues to impact the public discourse about knowledge.Therefore, I would argue that it is fruitful to approach the question of circulation not only from the perspective of how a specific form of knowledge circulated, but what kind of knowledge was propelled in the public sphere as part of a more complex pattern of circulation. As I have shown, one form of new knowledge that was circulated to a broader public sphere through constant confirmation in a growing range of media was the pedagogical knowledge of formal education. Conflict, in other words, put consensus into circulation.

Finally, it is not only truth claims or disagreements about facts that deserve our attention when studying the history of knowledge. At heart, the nineteenth-century conflict over education in Sweden was an attempt to control what knowledge was circulated at a very basic level of society—the school curriculum. Rather than the truth of one form of knowledge, the debate revolved around the value of different forms of knowledge. As a consequence, while the broad pattern of circulation can be seen, the question of what form of knowledge in fact circulated in

a broadening public sphere fast becomes even more elusive. There were simply too many claims that circulated at the same time. By focusing analytically on the interplay of conflict and consensus, I have argued that it is possible to focus on the intrinsic but uncalculated circulation of knowledge that occurred in the midst of a dispute.

Notes

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23 See also Turner, 'Victorian Classics', 160–1.
24 Wilhelm Sjöstrand, *Pedagogikens historia*, iii. pt 2: *Utvecklingen i Sverige under tiden 1809–1920* (Lund: Gleerup, 1965), 67; Nilehn, *Nyhumanism*, 31.
25 Karin Johannisson, 'Naturvetenskap på reträtt: En diskussion om naturvetenskapens status under svenskt 1700-tal', *Lychnos* 1979/1980 (1981): 109–154.
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29 See also Sjöstrand, *Pedagogikens historia*, 60–61.
30 Carl Ulric Broocman, 'Om det offentliga läroverket', *Magasin för föräldrar och lärare/ utgifvet af C. U. Broocman* (Stockholm, 1810–1812): 3.
31 See also Karl Larsson, 'Reformtankar i svensk skolpolitik 1809–1820', *Pedagogisk tidskrift* 82 (1946); Jan Agrell, 'Den pedagogiska debatten i Sverige 1807–1820', *Pedagogisk tidskrift* 96 (1960); Sven Askeberg, *Pedagogisk reformverksamhet: ett bidrag till den svenska skolpolitikens historia 1810–1825* (Uppsala 1976); Torgny T. Segerstedt, *Den akademiska friheten 1809–1832* (Uppsala, 1976).
32 See, for example, Robert K. Merton, 'The normative structure of science', in id. (ed.), *The sociology of science: Theoretical and empirical investigations* (Chicago: University of Chicago Press, 1973); Pierre Bourdieu, 'The specificity of the scientific field and the social conditions of the progress of reason', *Social Science Information* 14 (1975): 19–47. For a general discussion, see Nickelsen & Krämer, 'Introduction: Cooperation and Competition in the Sciences', *NTM* 24 (2016): 119–23.
33 Nickelsen & Krämer, 'Introduction', 121.

CHAPTER 8

The circulation of knowledge in translations and compilations

A sixteenth-century example

Kajsa Brilkman

Peter Johannis Gothus was a translator, author, and publisher, active in Rostock in around 1600.[1] He mostly translated German theological literature into Swedish, and for this reason has been seen as an important figure in the communication of Lutheran theology to the Swedish realm.[2] His work from 1597, *Sköna och märkliga skriftens sententier* ('Comfortable and remarkable opinions'), a collection of five translated texts with a long preface, is one example of the dissemination of German Lutheran literature in peripheral Sweden.[3] However, in this essay I will argue that 'dissemination' is a poor approximation of the movement of knowledge in early modern Europe. Instead, I will show that the concept of the circulation of knowledge can be used to increase our understanding of the real significance of translations and compilations for knowledge production and knowledge consumption.

In recent years, there has been a growing interest in early modern translation among book historians, literary scholars, and historians, often inspired by the field of translation studies.[4] The history of early modern translation—like the history of knowledge—is now known to offer the chance to study the processes of transfer and entanglement in the past, shifting focus from the production of ideas to their communication.[5] The two fields converge on a number of significant points, with insights from translation studies proving very useful in studying the history of knowledge. This essay falls into four sections, all of which deal with the aspects of early modern translation that I

consider important in terms of the circulation of knowledge. I conclude each section with examples from my research on Petrus Johannis Gothus' translation, *Sköna och märkliga skriftens sententier*.[6]

Circulation and the political context of translation

The cultural turn that has characterized the humanities in recent decades brought with it new ways of studying translation. No longer analysed solely from a linguistic perspective, with a focus on absolute quality, it is now approached as a product of its time, created in a specific historical, political, social, and cultural context. The assumption is that a translation was always an expression of some form of power relationship, and in the first instance its function was not to render the original text, but rather to communicate its message to the target culture.[7] Specialists in translation studies are often linguists or literary scholars, and so tend to concentrate on translation's role in literature. Thus Anna Coldiron has argued that the creation of what was thought of in the Renaissance as 'English literature', was in reality the result of translations into English of texts circulating in Europe.[8] Changes to the original text in the course of translation, designed to suit the target culture, were not limited to the translator altering the content of the text, but were also evident in the way the text was laid out, as Guyda Armstrong has shown in her analysis of the publication of Italian works in England in the sixteenth century. The images and typefaces used in the English translation of *Orlando Furioso*, published in London in 1591, were chosen to compete with the European literature imported to England, and so to attract elite readership who were interested in buying fine editions of Italian literature.[9] Literary studies of translation rarely ignore its context, but in terms of the history of knowledge it is plainly possible to do far more to read translations as a product of the political and sociocultural processes in the target culture.[10] An original text may then have circulated among, say, Lutheran theologians, who, prompted by political and social conflicts in one context, decided that translations were called for in another. The formulation and choice of words in translation were characterized by the target culture's problems, and any translation can thus be studied as a source of information about the role of knowledge in an ongoing conflict or process of change.

An important early study that demonstrated the potential of appraising translation as a context-specific product was written by a leading figure in the field, André Lefevere. In his analysis of the translations and editing of Anne Frank's diary, he demonstrated how different meanings had been edited out along the way; perhaps the most striking find was that Anne Frank's hatred of the Nazis, so clearly expressed in the diary, was toned down by the translator in the German translation published in 1955.[11] A more recent example is Norbert Bachleiter's examination of the translation of Gustave Flaubert's *Madame Bovary* (1856) from the original French into German. Bachleiter shows that the translation was strongly influenced by the translator's presence in the text, with all political or religious criticism removed and a moral line asserted. The translator was thus plainly aware of the criticism of the novel in France, and, in an act of self-censorship, created a text that would suit the political climate in Austria.[12]

None of these studies uses the concept of the circulation of knowledge, but they are good examples of analyses of the way knowledge changes as it moves. However, the question of how a text changes in translation points to the real potential of the concept. All four of the translations considered here are not one-off cases, though, but rather are examples from a series of early modern translations, done into several languages and published in various editions. A historically informed contribution to the field of knowledge research, concerned with translation as a context-specific product, can serve to illuminate the circulation of knowledge between different editions and translations of a single text. There were often translations into several languages spread out in time, the translations being interrelated and forming part of the circulation of knowledge.

Although there have been studies that recognize that translation can be studied as an articulation of political goals—Anne Frank's diary being one example—there is still scope for historians of knowledge to do more with the interplay of translation and political context. Petrus Johannis Gothus' translation from 1597 is one such instance.

Gothus was born in the Swedish city of Norrköping in 1536 and attended the University of Rostock between 1568 and 1571. In the 1570s he began work as an author and translator, with his most productive period lasting from the 1590s until his death in 1616.[13] In the

literature, Gothus' translations are cited as proof of his importance in the spread of Lutheran consolatory literature to Swedish readers. Narrow the focus to the circulation of knowledge between the source texts and Gothus' translation, and it is plain that he designed his work to argue a specific case in the ongoing confessional conflict in the Swedish Empire. After Johan III's death in 1592, his son Sigismund, who had been raised a Roman Catholic, ascended the throne, but only after he had solemnly sworn that his Swedish subjects could remain Lutheran. Duke Charles, Sigismund's uncle, questioned the new king's ability to shoulder the responsibility for his subjects' immortal souls, given that he was not of the same confession. Mounting political and confessional unrest came to a head in a civil war in 1598, and ultimately Sigismund lost his throne to his uncle.[14] Gothus' translation should be read as a comment on this conflict, in which he sided with the Church of Sweden, and tried to mobilize Lutherans across the kingdom. Hence his emphasis on Martin Luther as an example of a good Christian. In some circles Luther's name had been controversial in the early stages of the Reformation, and several authors drew a veil over his authorship of texts that they translated into Swedish. Gothus took the opposite approach and singled Luther out: his name appeared in red on the front, his portrait in the book, and in the preface Gothus repeatedly refers to him, often picking out his name in contrasting typefaces or capital letters. In Gothus' hands, the very words of a translation become symbols in the struggle for power in the Swedish Empire.

The many ways with knowledge

The art of printing and a renewed interest in classical texts during the Renaissance were the beginnings of the explosive growth in translations in early modern Europe.[15] The humanists' translations and editions of Latin, Greek, and Hebrew texts into the vernacular were only a fraction of all the translations done in the period, however. In fact, translations were a significant proportion of the total text production in Europe in the early modern period, although Latin continued to be the key language in certain learned circles. All types of literature were translated, both between languages and between varieties of one language (for example, from High German to Low German). Some

popular works, once translated, were republished for years to come, while others were printed only once.[16] Translations were rarely done from the original text, but instead were based on other translations. For the languages of the European periphery, it seems this was especially common—many English translations were done from French translations of Spanish, Greek, Italian, or Latin originals, for example.[17] Together these texts created a complex pattern of editions, retranslations, secondary translations, paraphrases and adaptations. It was in translation that knowledge was spread in the early modern world.

One example is *De imitatione Christi*, one of the main devotional works of Christianity, written in the fifteenth century, probably by Thomas à Kempis. Only the Bible was printed more frequently in the European book market. Not only did its popularity continue for decades, it circulated beyond confessional limits. *De imitatione Christi* was translated and revised by both Protestants and Roman Catholics, it achieved great popularity before 1500, and it continued to be published throughout the Reformation, including the period subsequent to the confessionalization. Maximilian von Habsburg, who has studied its many translations and editions, notes that even though the Latin original was recontextualized in translation for Protestant or Catholic audiences, certain common elements remained for readers on both sides of the confessional divide. Some forms of knowledge—piety, for example—continued to unite Christendom. At the same time, the reader of a translation intended for the Protestant market would not have been able to envisage that version appealing to a Catholic. Similarly, Jesuits could read an edition intended for a Protestant readership without knowing that the text had been 'Protestantized'.[18] The circulation of knowledge about the transconfessional revisions of *De imitatione Christi* shows just how entangled such seemingly distinct positions could be.

The publication of *Sköna och märkliga skriftens sententier* undoubtedly helped spread Luther's work to the Swedish kingdom, if only because three of its five sections were translations of texts or passages originally written by Luther. Yet dissemination only partially captures what was happening. Gothus had in fact not based his translation on Luther's originals, but took his source texts from the two competing editions of Luther's collected works, generally known as the *Wittenberger Gesamtausgabe* and the *Jenaer Gesamtausgabe*. Both had been

published after Luther's death with a view to protecting his literary legacy from corruption. This mattered because posthumously he was ascribed a normative function for Lutheranism.[19] Gothus worked with what was thought of as the best version of Luther's textual production. The material, having circulated in various editions, had been anthologized in the two editions of the *Gesamtausgabe*. The editing of the *Gesamtausgabe* was affected by the disputes between Lutheran theologians, which added further layers of meaning to the texts.[20] Once brought together in the *Gesamtausgabe* that was not the end, however, for they could later be separated from that context and republished—which was exactly what Gothus did. His edition of 1597 was only a small piece of the extensive body of Lutheran material in circulation in early modern times. Few of these many translations and editions ventured to change Luther's words, but the choice of material, prefaces, and frontispieces constantly decontextualized and recontextualized the texts, giving them new significance. Studies of how the central Lutheran texts circulated in translation and in different editions, acquiring new meanings as they went, depend on an understanding of the complexities of early modern Lutheranism and transnationality.

Handing round knowledge

The early modern approach to translation bore little relation to modern discourses of translation practice.[21] Since the modern notion of the author's claim to the text was then in its infancy, the dividing lines between translator, author, and publisher were non-existent, and a writer could base a text on one or more translations without mentioning the source texts. The translator had freedom to rework the original text, including cutting or rewriting entire passages. For that reason, early modern translation has been described as 'narrative translation'.[22] Linnea Bring Larsson's analysis of Reinerus Broocman's household manual (1736) shows how advances in agriculture spread to Sweden in translation—and Broocman had used several source texts, which he then combined in his own work.[23]

The lack of copyright also meant that compilations—compiling a text from parts of other texts—were a very common way of producing new texts in the early modern period.[24] In practice, it was an opportunity for the translator to cherry-pick from known works in order to create

an entirely new text in the target language. Ronnie Po-cha Hsia has shown that of the 450 translations of original European texts done by the Jesuits as part of their mission to China between 1583 and 1700, only about 50 count as translations in the modern sense; the majority were either paraphrases of the original text written in Chinese, or compilations from numerous different European original texts, translated into Chinese.[25] The written knowledge in the European works was not bound to the text in which it was first presented, but could be filleted out and refashioned to fit the Jesuits' requirements in China.

This fluid relationship between source and target text is what distinguishes modern translation from the early modern. Similarly, it is its flexibility that makes early modern translation such a useful source when studying the history of knowledge. The knowledge that circulated in that system was not considered to be new; it was known to be old (and thus true) knowledge, passed on in a new form. Knowledge production and consumption were thus closely interlinked. The idea that there was no new knowledge, only old knowledge that could be shared and interpreted, made every stage in the production of knowledge one of consuming older knowledge, and consumption—at least when referring to the learned world—was integral to production. Circulation as a concept thus captures the early modern approach to reusing knowledge. In *Sköna och märkliga skriftens sententier* this was evident in Gothus' description of why he published the book. In the preface, he explained that Luther had a special gift of correctly interpreting the truth preserved in the Bible. Gothus, in turn, had taken in Luther's reproduced knowledge, and announced that he in turn would pass it on to his fellow Swedes.[26]

Communicating knowledge in early modern society

James Secord writes that historians should pay greater attention to the ways in which locally, historically produced knowledge was communicated and so became global. Any attempt of this kind to catch sight of knowledge in motion ignores the boundaries between the production and consumption of knowledge, seeing them instead as part of a circle of communication.[27] The historian, meanwhile, will ask the question: who was included in the circle?

Johan Östling and David Larsson Heidenblad have argued strongly for the virtues of working on what they term 'public knowledge circulation'.[28] Their prime concern is the kind of knowledge that had relevance to the community where it was produced. Such social relevance is the same as knowledge that has a broad scope, reaching and affecting most sections of society. In my reading of Östling and Larsson Heidenblad, they hold this to be an important distinction, because knowledge shared by small, perhaps even closed, groups of people defies analysis of the type possible when circulation is the guiding concept. This is no doubt useful in the study of the modern era, but it can cause problems for earlier periods of history—for what was public knowledge circulation in early modern society, for example?

If public knowledge circulation is the same as knowledge that is of great relevance and scope, then for early modern Sweden that sort of knowledge was what the vast majority of Swedes scattered across the realm had access to. Sermons, catechism, and proclamations of the days of intercession were central to the spread of certain types of knowledge. Besides news, official decrees, and a Lutheran understanding of individual and community concerns, what was communicated was adapted to the audience. Knowledge of the kind discussed here thus falls outside what in the broad sense might be thought socially relevant knowledge. Translations of theological treatises were certainly highly relevant to society, but did not have much reach, as the majority of Sweden's population did not read them. For example, the print run of *Sköna och märkliga skriftens sententier* is not known, but comparable European surveys indicate that it would have been small by the standards of the day, which in the Swedish case can reasonably be assumed to have been a few hundred copies.[29] Gothus' readers were likely to have been inhabitants of Stockholm, the nobility, and some of the country's clergy, although it is possible that greater numbers came by this knowledge second-hand. The question of relevance means that only a very small proportion of the available knowledge is likely to have been part of public knowledge circulation; according to this criterion, Gothus' text was plainly a product for a small elite.

I would like to propose a different approach to premodern history. To talk about public knowledge circulation presupposes a certain understanding of 'society'—a modern understanding, to be exact—a hallmark of which being what I would term a 'shared communication community',

in which knowledge can circulate. Early modern society, on the other hand, was characterized by the opposite: of the bulk of knowledge, only very limited amounts circulated in a manner accessible to the majority of the population. This is not to say that sixteenth-century Sweden, like any other political entity, cannot be characterized as a knowledge community. Sweden was one such community, but it had its limits. It is also obvious that in the early modern period there were many such close-knit knowledge communities—for example, learned humanist circles or religious orders. However, I would argue that the circulation of knowledge among what in modern terms were elite groups cannot be dismissed as an elitist project, because the knowledge in circulation was by definition not public, but rather was reserved for a small group of people who were then tasked with teaching it to others.

Historians tend to put this down to a lack of primary sources, the problem as they see it being that there is nothing on which to base an analysis of what ordinary people thought. If the history of knowledge is to be useful to early modern historians, and, as Philipp Sarasin argues, if 'knowledge' is to have a chance of superseding 'society' in the historian's repertoire, an understanding of how knowledge was construed in the early modern period will be essential.[30] The conclusion that 'there are insufficient sources' would hardly warrant going that far. Knowledge was the preserve of the few. There were not only technical and economic reasons for this—the price of paper, for example—but also religious reasons. In the Christian conception of the world, society was constructed around the fact that God had made people different—that they had different tasks to fulfil in the framework of Creation. These differences were not thought a problem, but rather the precondition for a functioning society. The fact that knowledge only circulated in a few circles was, to early modern minds, not a sign that it was socially irrelevant; for them, it was socially relevant that only a very few people were in the position to circulate and share knowledge.

Conclusion

I have highlighted translations and compilations as interesting sources for analyses in the history of knowledge. First, translations are an excellent source material when investigating how knowledge changed

as it moved from one language area to another, and a comparative study and close reading of the original and target texts can reveal the recontextualization of that knowledge. Since a text was so rarely translated just once, but rather formed the basis for a lengthy series of translations and paraphrases in a variety of languages, such a lattice of translations offers an opportunity to study the geographical and temporal circulation of knowledge. The extent to which early modern translation differed from the modern ideal cannot be overstated; there were no concerns about reproducing the original text as closely as possible, and the translator was free to treat the original in any way he or she saw fit. This makes early modern translation particularly suitable for analyses of the deconstruction and reconstruction of knowledge.

Finally, I have raised the question of the possible nature of public knowledge circulation in an early modern perspective. Whereas the study of knowledge circulation in modern society calls for a focus on knowledge of the broadest scope and relevance, it has to be recast if it is to be useful in an early modern context, when knowledge was the preserve of a small group of people, and it was considered socially relevant that only a few skilled people dealt with the circulation of knowledge. Hence, the fact that in the sixteenth century the majority of the Swedish population had never themselves read a translation is not something that makes translations uninteresting for students of public knowledge circulation; rather, it obliges us to acknowledge that early modern 'knowledge society' was a different thing altogether.

Notes

1 Otfried Czaika, 'Gothus, Petrus Johannis', in Sabine Pettke (ed.), *Biographisches Lexikon für Mecklenburg* (Rostock: Veröffentlichungen der Historischen Kommission für Mecklenburg, 2001), 92–8.

2 For example, Hjalmar Holmquist, *Svenska Kyrkans Historia*, iii: *Reformationstidevarvet, 1521–1611*, pt ii: *Den svenska reformationskyrkans fortbildning till ortodox luthersk bekännelse och folkkyrka, 1572–1611* (Stockholm: Svenska kyrkans diakonistyrelse, 1933), 208.

3 Petrus Johannis Gothus, *Skööna och merkeliga scrifftennes sententier, förclarade aff salig D. Martino Luthero, och aff androm höglärdom, medh tröstrijkom ordom* (Rostock, 1597).

4 For example, the ongoing French-Italian–English partnership on translation of early modern Europe, 'Translating in Renaissance Europe'/'Tradurre nell'Europa del

Rinascimento', the German 'Übersetzungskulturen der Frühen Neuzeit', coordinated by Regina Toepfer, Institut für Germanistik, Technische Universität Braunschweig, and 'Renaissance Cultural Crossroads' at the Centre for the Study of the Renaissance at University of Warwick. For an introduction to the field of translation studies, see Susan Bassnett, *Translation Studies* (London: Routledge, 2014)

5 Johan Östling & David Larsson Heidenblad, 'Cirkulation—Ett kunskapshistoriskt nyckelbegrepp', *Historisk Tidskrift* 137/2 (2017), 269.

6 The case study builds on my work in the research project 'Mare lutheranum: The book market and the Lutheran confessional culture in the Baltic region, 1570–1620'. A more detailed analysis of Petrus Johannis Gothus' *Sköna och märkliga skriftens sententier* is to be published in Kajsa Brilkman, 'Buch, Konfession und Politik: Konfessionskonflikt, Kompilation und Übersetzung in Petrus Johannis Gothus "Sköna och märkliga skriftens sentenser" (1597)', in Otfried Czaika & Wolfgang Undorf (eds.) (Göttingen: Vandenhoek & Ruprecht, forthcoming).

7 For standard accounts, see Susan Bassnett & André Lefevere, *Translation, History and Culture* (London: Pinter, 1990); Román Álvarez & M. Carmen-África Vidal, *Translation, Power, Subversion* (Clevedon: Multilingual Matters, 1996); Susan Bassnett & André Lefevere, *Constructing Cultures. Essays on Literary Translation* (Clevedon: Multilingual Matters, 1998).

8 See, for example, Anna Coldiron, *Printers without Borders: Translation and Textuality in the Renaissance* (Cambridge: CUP, 2015), 19.

9 Guyda Armstrong, 'Coding Continental. Information Design in Sixteenth-Century English Vernacular Language Manuals and Translations', *Renaissance Studies* 29/1 (2015), 100–1.

10 See Peter Burke & Ronnie Po-chia Hsia, *Cultural Translation in Early Modern Europe* (Cambridge: CUP, 2007); Brenda M. Hosington, 'Translation and Print Culture in Early Modern Europe', *Renaissance Studies* 29/1 (2015); Marie-Alice Belle & Brenda M. Hosington, 'Translation, History and Print: A Model for the Study of Printed Translations in Early Modern Britain', *Translation Studies* 10/1 (2017).

11 André Lefevere, 'Translation, Rewriting, and the Manipulation of Literary Fame' (London: Routledge, 1992), 59–72.

12 Norbert Bachleitner, 'A Proposal to Include Book History in Translation Studies: Illustrated with German Translations of Scott and Flaubert', *Arcadia—International Journal for Literary Studies* 44/2 (2009).

13 Czaika, 'Gothus.'

14 Ingun Montgomery, *Värjostånd och lärostånd: Religion och politik i meningsutbytet mellan kungamakt och prästerskap i Sverige 1593–1608* (Uppsala: Almqvist & Wiksell, 1972).

15 Alexander S. Wilkinson, 'Vernacular Translation in Renaissance France, Spain, Portugal and Britain: A Comparative Survey', *Renaissance Studies* 29/1 (2015), states that about one-quarter of all books published in the vernacular in England, Spain, Portugal, and France in the sixteenth century were translations.

16 For a useful survey of translations, see Gordon Braden, R. M. Cummings & Stuart Gillespie, *The Oxford History of Literary Translation in English, 1550–1660*, ii (Oxford: OUP, 2010). An interesting study of a work that was reprinted over a long period of time is Guyda Armstrong, *The English Boccaccio: A History in Books* (Toronto: University of Toronto Press, 2013).

17 Wilkinson, 'Vernacular Translation', 21; Tania Demetriou & Rowan Cerys Tomlinson, *The Culture of Translation in Early Modern England and France, 1500–1660*. (Basingstoke: Palgrave Macmillan, 2015).
18 Maximilian von Habsburg, *Catholic and Protestant Translations of the Imitatio Christi, 1425–1650: From Late Medieval Classic to Early Modern Bestseller* (Farnham: Ashgate, 2011).
19 For the two compilations, see Johannes Schilling & Hans Volz, 'Geschichte der Lutherausgabe vom 16. bis zum 19. Jahrhundert', in *D. Martin Luthers Werke: Kritische Gesamtausgabe* (Weimar: Böhlau, 1980), 465–543.
20 Stefan Michel, *Die Kanonisierung der Werke Martin Luthers im 16. Jahrhundert*, xcii: *Spätmittelalter, Humanismus, Reformation* (Tübingen: Mohr Siebeck, 2016).
21 For an introduction to translation in the early modern period, see, Peter Burke and Ronnie Po-chia Hsia, 'Cultures of Translation in Early Modern Europe', in eid. (eds.), *Cultural Translation in Early Modern Europe*, ed. (Cambridge: CUP, 2007); see also Sara Barker & Brenda Hosington, *Renaissance Cultural Crossroads: Translation, Print and Culture in Britain, 1473–1640* (Leiden: Brill, 2013).
22 Regina Toepfer, 'Antike Historiographie im deutschen Südwesten: Das Übersetzungswerk Hieronymus Boners', in Franz Fuchs & Gudrun Litz (eds.), *Humanismum im deutschen Südwesten* (Pirckheimer Jahrbuch für Renaissance- und Humanismusforschung, 28; Wiesbaden: Harrassowitz Verlag, 2015), 55: 'erzählendes Übersetzen',
23 Linnea Bring Larsson, 'Kommentera, komplettera, kritisera: Broocmans användning av referenser och egna erfarenheter i hushållsboken', in Håkan Tunón (eds.), *En fulständig swensk hus-hålds-bok: En handbok i gårds- och hushållsskötsel i vid mening från 1700-talets första hälft samt Broocmans värld och hushållsbok belyst i åtta artiklar av nutida forskare* (Skogs- och lantbrukshistoriska meddelanden, 73:2; Stockholm: Kungliga Skogs- och lantbruksakademien, 2016).
24 Gilbert Heß, 'Florilegien: Genese, Wirkungsweisen und Transformationen frühneuzeitlicher Kompilationsliteratur', in Frank Grunert & Anette Syndikus (eds.), *Wissensspeicher der Frühen Neuzeit: Formen und Funktionen* (Berlin: Walter de Gruyter, 2015).
25 Ronnie Po-chia Hsia, 'The Catholic Mission and the Translations in China, 1583–1700', in Peter Burke & Ronnie Po-chia Hsia (eds.), *Cultural Translation in Early Modern Europe* (Cambridge: CUP, 2007), 39–40; for other examples see Anthony Edwards, 'Lydgate's Fall of Princes: Translation, Re-Translation and History', in Sara Barker & Brenda Hosington (eds.), *Renaissance Cultural Crossroads* (Leiden: Brill, 2013).
26 Gothus, *Många skööna*, A2^{r}–A16^{r}.
27 James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004).
28 Östling & Larsson Heidenblad 'Cirkulation', 279.
29 Uwe Neddermeyer, *Von der Handschrift zum gedruckten Buch: Schriftlichkeit und Leseinteresse im Mittelalter und in der frühen Neuzeit: Quantitative und Qualitative Aspekte* (Wiesbaden: Harrassowitz, 1998), 127–33, 390–5.
30 Philipp Sarasin, 'Was ist Wissensgeschichte?', *Internationales Archiv für Sozialgeschichte der deutschen Literatur* 36/1 (2011): 172.

III

OBJECTS AND SITES OF KNOWLEDGE

CHAPTER 9

Circulation and monstrosity

The sea-pig and the walrus as objects of knowledge in the sixteenth century

Erling Sandmo

This is a chapter about two monsters from the mid sixteenth century.[1] They were not without their similarities, but their fates have been very different: one of them is no longer real, the other ceased to be a monster and became a perfectly normal animal. Their histories are complex and fluid, and they are very much stories of circulation—on more levels than one. My aim here is to see how the circulation of knowledge in various forms can shed light not only on early modern natural history, but on very basic questions about how objects of knowledge are produced, transformed, and mediated. On the other hand, I want to make a very simple point about the historicity of the idea of circulation. The texts I am dealing with here belong to cultures that themselves were deeply concerned with movement and circulation as a dimension of true knowledge about the world. In other words, I would claim that present-day studies of the history of knowledge, and of how circulation is part of that history, are both innovative and part of a history which stretches a long, long way back in time.

Knowledge of monstrosity

The present volume highlights three historical dimensions of the circulation of knowledge: its public aspect, its conditions, and its materiality—the circulation of physical objects. My case addresses all these three dimensions of the history of knowledge, although I do not structure my text on any sharp distinction between them. My

monsters circulated in different mediated forms, as texts, images, and organic remains, and this pattern of circulation was a movement between different publics according to local rules and conditions. The two monsters' circulations were somewhat different, not least in terms of their respective mediations, and their ontological outcomes were opposites: one emerged as real and natural, the other seems to have been something of a sensation when it burst on the scene, but it was not re-mediated, it remained static as an object of knowledge, and public interest was not prolonged. In other words, I draw on many of the basic ideas of the history of knowledge as outlined in the introduction to this book: circulation, materiality, genealogy, and communication. To this I would add a concern with truth. The outcome of my story is that one monster was ascribed a true existence whereas the other was not, and its accounts became untrue: this, then, is also a story of the success and failure of truth claims. This is a Foucauldian trait, inspired among other passages by the oft-cited comment on how Mendel 'spoke the truth, but he was not *dans le vrai* (within the true)'.[2] In my case, one monster was transformed into a natural animal as it circulates within the true, the other did not transform and was driven out.

This suggests that the relationship between the monstrous and the non-monstrous may be seen as one of the circulation of knowledge, but hopefully the case points towards more general issues in the history of knowledge. How are objects of knowledge produced? How do they move between different epistemologies? And how do they contribute to epistemological changes?

My starting point is Olaus Magnus (1490–1557). Olaus was a learned theologian and polymath who had studied in Rostock and Cologne, and travelled extensively in Scandinavia before the new king of Sweden, Gustav Vasa, sent him on a mission to Rome in 1523 to win the Pope's approval for the filling of important Church posts after his rebellion against King Christian II of Denmark and subsequent exit from the union with Denmark and Norway. One of these posts was that of archbishop, where Gustav's candidate was Olaus' brother Johannes.

In the event, Gustav's sympathies turned out to be primarily Lutheran, and Olaus and Johannes remained exiles—in Gdansk, in Venice, and Rome. Olaus published a famous, spectacular map of Scandinavia and the North Sea, *Carta marina*, in Venice in 1539, and *Historia*

de Gentibus Septentrionalibus ('History of the Northern Peoples') in 1555.[3] Johannes wrote the major *Historia de omnibus Gothorum Suveonumque regibus* ('History of all the Kings of the Goths and Swedes'). Olaus' work was widely spread and translated into a whole range of languages, but a Swedish edition was not published until the twentieth century; Johannes' history was translated into Swedish in 1620, but there has been no modern edition.[4] The Pope gave Johannes the title of archbishop; after his death in 1544, Olaus assumed the title and published his book. The brothers were the last Swedish Catholic archbishops, but neither of them ever returned to their homeland.

Olaus' *Historia* is a huge work, divided into 22 books, which are again subdivided into 778 chapters. The first edition fills 815 richly illustrated pages, and presents the reader with a wealth of information on the geography, topography, history, ethnology, economy as well as plant and animal life of Scandinavia in general and Sweden in particular. I will zoom in on Book 21, 'De piscibus monstrosis', 'On monstrous fishes'. It follows the chapter 'On fishes'. Olaus does not draw any analytical distinction between the two categories.

The descent of monsters

The first of my two monsters can be found on the far western border of Olaus' *Carta Marina*, north-west of the island of Thule. The legend says only that it is 'a monster similar to a sea-pig', but just below the image the map tells its audience that the monster was seen in 1537. The year is highly significant in the history of the Northern Reformation, for it was then the Danes conquered Norway and reformed the Church by force. The last Norwegian archbishop, Olav Engelbrektsson, fled Trondheim by boat, taking this very sea passage on his way to Brabant and the safety of the Holy Roman Empire. Olaus was a friend of Olav's, and a staunch supporter of the Norwegian Church and of Norwegian independence, which in this case were two sides of the same coin.

My second monster is the walrus, so familiar today. Olaus' map shows it climbing a steep cliff on the far northern coast of Norway. To its left, the map informs the reader that this is a *rosmarus piscis*, a walrus fish. The legend, however, calls the walrus a *belua*, a beast,

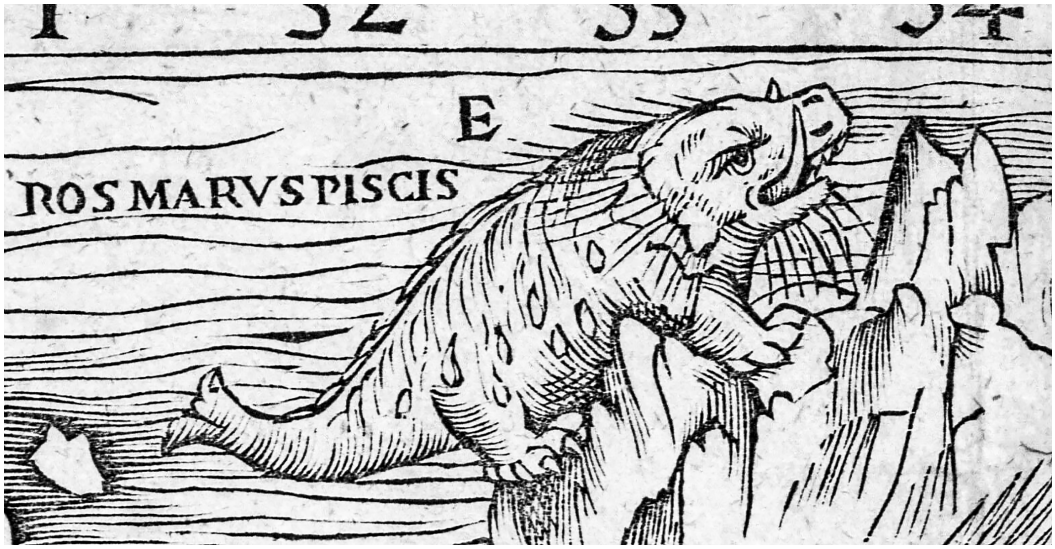
Olaus Magnus, *Carta Marina*, 1539. Detail. Uppsala University Library.

and adds that it is as big as an elephant and can be caught as it sleeps on the rocks, hanging from its teeth.[5] Curiously, though, the walrus' teeth are set in its lower jaw: they would obviously be of no use when climbing or hanging from rocks.

These two images are where my story begins, but being a learned and conscientious writer, Olaus did of course not invent them. They were both real, and they both had histories—so where had they come from when they found their places in the *Historia*?

The descent of the sea-pig is quite clear, at least its recent past. As the *Carta Marina* stated, it had been seen just two years before the map was published, and it had become a news item in Rome immediately. It figured as an image of heresy in one of a huge number of illustrated pamphlets that were circulated by Catholics and Protestants alike at the time of the Reformation and Counter-Reformation.[6] We can be reasonably certain about what pamphlet Olaus had acquired: *Monstrum in Oceano Germanico a piscatoribus nuper captum, & eius partium omnium subtilis, ac Theologica Interpretatio* (Monster in the German ocean, recently caught by fishermen: A subtle and theological interpretation of all its parts), written and published by Antonio Blado in Rome in 1537.[7] Blado states that the animal was caught in the German sea, describes its body parts, and links them to specific passages from the Bible and writings of the church fathers, so that the individual body parts become answers to particular prophecies.[8]

The sea-pig obviously had a past before it surfaced in Rome. Pliny



Olaus Magnus, *Carta Marina*, 1539. Detail. Uppsala University Library.

mentions *porci marini* as a fish that has poisonous spines on its back in his *Natural History*—the plural form, 'sea pigs', suggests a species rather than Olaus' singular monster.[9] The name given by Pliny surfaces in several medieval texts, among them Albertus Magnus' *De animalibus*.[10] The medieval mentions are variations on the same description, all concerned with the pig-like snout of the fish and with its strenuous life, not with any form of monstrosity. As far as I can tell, the sea-pig was a new monster in the 1530s, oblivious to its past as a species of fish. The transformation was caused by the circulation between two new, emerging discourses, one on nature, one on the collapse of the universal Church.

Where the walrus came from, is less obvious. I propose that its immediate ancestor was the animal we see as an unnamed creature in the *Dyalogus creaturarum moralizatus*. Probably written either by Mayno de Mayneri or Nicolaus Pergamenus, the *Dyalogus* is akin to a bestiary, a genre that was hugely popular in the fifteenth and sixteenth centuries. A bestiary was a collection of moral dialogues and tales voiced or embodied by animals, the occasional human, and sometimes by what we would call inanimate objects. Such dialogues were spread widely after the invention of the printing press, and this particular collection was published by Johann Snell in Stockholm in 1483. It was the first book to be printed in Sweden, and sure to have been familiar to Olaus.

One of the dialogues, Number 39, tells the tale of 'the greedy monster from the sea':

> This animal from the ocean is a sea monster which seeks its food both in water and on land. In the waves, it dives like a fish; on land, it walks like a beast. Such a monster used to eat on land whenever it found food in the water, so that the creatures of the sea could not take it away. But when it found food on land, it would eat in the water, so that the beasts there should not steal it. This was its way, and it never gave anything to anyone who asked for something to eat. Therefore it is despised by everyone in the entire world. Then came the time of sorrows, that is old age, and the monster grew old and frail, so that it could no longer swim in the water as much as before, nor could it walk on land. Poor and famished it begged for alms, but since it had never shared what it had, no one would give it anything, but said 'Why should he who will not give, be loved?'[11]

The bestiary curiously does not name the creature whose story it tells, save that this is a monster as seen in the accompanying image. It is a being with an exclusively literary life. At the same time, the illustration is strikingly similar to Olaus' illustration of the walrus. John Granlund, author of the critical apparatus for the Swedish translation of the *Historia*, also considers the image of the creature to be 'probably based on a walrus description', but still chooses, somewhat surprisingly, to link it to the sea-pig.[12]

The crest-like growths on the neck, the feet, the wavy texture on the back, and the teeth: the details match Olaus' walrus, one by one. The most obvious common trait, however, may be the fact that both these creatures move between the elements, between the sea and the shore, between water and earth. This turns out to be their cardinal sin: for the nameless bestiary monster, the privilege of being able to shift between habitats eventually proves to be its undoing; for the walrus, its mastery of its environment increases its greed and leads to hubris and consequently to its death. The fishermen not only hunt it, but deliver a well-deserved punishment.

This movement between elements and different spheres of life can be seen as a fundamental part of medieval and Renaissance monstrosity: in

Deformed Discourse: The Function of the Monster in Medieval Thought and Literature, David Williams observes that 'Monstrous combinations of the forms of the denizens of earth and water are so numerous that only a few may be described.'[13] This 'combined animal form' is not limited to the opposition between earth and water, but also between earth and air and between air and fire. The transgressions of these latter elements are mirrored in monsters such as the winged dragons (earth–air) and the phoenix (air–fire). We need look no further for examples of monsters that belong to both earth and sea than the walrus, which in this sense is a closer relation of the crocodile than of the seal.

Thus Olaus' illustration of the walrus, and the core of his narrative, seem to be the result of the circulation of the ancient conception of the four elements of the world and of the bestiary, a medieval genre, but in combination: monstrous nature and moral narrative are intertwined. At first glance, the bestiary may seem to be a way of writing nature that was becoming obsolete because of the emergence of natural history, but the example of the walrus rather exemplifies the complexity of the relationship between the two, a relationship which was more about circulation than it was about stages in a linear history. This relationship between the bestiary and natural history has been elegantly discussed by William Ashworth, who argues that the emblematic view of nature and animals not only survived into Renaissance natural history, but flourished. He is, however, hesitant about the illustrations.

> Bestiary illustrations, for all their charm and beauty, were highly stylized, and often unrecognizable as to species; and they usually depicted the animal engaged in the act that gave it importance as a symbol … Had Gesner used the bestiary as his model, then surely his fox would have been lying on its back, covered with mud, and enticing the birds from the trees, as it customarily did in the bestiary.[14]

Perhaps Ashworth is *too* hesitant. Olaus pictured the walrus exactly in this way, as 'engaged in the act that gave it importance as a symbol', the movement between the sea and the grassy cliffs. Its importance seems to be derived from a bestiary and a tradition with which Olaus was undoubtedly familiar. However, it is an important trait of his *Historia* that he merges traditions, fleshes out the emblematic and exemplary

with the emerging discourse of natural history, adds information on current trade and usage, and at least suggests—with the introduction of the fishermen, textual and visual—that the walrus is also the object of contemporary observation and human experience. It is problematic to say that Olaus was here representing a species, just as much as it is problematic to claim that he was presenting an example. His walrus is an ontological and epistemological hybrid, if not to say a monster.

Circulating monstrous knowledge

Thus far, I have limited my discussion of the two animals to their depiction on Olaus' map and to their possible descent. They made an immediate impression, not least the spectacular sea-pig, which circulated in important maps and topographical works such as Sebastian Münster's *Cosmographia*, published by Heinrich Petri in Basel in 1544, and Abraham Ortelius' map of Iceland.[15]

If we stay with Olaus' work, we come to two explanatory booklets that were published more or less simultaneously with the map, one in Italian, one in German.[16] They are substantial expansions on the map legend. They add nothing on the sea-pig, but when he writes about the walrus, Olaus says that when it is sound asleep on the rock, it is caught by fishermen with ropes. He then promises to return with a detailed description of how this is done.

This detailed description was published sixteen years later. The *Historia* supplied both an enormous amount of text, but also hundreds of images. The illustrations in the books on animals are for the most part closely modelled on the map images. An interesting fact, however, is that not just Olaus' *Historia*, but also what is arguably the first major work of natural history in the Renaissance, Conrad Gessner's *Historia animalium*, were partly based on the *Carta Marina*. Gessner was one of 'the great sixteenth-century practitioners of natural history', but even though his book on fish was published in 1558, three years after Olaus' *Historia*, it is clear that he had not read Olaus' *magnum opus*; he had seen only the map and the booklets.[17] On the other hand, he is intensely interested in the *Carta Marina* and its images, and he introduces the chapters where he deals with sea animals described by Olaus by giving exact information on the animals' location on the map.

Let us bear this in mind. The fact that Gessner did not know Olaus' work turns the story of the walrus into a compact example of Ashworth's observation that there is no simple, linear movement from the tradition of bestiary and emblematism, which is still so prominent in Olaus' work, to the more specialized natural history of which Gessner is typically seen as the first major figure. Knowledge did not circulate in such simple patterns: the time was characterized rather by a plenitude of mutually influential interpretations of unstable objects. Another interesting aspect of Gessner's silence on Olaus' *Historia* is the simple fact that Gessner, a prominent naturalist, still seems not to have known about a book that was published three years earlier as an exegesis for a map which was an important source for his own most ambitious works; or, if he knew the *historia*, he did not, for some reason, include it: we should clearly not overestimate the fluidity of the situation or imagine that circulation was without friction.

So let us see what happened to the animals in the two books, Olaus' *Historia de gentibus septentrionalibus* (1555) and the volume on fishes in Gessner's *Historia animalium* (1558). Olaus describes and interprets the nature of the sea-pig: when it was seen in 1537, it had been

> seen to be portentous in all its parts. It had a pig's head with a crescent moon at the back, four dragon's feet, a pair of eyes in its loins at each side, and a third on its belly towards the navel; at the end was the bifurcated tail of a normal fish. In the city of Rome at that time an interpretation was printed and published, explaining the significance of the beast's individual parts, which showed how heretics generally pursue a swinish existence. By the moon behind the head is meant distortion of the truth, since it grows not on the pig's forehead but at the nape of its neck. The eyes in its loins and belly are full of temptation, and for this reason they must be cut out. Lastly, the four dragon's feet signify the grossly evil desires and acts of mankind, bursting in viciously from the four corners of the earth, and appearing in the fish very much as though it were some prying ruffian.

Although Olaus seems to follow the basic outline of the limb-by-limb interpretation of the Roman pamphlet, he does not go into theological detail, and does not quote or specify any of the pamphlet's sources. It is

as if he is taking care not to cross a line between history and theology, perhaps adhering to emerging genre conventions. He could even be holding back in order not to alienate his own Luther-friendly Swedish king more than necessary. He also omitted another interesting detail, namely the pamphlet's claim that the sea-pig had actually been caught by fishermen. One could have imagined that these fishermen's direct experience would have lent more authority to Olaus' account than the more distant claim that the sea-pig had been 'seen'. However, the question of the nature of truth claims in this setting is complicated: as a monster, the sea-pig was both physical creature and sign, signified and signifier. For Olaus, who was not writing about 'nature' in the sense that nature was a specific object of knowledge—as it would be in the emerging genre of natural history—questions of evidence and experience were obviously not simply 'empirical'. They were questions of observation and description, but also of interpretation and meaning. The basic point here is that the sea-pig circulated between media (pamphlet, map, and book), between discourses (religion, *historia*, and natural history), and between epistemologies (revelation, emblem, and empiricist science), notwithstanding how difficult and oblique all these terms are here. What circulated in the case of the sea-pig was the image, the name, and the premise of monstrosity.

However, circulation meant transformation, not least when we come to Gessner. His explicit aim 'was to collect everything written about animals by authors, both ancient and modern', but also to collect images, whether drawn from life or gathered from contemporary or historical sources.[18] Gessner also deals with the sea-pig, which he presents with specific reference to the *Carta Marina* and the snippets of information given by Olaus.

> This marine beast has been shown by Olaus at D.k.[19] He says that it is similar to a pig, and that it appeared in the ocean next to the island of Thule, north of the Orkneys, in the year of our Lord 1537. I call it a hyena, because of its likeness to a hyena, a four-footed beast. … In this image from Olaus, I am not satisfied with the ears that appear on a marine animal. The snout seems to be rather too pig-like. It is conspicuous that three eyes are drawn on the flank of the animal.[20]

Whereas Olaus wrestled to balance describing an animal and interpreting a set of religious signs, Gessner's concern is with the incongruity between Olaus' image and his general knowledge of life in the ocean. He presents the image, which is close to Olaus', and then takes issue with what he chooses to call the sea hyena's ears, its snout, and the eyes on its sides.[21] In short, he casts doubt on three of the obviously monstrous parts of Olaus' monster. Monstrosity is simply replaced with a lack of correspondence with the familiar—the monster is eradicated as a meaningful category of nature, Gessner's primary object. It is somewhat paradoxical that he names it a hyena after another terrestrial animal, in accordance with the common theory that every form of life on land had its parallel in the ocean.

However, the animal is not just named a hyena; its brief chapter has the heading *De hyena cetacea*, 'On the hyena *cetus*', *cetus* being a word which could mean both 'any large sea animal, a sea monster; particularly a species of whale, a shark, dog-fish, seal, dolphin, etc.' *Balena* translates less ambiguously as whale, but Gessner uses both as general, overlapping categories, including several of the same animals.[22] In the sixteenth-century material under study here, however, *balena* is also used to denote a feminine *cetus*. Regardless of the difficult word 'cetus', however, it is significant that Gessner abandons Olaus' term 'monster' in favour of a word which does not seem to carry with it any need to interpret its object as signifier.

Now for the walrus, and its treatment in Olaus' *Historia*. The image in the book is again crude, compared to the fine drawing on the map, but it is even more dramatic. The illustration shows the fishermen catching the walrus, pulling it towards their boat with a rope fastened to its back with a large hook, or plier. The scene is curiously chaotic: behind the suffering walrus seems to be another one, or at least a head, which appears to be one with the mountains in the background. To the far left, we see a city on a hilltop, or perhaps a castle with turrets and a spire, and a flag stretched by the wind.

The walrus, Olaus tells his readers, is 'a mighty creature, as big as an elephant' and a ferocious hunter, known for its sudden attacks on men venturing out on the shore, where it jumps on them and kills them swiftly with its teeth. However, the walrus has a fatal flaw: its love for dew.

> Using their tusks, these animals clamber right up to the cliff-tops, as if they were going up a ladder, in order to crop the sweet, dew-moistened grass, and then roll back down into the sea again, unless, in the meantime, they have been overcome with a heavy drowsiness and fall asleep as they cling to the rocks. This is the time when the fishermen can rush up to it at top speed and loosen the skin from the fat near its tail. As soon as the skin has been freed they attach their stoutest ropes to it and tie them firmly to rough rocks or nearby trees. Afterwards they pelt its head with stones from a sling to wake it, and then force it to descend, when the rope fastenings have stripped off a large section of its hide. Now that it is disabled and half-dead from loss of blood, they convert it into rich spoil, especially its tusks, which among the Scythians, that is to say, Muscovites, Russians, and Tartars, are valued as a luxury, like ivory in India, because of its toughness, brilliance, and weight.[23]

The chapter ends with an account of the worldwide trade in walrus ivory—the next chapter deals with the uses of the skin and the tusks, not with the animal itself. Both are rich in references to classical and medieval sources for the history of the economic value and uses of its parts. Not only does Olaus refer to Pliny, Plato, Sabellicus, and the Polish historian Matthew of Miechow, but he follows the ivory to the Scythians, Muscovites, Russians, and the Tartars. He compares the walrus' ability to move between elements to the sharks that can swim both in salt and fresh water as they move between the Caspian and the Scythian Sea (our Black Sea).[24]

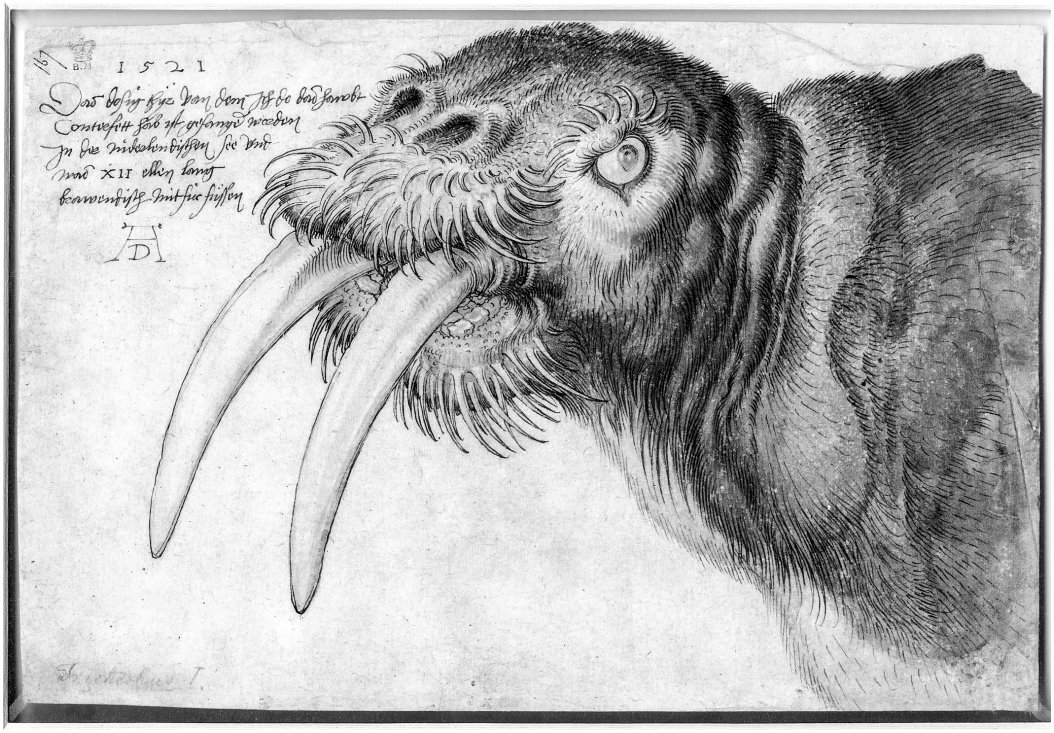
This text seems to be almost entirely about circulation. The walrus moves between the sea and the cliffs, where sleep transforms it from predator to prey; its tusks are spread throughout the world; the descriptions and the knowledge of the walrus are transmitted in a whole spectrum of historical texts and contemporary witnesses. As a monster—and despite the absence of any explicit discussion of what its monstrosity might entail, Olaus' *Historia* classifies the walrus as a monstrous fish—it is constituted by its movement between elements, but the two chapters that deal with it are prominent examples of how their object, the walrus, is constituted by the transmission and accumulation of historically and geographically disparate narratives.

Juxtaposing stories, gathering knowledge

Olaus' emphasis on earlier accounts as necessary elements of the *historia* genre is even more pronounced in Gessner. As in the case of the sea-pig or hyena, Gessner opens his chapter on the walrus by locating the animal on Olaus' map, before presenting the *Carta Marina* image of the animal. He briefly recounts the tale of the climb and the hunt, and, as we have seen, goes on to lament the fact that Olaus thus far has only provided this image and some minimal information. Not only is the information sketchy, however; Gessner questions its accuracy.

> The way the feet of this fish are reproduced is unsatisfactory, although the drawing that can be seen in the town hall in Salzburg also includes the feet.[25] On that drawing, however, I have learnt that only the head is based on the skull of a genuine head. The rest of the body is supposed to have been added according to guesses or calculations. In skeletons, particularly from large species of fish, fins can be so elaborately constructed that their shape is very similar to feet or hooves. The teeth protruding from below are also presented in a manner which is less satisfying than those that are shown on the Salzburg head (as I have been told that such a head has been sent from Scandinavia to Pope Leo in Rome), for there the teeth point downwards from the upper jaw, like the teeth—or rather horns—of elephants. In that way, they will hang on rocks and mountains far more easily.[26]

Gessner goes on to present his reproduction of the drawing of the walrus from Salzburg. It is impossible not to be struck by the likeness of this image and Albrecht Dürer's famous head.[27] This was probably a salted head that had been sent to Pope Leo X from the Norwegian archbishop Erik Walkendorf in around 1520.[28] Although Gessner was in grave doubt about the legs in both depictions, he found the Salzburg drawing more credible—not just because it was based on a real skull, but because it is supported by the narrative of the walrus' climb. Indeed, the nearest he comes to making a truth claim about the walrus is his establishing of a correspondence between a drawing and a story.[29]



Albrecht Dürer, Head of unnamed animal, 1521. Wikimedia Commons.

The circulating walrus is here entangled in a Gordian knot of discourses: natural history, religious wonder, artistic empiricism, and, of course, public spectacle. Gessner writes that when the image he has reproduced, painted on a 'Tuch', a canvas, was displayed at the town hall in Salzburg, a poem was read aloud to the audience. The long poem began with the following lines—*Ruβor in Norwegen nennt man mich | Cetus Dentatus bin doch ich*, 'In Norway I am called Ruβor | although I am Cetus Dentatus' (a toothed *cetus*)—which seem to foreshadow a definite taxonomy, and not just a taxonomy, but a general system of nature, the Norwegian name, Ruβor, being a local expression of a universal scientific language.[30] Untouched by its own epistemological ambiguity, the Salzburg walrus went on to boast of its fame and powers. His wife—called *balena*—had scared Alexander the Great and conjured storms. However, he had himself committed the fatal mistake of not staying in the water, and he ventured onto land, where he was weak. In the end, then, *Mein Starck gebiss hat mich geholffen nit*—'My strong bite has not saved me'—and here he was, his monstrous transgression the reason for his own downfall.[31]

In other words: the emblematic, moral, and symbolic dimension of animals is very much present in Gessner's work, but his principle

of gathering all known narratives and representations means that this dimension becomes one of many, and that his text becomes a meeting-ground for different discourses, accounts and representations, and consequently a complex intersection between various patterns of circulation for objects that he can posit as one and the same—such as the walrus. On these terms, the sea-pig or the sea-hyena is already at a standstill, its place among the animals secured only by one narrative, taken over from Olaus, but reduced to a hesitant description of its appearance and nothing else. As Gessner's text about the walrus shows, this reduction is not the same as the demise of the older, emblematic tradition, but rather that of a lack of circulation of knowledge. It is known only in one sense and on one condition, and this would make its existence precarious over time.

Circulation or oblivion

It may be somewhat surprising that Gessner's *Historia animalium* seems not to have been based on Olaus' earlier book. On the other hand, Gessner's scepticism had an impact on the *Historia de gentibus septentrionalibus*. In 1567, ten years after Olaus' death, two new editions of his work were published by Johann Baptist Fickler, an important figure in the circle of the archbishop of Salzburg and the Counter-Reformation movement.[32] There are important differences between these two works. The Latin edition was expanded by the inclusion of long passages from Johannes Magnus' *Historia de omnibus Gothorum Sueonumque regibus* in chapters dealing with the political history of Sweden, while the German is shorter than the original: in our Book 21, the supplement-like chapters with further information about the uses and value of the creatures were cut. Another important change is that this book's title was changed from 'De piscibus monstrosis' to 'Von den Waluischen', 'On whales', or literally, whalefish. Both editions also had new illustrations throughout, so Fickler seems not to have had access to the original plates.

The new illustrations were closely based on the originals, with one striking exception: the picture of the walrus.[33] The walrus figures in the same narrative, but the illustration, although its basic situation is unaltered, is new in interesting ways. The mood of the hunters is

markedly more relaxed—it is intriguing how the hunter is looking away from his prey, as if refusing to testify to its existence—but the most striking innovation is that the walrus' teeth have been moved from the lower to the upper jaw, in accordance with Gessner's criticism and Dürer's drawing. This redesign, this facelift, is not just physical and visual, but ontological. As the change in the title of Book 21 shows, the monstrous is no longer an important part of the classificatory scheme, and, fittingly, the walrus has lost much of its physical resemblance to the monster of the bestiary. It demonstrates nothing—except its own ability to scale cliffs.

The sea-pig is also the subject of remarkable revisions, even if the illustration is almost identical to the original. It is now a 'Meer-Wunder', a marine wonder, but one should be careful with drawing any conclusions from this, as the semantic difference between 'monster' and 'wunder' is a complicated issue. The explicit reference to the Roman pamphlet is gone, and the text limits itself to the original observation, which it dates to 1532; this is such an incomprehensible change that it may well be a misprint. It then describes the body of the sea-pig, the 'Meerschwein', but refrains from any interpretation, any theological reading of its features. Instead, it claims that 'at this time, it was understood to mean heresy'.[34] Not only does it distance itself from the literal understanding of the sea-pig as a portent, but it also historicizes this understanding, opening the space for reflection on temporality and historical change, which is wholly absent from Olaus' writings.

The differences between the two Basel editions are interesting. The illustrations aside, the embedding of Johannes' history of the Swedish kings in the Latin edition distances the work from natural history, and draws it nearer the more societal-political outlook of authors such as Sebastian Münster. The revisions of Book 21 in the German translation may reflect impulses from the new natural history that was being moulded by Gessner and Ulisse Aldrovandi. The walrus seems to have adapted well to both these transformations, the sea-pig less so.

After Gessner's *Historia Animalium* and the Basel editions of Olaus Magnus, the sea-pig seems to disappear from natural history in general, that is, from studies that strive to encompass nature as a whole. It lingers on in specialist literature, such as Ambroise Paré's popular

De Monstres et prodigies from 1573, where the sea-pig again figures in one of the images. It is the third in a series of monstrous marine simulacra of farm animals, following the seahorse and the sea-calf; Paré calls it a 'truye', a sow. This grouping reflects the old idea about the correspondence between terrestrial and marine life, but Paré can hardly be said to take his sources seriously.

> This marine monster, as Olaus says, was seen in the sea, near the island of Thylen, located to the North, in the year of grace 1538, of an almost unbelievable size, to wit, seventy-two feet long, fourteen feet high, having a distance of seven feet or thereabouts between its eyes; its liver was so large that it filled five wine casks; its head [was] similar to a Sow, having a crescent located on its back, three eyes in the middle of each side of the body, and the rest completely covered with scales, as you can see from this figure.[35]

The year is—again!—wrong, the estimate of the sea-pig's size is plucked out of thin air, and the information about the liver smacks of Rabelais rather than Olaus: this passage can be read as a foreshadowing of how the sea-pig would cease to be taken seriously, disappear from scientific literature, and eventually go out of circulation for all but the most marginal purposes—although, of course, the history of knowledge is such a purpose. As far as I know, it makes its final appearance on Abraham Ortelius' map *Islandia*, off the south-western coast of Iceland, in 1587.[36]

Epilogue: Monsters on the move

Much of the recent literature on the history of knowledge is concerned with the ways knowledge is transformed as it circulates and is re-mediated. My case here may be seen as a demonstration of this. The walrus which emerged from the circulation I have presented, was the result of a series of transformations as it moved between different media and genres. However, in this case, the continued circulation can also be understood as a precondition for its permanent existence as an object of knowledge. Its various forms—cartographic image, emblematic book illustration, salted head, artist's drawing, scientific illustration,

and texts of different genres—gave the walrus a momentum, they made it an 'epistemic thing', to use Hans-Jörg Rheinberger's concept.[37] Historically, objects of science have been characterized by a particular, forward-leaning temporality: they have been interesting because of their promises for the future, for knowledge to be gained and uses to be discovered. In our case here, the walrus shows its promise in the form of its capacity for re-mediation. As it circulates in a string of new manifestations, the knowledge is transformed, but its object, the walrus, is stabilized. It is firmly established as a phenomenon which can be known, as an animal which will reward further study.

The sea-pig, on the other hand, circulates effectively at first, as it moves from Antonio Blado's 1537 pamphlet to Olaus' map and then on to the *Historia* and other, later works of natural history. The knowledge is not, however, transformed, and its mediations are limited. In other words, the representations of the sea-pig remain constant, but this seems to result in a lack of stability in the perception of what the knowledge is really about: it is seen as a hyena or a sow, and on Ortelius' map of Iceland it appears to have grown fur and to be in the process of becoming a mammal, perhaps a polar bear. The walrus is in flux and holds promise, the sea-pig is always the same, but holds only doubt and uncertainty. While the walrus is kept real and true through different epistemes as it is transformed through circulation and mediation, the sea-pig is always recognizable and never really contested, but ends up as an untruth—not least because it does not circulate or transform.

The final point I want to make here concerns the long history of the idea of knowledge as connected to social and epistemic circulation. As I suggested at the outset of this essay, the monsters' movement between the elements can be said to be an important aspect of their monstrosity: the climbing walrus is punished for its hubris, but its monstrosity springs from its ability to hunt in the sea as well as on land. This is a transgression which mirrors the flying dragon, the flying fish, and the phoenix, whose traversal of the elements sets them apart. This idea of monstrosity belongs to an older era, the time of the four elements as the basic tenets of the world, and the knowledge of this movement between separate spheres was basic knowledge of the world order. Another conception of monstrous circulation manifests itself in the monsters' bodies, which are typically composed of

parts of creatures that do not belong together: the sea-pig, the walrus (literally a 'whale-horse'), the merman, the sea lion. It is as if nature has been shuffled and dealt again by hidden forces, and the study of such transformations was particularly important, as it was a source of deep knowledge of morals and nature. And finally, Gessner and other early modern practitioners of natural history saw it as their task to assemble all available, real descriptions of the beings of nature. Their works were spaces of assembly, of disparate descriptions and conflicting accounts. This was true history: not the selection of the one most credible version of nature, but the gathering of all reports that had circulated in the known world.

Our present conceptions of the circulation and historicity of knowledge are different. But there is an echo of past epistemologies and ontologies in what we do, and in the way our attention is caught by claims and convictions that circle around us in the archives.

Notes

1 I owe a debt of thanks to Per Pippin Aspaas of the University of Tromsø for his translations of the excerpts from Conrad Gessner into Norwegian. Any inaccuracies are my own. I am also very grateful to the members of the ECOSOC group at the Department of Archaeology, Conservation and History at the University of Oslo who gave invaluable comments on a draft of this chapter. All translations are my own unless otherwise stated.

2 Michel Foucault, 'The Discourse on Language', in *The Archaeology of Knowledge: And the Discourse on Language* (New York: Pantheon, 1972), 224.

3 For a recent study of Olaus Magnus, see Elena Balzamo, *Den osynlige biskopen: Essäer om Olaus Magnus* (Stockholm: Atlantis, 2015); for the monsters in the *Carta Marina*, see Joseph Nigg, *Sea Monsters: The Lore and Legacy of Olaus Magnus's Marine Map* (Lewes: Yvy Press, 2013).

4 Olaus Magnus, *Historia de gentibus septentrionalibus* (Rome: Ioannem Mariam De Viottis, 1555). Quotes are from *A Description of the Northern Peoples* (London: Hakluyt Society, 1998) (hereafter *Description*) which includes the critical apparatus drawn up by John Granlund in 1951 for the Swedish edition (Uppsala: Michaelisgillet, 1909–1951); for the various editions of Olaus Magnus' history, see Isak Collijn, *Bibliografi över Olaus Magnus' Historia de gentibus septentrionalibus* (Uppsala: Michaelisgillet, 1943).

5 The claim that the walrus was the size of an elephant was sometimes reflected in maps with images of elephants in the far north, such as the Waldseemüller *Carta Marina* of 1516. See Chet van Duzer, *The World For a King: Pierre Desceliers' Map of 1550* (London: British Library, 2015).

6 Cf. Lorraine Daston & Katharine Park, 'Unnatural Conceptions: The Study of Monsters in Sixteenth- and Seventeenth-Century France and England', *Past & Present* 92 (1981).

7 Cf. Johan Granlund's notes on Olaus' *Historia*, here from the *Description* iii. 1147; see also George H. Beans, 'Some Notes from the Tall Tree Library', *Imago Mundi* 7/1 (1950): 91; and Ingrid Faust et al., *Zoologische Einblattdrücke und Flugschriften vor 1800*, v: *Unpaarhufer: Nashörner, Tapire, Pferdeartige, Monster* (Stuttgart: Anton Hiersemann, 2003), 761. Antonio Blado was a leading publisher at the time, with a print shop near Campo de' Fiori. Among other important books, he published Machiavelli's *Discourses*, Ignatius Loyola's *Spiritual Exercises*, and Palladio's *Antiquities of Rome*. He became the typographer of the Curia in 1549.

8 The text of the pamphlet and an English translation are to be found at http://idolsofthecave.com/latest-wonder/4-the-monstrous-sea-pig-featuring-allis-markham-part–1-nov–2014/.

9 Pliny, *Natural history: In ten volumes*, viii: *Libri XXVIII–XXXII*, trans. Harris Rackham & W. H. S. Jones (Cambridge, Mass.: HUP, 1963), bk 32, xix, 56.

10 Albertus Magnus, *Albertus Magnus de animalibus libri XXVI nach der Cölner Urschrift*, ii: *Buch XIII–XXVI* (Münster i. W.: Verlag der Aschendorffschen Verlagsbuchhandlung, 1920), bk 24, § 95, 1541–2; see also the highly informative article on the *porcus marinus* and references by Schweizerische Gesellschaft für Symbolforschung (http://www.symbolforschung.ch/node/835).

11 *Dyalogus Creaturarum Moralizatus* or *Skapelsens sedelärande samtal 1483* (facsimile edn, Stockholm: Michaelisgillet, 1983), 376. My translation from Monica Edlund's Swedish.

12 *Description*, 1148.

13 David Williams, *Deformed Discourse: The Function of the Monster in Medieval Thought and Literature* (Exeter: Exeter University Press, 1996), 183.

14 William B. Ashworth, 'Emblematic natural history of the Renaissance', in N. Jardine, J. A. Secord & E. C. Spary (eds.), *Cultures of Natural History* (Cambridge: CUP, 2000), 25.

15 Sebastian Münster, *Cosmographia: Beschreibung aller Lender durch Sebastianum Munsterum, in welcher begriffen Aller völcker, Herrschafften, Stetten und namhafftiger flecken, herkommen: Sitten, gebreüch, ordnung, glauben, secten vnd hantierung, durch die gantze welt, vnd fürnemlich Teutscher nation. Was auch besunders in iedem landt gefunden, vnnd darin beschehen sey. Alles mit figuren vnd schönen landt taflen erklert, vnd für augen gestelt* (Basel: Heinrich Petri, 1544), 708–709; Abraham Ortelius, map of Iceland, included in later editions of *Theatrum Orbis Terrarum* (for example, Amsterdam: Cornelis Claez, 1598).

16 The German is *Ain kurze auslegung und verklerung der neuuen mappen von den alten Gœttenreich vnd andern Nordlenden sampt mit den uunderlichen dingen in land und uasser darinnen begriffen biss her also klerlich nieintuuelt geschriben* A brief exposition and explanation of the new map of the old Gothic kingdom and other Northern countries with the wonderful things on land and in water as known at present, clearly described for the first time) (n.p., n.d.); the Italian has an almost identical title *Opera breve, laqvale demonstra, e dechiara, ouero da il modo facile de intendere*

la charta, ouer del le terre frigidissime di Settentrione: oltra il mare Germanico, doue si contengono le cose mirabili (n.p., n.d). Both versions are included in Herman Richter, *Olaus Magnus Carta Marina 1539* (Lund: Lychnos-bibliotek 11:2, 1967).

17 Aude Doody, *Pliny's Encyclopedia: The Reception of the Natural History* (Cambridge: CUP, 2010), 37; for a magisterial study of Gessner, see Urs B. Leu, *Conrad Gessner (1516–1565): Universalgelehrter und Naturforscher der Renaissance* (Zurich: Verlag Neue Zürcher Zeitung, 2016); see also Christa Riedl-Dorn, *Wissenschaft und Fabelwesen: Ein kritischer Versuch über Conrad Gessner und Ulisse Aldrovandi* (Wien: Böhlau, 1989); Udo Friedrich, *Naturgeschichte zwischen artes liberales und frühneuzeitlicher Wissenschaft* (Tübingen: Max Niemeyer Verlag, 1995). In *De Piscium & Aquatilium animantium natura*, Gessner clearly refers only to the map and booklet when he writes that "How this [i.e. capturing the walrus] is done, we shall describe more closely elsewhere', Olaus says. So far we have not seen anything more than this illustration and the very brief description of the same, published by Olaus' (249).

18 For the importance of images in Gessner's works, see Sachiko Kusukawa, 'The Sources of Gessner's pictures for the *Historia animalium*', *Annals of Science* 67/3 (2010).

19 D.k. refers to Olaus' lettering system.

20 Gessner, *Historia animalium Liber IIII, qui est de Piscium & Aquaticum animantium natura* (Zurich: Christof Froshover, 1558), 247.

21 Abraham Ortelius follows Gessner and calls the animal a 'hyena' in the legend to his map of Iceland (see n. 12 above), but he adds both that it is a 'monstrous fish' which can be found in Olaus Magnus' Book 21.

22 Charlton T. Lewis & Charles Short, *A Latin Dictionary* (Oxford: Clarendon, 1879), 324, 219.

23 Olaus Magnus, *Description,* 1111.

24 Ibid. 1111.

25 Gessner uses 'Argentina', a common Latin name for Salzburg at the time.

26 Gessner, *Historia animalium*, 249.

27 Dürer's fame as an artist of nature rests most famously on his 1515 picture of an Indian rhinoceros. An interesting new study is Juan Pimentel, *The Rhinoceros and the Megatherium* (Cambridge, Mass.: HUP, 2017).

28 Kirsten A. Seaver, 'Desirable Teeth: the Medieval Trade in Arctic and African Ivory', *Journal of Global History* 4/2 (2009): 279 argues that Dürer drew this particular skull; Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2008), 233 instead says that Dürer drew 'another walrus'.

29 In the later, much abbreviated German translation of Gessner, this discussion is gone, and the two representations are simply juxtaposed; see Conrad Gessner, *Fischbuch: Daas ist, Außführliche beschreibung vnd lebendige Conterfactur aller vnnd jeden Fischen von dem kleinsten Fischlein an biß auff den größten Wallfisch, wie sie nicht allein in dem grossen hohen Meer, sondern auch in den Seen, Flüssen, Bächen, vnd allen Schiffreichen Wassern gesehen vnd gefangen werden* (Frankfurt am Main: Cambier, 1598), 91–2.

30 'Ruβor' must be derived from the archaic Norwegian form 'rosmer' or 'rossmaar'.

See *Kalkar's Ordbog til det ældre danske Sprog* (Copenhagen: Thieles bogtrykkeri, 1881–1907), 617.

31 Conrad Gessner, *Fischbuch/ Das ist/ Außführliche beschreibung/ vnd lebendige Conterfactur aller vnnd jeden Fischen/ von dem kleinsten Fischlein an biß auff den größten Wallfisch/ wie sie nicht allein in dem grossen hohen Meer/ sondern auch in den Seen/ Flüssen/ Bächen/ vnd allen Schiffreichen Wassern gesehen vnd gefangen werden* (Frankfurt: Johann Saur, 1595), 92.

32 See Pamela Smith (ed.), *Making Knowledge in Early Modern Europe: Practices, Objects, and Texts, 1400–1800* (Chicago: University of Chicago Press, 2007), 244.

33 Olaj Magni, *Historien der mittnächtigen Länder* (Basel: Johann Baptist Fickler, 1567), bk 21, ch. 18.

34 Ibid. bk 21, ch. 17.

35 Quoted from Ambroise Paré, *On Monsters and Marvels*, trans. Janis L. Pallister (Chicago: University of Chicago Press, 1982), 114 & illustration on 115.

36 This map first appeared in the 1592 edition of Abraham Ortelius' *Theatrum Orbis Terrarum* (Antwerp: Christophe Plantin, 1592); see William R. Mead, 'Scandinavian Renaissance Cartography', in David Woodward (eds.), *The History of Cartography*, iii pt 2: *Cartography in the European Renaissance* (Chicago: University of Chicago Press, 2007), 1793.

37 See Hans-Jörg Rheinberger, 'Cytoplasmic Particles: The Trajectory of a Scientific Object', in Lorraine Daston (ed.), *Biographies of Scientfic Objects* (Chicago: University of Chicago Press, 2000), 270–94.

CHAPTER 10

Materializing circulation

A gigantic skeleton and a Danish eighteenth-century naturalist

Camilla Ruud

'During my short stay in Madrid from the 20th of December 1793 until the 9th of January, the Royal Cabinet of Natural History was one of the most important things I had intended to direct my attention towards.'[1] These are the introductory words to 'A Short Account of the Royal Cabinet of Natural History in Madrid, with a Description of a Gigantic Skeleton of a new unknown Animal, dug up in Peru and kept at this Museum', presented by the Danish veterinary and naturalist Peter Christian Abildgaard in *Nye Samling af det Kongelige Danske Videnskabernes Selskabs Skrifter* (1796). Upon his arrival in Madrid, Abildgaard went to the cabinet, only to learn that it was closed, and that he would have to wait until the Christmas holidays had passed before he could gain entry. Detailing the opening hours, he commented it 'otherwise opens twice a week, in the morning and afternoon, and everyone, without difference, is freely allowed to see it. This same good arrangement exists at the natural cabinets in Lisbon, Florence, Vienna and various other places.' The Royal Cabinet of Natural History in Madrid had been established by Charles III in 1771, forming part of the centralizing efforts and extensive reforms implemented by the Bourbon crown throughout the eighteenth century. Contemporary advocates had argued that a museum was necessary for a number of reasons: to assist scientific progress; to enlighten the population; to restore imperial dignity and royal glory; and to strengthen Madrid's status as metropolis and capital.[2] The Royal Cabinet in Madrid was also part of a broader, European trend, being consistent with what

sovereigns across Europe did for their subjects: museums were, in general, expected to benefit the sciences and the public, and they were also an essential element in the context of the competitive positioning among European capitals.[3]

Abildgaard, a leading figure in the natural sciences in Denmark, visited Madrid when on a two-year trip round Europe. He had a particular interest in visiting collections, and on his return to the north he was instrumental in the opening of a royal museum of natural history in Copenhagen.[4] He opened his article by describing the mineral collections at some length, and mentioned briefly the collections of mammals, insects, and shells. It was a colossal fossilized skeleton, however, that most intrigued him: 'What particularly caught my attention, and which alone could make the Madrid Museum important for any Naturalist, was a skeleton of an unknown colossal Animal of the size of a normal Elephant, dug up some time ago in Peru.'[5]

Circulating materialities

Recent generations of historians of science and knowledge, informed by constructivism and postcolonialism, have stressed the making of knowledge as both a circulating and a localized phenomenon. Knowledge is understood as something that is produced differently in many places, and which cannot move without altering: in order to circulate, knowledge will and must change. Knowledge is made to circulate when people, objects, technologies, and documents meet and transform through interactions in specific places.[6] While many scholars within these lines of research have focused on encounters between 'Western' and 'non-Western' knowledge, this article explores how knowledge came into being and circulated between the south and the north of Europe, using the example of a specific, localized encounter in the Madrid museum.

Museum displays may at first glance seem static. Once an object is placed on a pedestal or inside a glass case, it appears to have reached its final, dusty, destination. One may think that the object has been separated from the messy outside world, that it has been charged with a patrimonial, political, scientific, or aesthetic significance in keeping with the museum's regime of knowledge. One premise for the present

discussion is that this is not at all the case: museum objects continue to circulate as they are interpreted by visitors and scholars, and as they intervene in the outside world. Not only in the sense that objects convey messages to visitors, and that objects in turn are generally experienced by visitors accordingly, but also in an epistemological way, for once placed on a pedestal the fossil circulated in the shape of words and thoughts, images and texts. While the actual fossil remained in Madrid, versions of it were made to circulate.

Drawing on the insights of actor–network theory, objects here will be understood as analytical sites for the circulation of knowledge. Materiality is seen as a relational effect: 'entities take their form and acquire their attributes as a result of their relation with other entities.'[7] Objects as *materialities* do not exist in themselves, but are generated and reshaped in their relations with other actors in a network. By tracing connections between actors, one seeks to figure out how 'many *participants* are gathered in a *thing* to make it exist and to maintain its existence.'[8] Knowledge materialized in an object is understood as a decentred process: it happens in various places and formats. One could even say that objects *are* circulation, in the sense that they become the analytical site for integrated connections: knowledge circulates when it is translated between actors, and these translations materialize in the object. Objects emerge and translate through practices and networks, they 'come into being, and disappear, with the practices in which they are manipulated.'[9]

In order for the fossil to circulate in eighteenth-century learned communities, it was *translated* and adapted, in ways that enabled it to *intervene* in ongoing geological and cultural debates. It made people question God's providence, it promoted new ideas about the Earth's history, and it functioned as a criticism of Spain's cultural and scientific status. The fossil arrived Madrid in 1789, and a couple of years after Abildgaard's visit, in 1796, it was given its Linnaean binomial name, *Megatherium americanum*, by the French naturalist Georges Cuvier. It was, and still is, an osteological celebrity. It was the very first specimen of any extinct species to be mounted and put on display anywhere in the world, and it served as the holotype for the classification of a species.[10] Central to the development of modern geology, it has held the attention of historians of science, who have fruitfully analysed its

importance in political, scientific, and nationalist settings on both sides of the Atlantic.[11] The present discussion is limited to the circumstances of the Danish naturalist's visit to the cabinet and his paper. Probably because he published in Danish, the text has been left unanalysed by Spanish and Anglophone scholars. [12] Abildgaard's article will be seen as a series of translations that resulted in a specific enactment of the fossil: he adapted and modified the fossil in order for it to circulate and intervene in a learned community in the north of Europe.

Translating the fossil

Once in the hall of fossils, Abildgaard—specialized in anatomy, qualified in both medicine and veterinary medicine, and in 1773 the founder and then head of Denmark's first veterinary school in Copenhagen—set out to determine what species the unknown giant could be. In order to classify it, he had to figure out its provenance. He had learned that it was from Peru, but he complained that no one could, or would, tell him exactly where in the country the skeleton had been found (actually, it had been found by the Luján River, near Buenos Aires). He had asked various people, but the answers he got were all different. Someone, he added, had told him the skeleton had been found one hundred feet under the ground.[13] It was not only the provenance that proved difficult to determine. The fossil skeleton itself was awkward to study because of where it stood in the hall of fossils: 'It was reasonably complete, articulated, and placed upon a large pedestal, so that it became much more difficult to observe it closely and particularly to measure it. I could therefore only obtain approximate measures of its height and length, but not of its individual parts.'[14] It was not only the position of the fossil that made observation difficult either, according to Abildgaard. Yet another problem was the museum's prohibition on note-taking and sketching: 'it is not permitted in this cabinet to take notes and even less to make drawings, I got the opportunity, however, to draw the head and a backbone of this skeleton.'[15] Abildgaard does not say whether he obtained permission to make his drawings, but it was a general ban that applied throughout the museum during opening hours. However, note-taking and sketches were sometimes allowed outside opening hours if permission was obtained in advance.[16]

His complaints underscore the lack of information necessary for his investigations, complicating his ability to classify the beast.

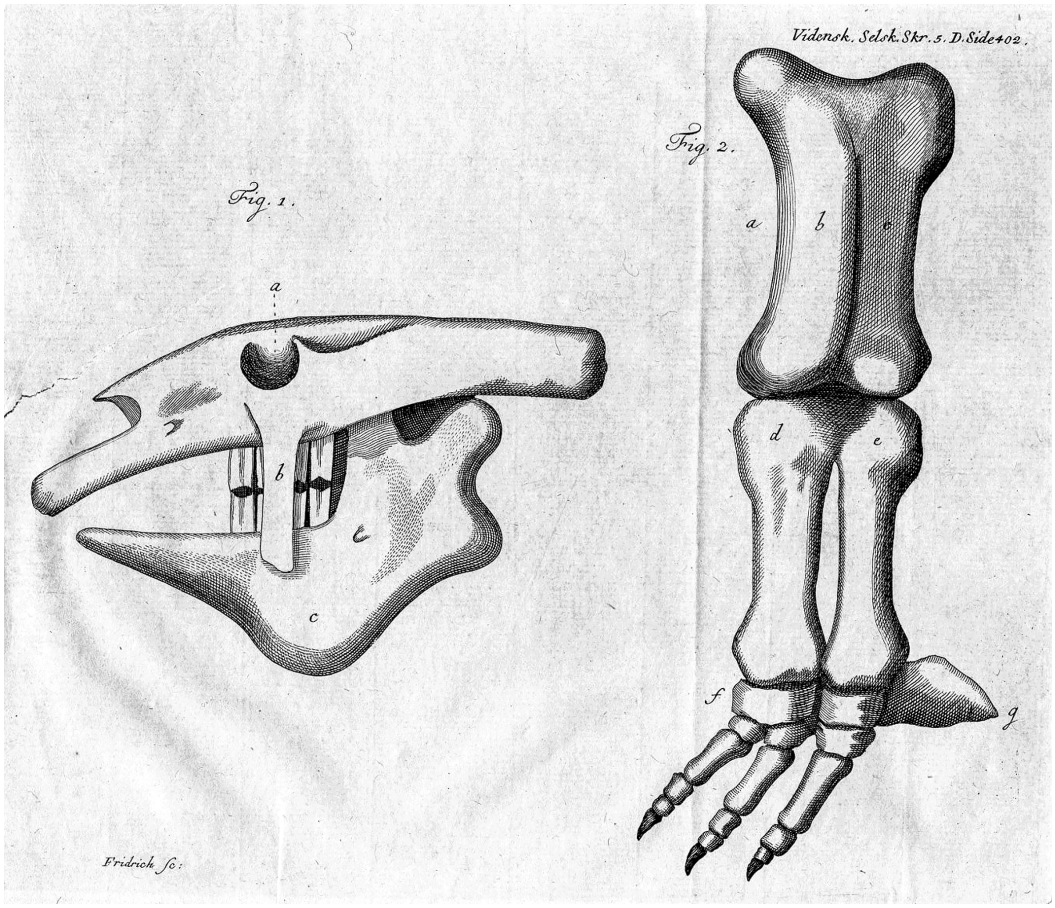
Although his access was restricted, he could immediately note that: 'It is obvious, that these bones do not stem from any known living species'.[17] He got a reasonably good look at the head, which was, as he judged it, the oddest part of the fossil: 'The shape of the head is very peculiar and rare; it has no similarity with the head of any known species'. The scull was long and narrow, the eye sockets small, and, as he noted, 'the most peculiar is, however, the very long continuance of the cheek-bone (*Processus zygomaticus*) that runs down above the inferior jaw, and thus must have severely limited the animal's movement of its inferior jaw.'[18] This observation about the jaws implied that the animal could not have been a carnivore, due to the restricted movement of its lower jaw. This also seemed likely from its lack of front teeth: 'The inferior jaw is in its shape quite deviant from the one that exists in any other known species, by its size and by the large downward-hanging substance of its lowest edge'. In particular, the absence of canines led him to an important conclusion: 'In the jaw there were no front teeth or canines, neither any marks of cavities where there could have been any. Both jaws were also rather complete, so I dare assure that this animal while alive did not have any front teeth or canines'.[19]

The absence of such teeth, in addition to the limited jaw movement and the presence of sixteen large molars, persuaded Abildgaard to place the animal in 'the Linnaean class of quadrupeds, which lack front teeth.' This conclusion set the huge skeleton alongside the rhinoceros, the elephant, the sloth, the antbear, the armadillo, and the pangolin—and the job was now to compare the fossil with them in order to establish similarities and differences.[20] 'We know no living animal of this size besides the Elephant, with which it has no similarity whatsoever in any part of its structure', he commented, adding that it had 'equally little similarity' with the rhinoceros and the hippopotamus. The differences between these animals were so huge, he explained, 'that it would not only be unnecessary, but even tedious to expand and explain them here.'[21] He counted and measured (to the best of his ability, given its location) all the skeleton's bones, teeth, and claws, and studied the proportions and relations between the different parts. He thought it most likely to be related to the antbear: 'The only one among the

now known living animals, with which this one has a recognizable concordance in its structure, is the Ant-Bear (*Myrmecophaga*).'[22] This hypothesis, although it might be ridiculed by naturalists since American antbears were so small, he wrote, gained strength because a larger African antbear had been identified earlier in the century: 'to group this monstrously big animal within the family, within which one earlier only knew of two species the size of rats, and one the size of a cat (*Myrmecophaga jubata*), all from America, would have seemed ridiculous to any learned.'[23] Differences in size between fossils and known living species were a lively topic of debate, and various explanations were offered by science.[24] It was the African antbear, according to Abildgaard, that made his comparison become credible: 'in spite of its monstrous size, I have grouped it with this animal species, since we know the African, which nevertheless has the size of a normal pig.'[25] The decisive criterion when drawing conclusions about species should not primarily be the size, but the absence of front teeth. When it came to the sloth, he continued, there were too many differences; this species, according to Daubenton's description of the skeleton at the Royal Cabinet of France, had sharp canines in both the upper and lower jaw.

Another basic method when comparing animals was to collate the number of vertebrae, and while the sloth had an entire twenty-three vertebrae, with the corresponding number of ribs on each side, the unknown giant had sixteen.[26] Abildgaard decided that the armadillo was also an unlikely relative, but he was not familiar with its skeleton, since 'a description of it cannot be found anywhere, only the skull can be seen in Buffon … and this is in general so substantially different from the Ant-Bear, and from the one, of the Madrid Skeleton, thus it cannot be considered as similar.'[27] A problem that faced naturalists investigating fossils at that time was the lack of osteological literature—no comprehensive works existed which could provide the overview needed for comparisons.[28] Instead, they had to rely on getting access to physical specimens and to descriptions scattered through the literature.

Abildgaard was familiar with two antbear skeletons. The smaller of the two, 'Linnaeus' Didactyla', was described in Buffon's work; the larger—an African antbear—was held in the Danish Veterinary School. The smaller animal, despite lacking teeth, had a similar skull and almost



Drawings from Abildgaard's article in *Nye Samling af det Kongelige Danske Videnskabernes Selskabs Skrifter* (1796). Photo Arthur Sand.

the same number of vertebrae, qualities that corresponded broadly with the Madrid skeleton. As for the larger skeleton of the African exemplar held in Copenhagen, the shape of the skull was similar, as were the molars, although it had eight more of these than the fossil, and two more vertebrae. In spite of such differences, Abildgaard argued that these findings supported his hypothesis. There was one troubling difference between the fossil and the antbears, however: 'It had 4 toes on its forefeet and only 3 on its back feet. All known species of antbears have otherwise a lesser number of toes on their forefeet than on their back feet.' This he attributed to errors made by the dissector: 'I assume that there has been, with the large skeleton in Madrid, a derangement of the fore and back feet, since the bones were brought separate to Europe and then later articulated in Madrid.'[29] Abildgaard's suspicions grew when he heard 'from a well-informed man that they had received various surplus bones, among which they took out the

best parts and carefully hid the remaining, in order to make it more rare, and to resist the temptation to share some of these with other European Cabinets of Natural history.'[30]

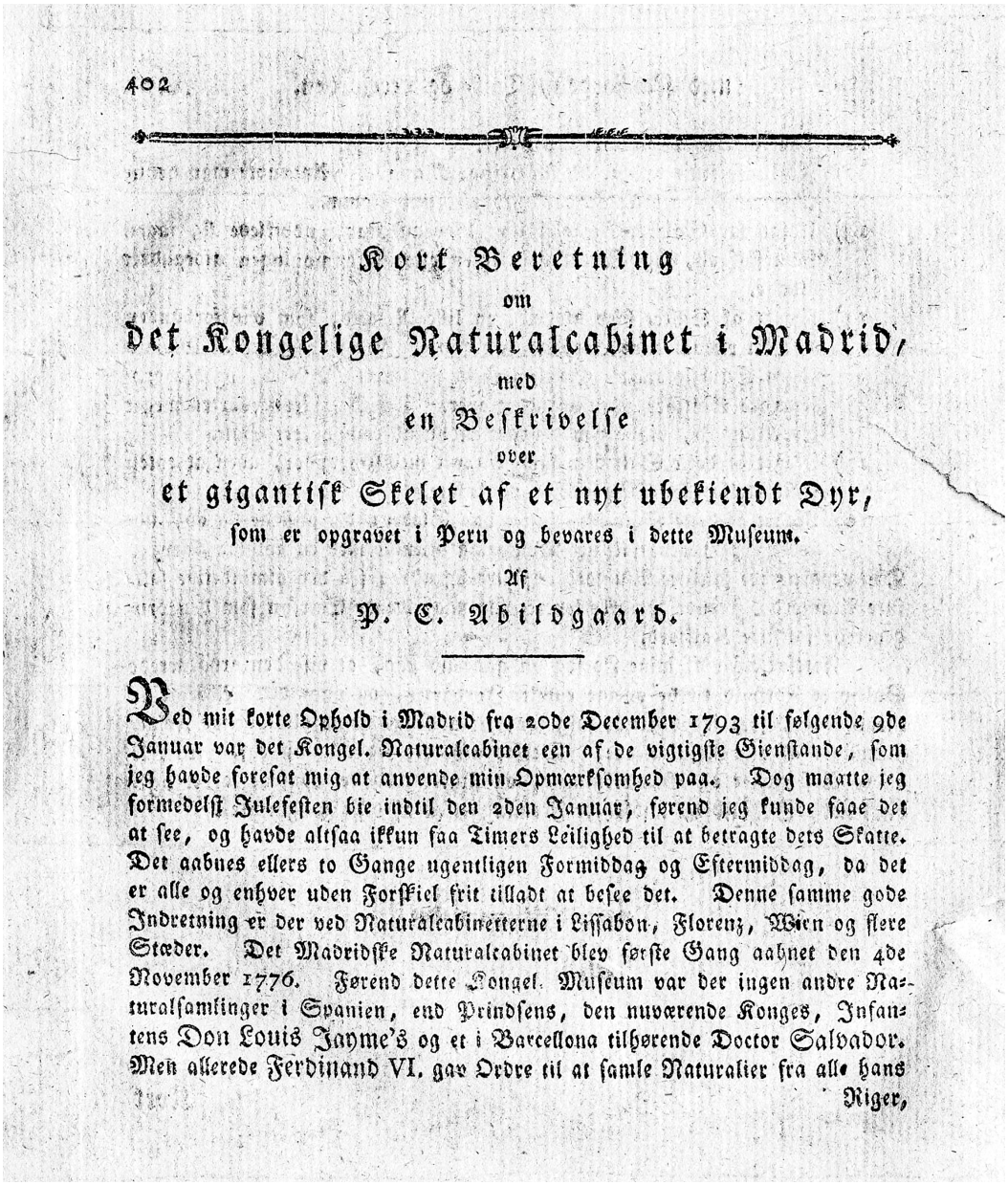
Abildgaard's speculations about how the best parts had been chosen for display, with the rest stored so no other museum could get hold of them, was not only a way to support his hypothesis, it was also a critique of what he saw as the rigid control and unwillingness to share knowledge with a broader European scholarly community.[31] Since the mid seventeenth century, narratives of Spain's and the Spanish Empire's decline had informed Western understandings of Spain. In the religious struggle that dated back to the Reformation, Protestants had demonized Spaniards as cruel, plundering conquistadors and fanatical, ignorant clergymen, a form of propaganda that gained strength when the grip of the overstretched Spanish Empire began to slip.[32] This narrative, later termed the Black Legend, was followed in the eighteenth century by claims by European intellectuals of the lack of scientific progress in the culturally backward Spanish Empire.[33] Abildgaard's interpretation of the fossil echoed these beliefs, and his assemblage of various arguments and actors travelled northwards, and fashioned the skeleton as both an interesting specimen and proof of Spanish backwardness.

The unknown animal was a desirable object of study for learned visitors, and Abildgaard was not the first to want to make a drawing of it. A similar incident occurred less than two months prior to his visit. The acting director at the Madrid museum, José Clavijo y Fajardo, had written to the minister of state, the Duke of Alcudia, and explained how, having attended mass at Los Agonizantes in Fuencarral Street, he was approached by a foreigner: 'accompanied by the Porter at the Royal Academy of San Fernando, an Englishman who said he was a Member of the Royal Society of London introduced himself to me, asking me for permission to draw the large skeleton of the unknown animal.'[34] Clavijo explained to the minister that he himself was preparing a publication about the fossil skeleton, and 'in order to ease the knowledge among the Curiosos it will be written in the languages Castilian, Latin and English and French.' Clavijo argued that it was necessary to restrict access to the fossil, and 'that it would have been an ignorance of our Nation' if a foreigner were to have done what a

Spaniard ought to do, namely 'to demonstrate to Europe such a rare production.'[35] He asked for the minister's assurance that permission would be denied the Englishman, a request that was granted, and the minister urged Clavijo to hurry up and finish his work. Since this happened only a few weeks before Abildgaard visited the cabinet, it would be reasonable to assume that the museum staff only unwillingly allowed him to make his drawings—one might even speculate that he made them secretly. The skeleton was being protected from the curious eyes of foreign scientists, because the acting director was himself working on a description.[36] On the other hand, Abildgaard is likely to have been given a personally guided tour around the museum by the same Clavijo, as it was normal procedure to accompany distinguished guests around the museum. Perhaps he was even given access to draw the fossil—as a Danish naturalist he would not have posed much of a threat to Spanish science. Later, on Abildgaard's return to Denmark, Clavijo was appointed foreign member in the Copenhagen Natural History Society, and it is likely that this gesture marked Abildgaard's gratitude.[37]

Bones intervening with Earth's history

Why was it so important to gain access to the skeleton? What kind of ideas materialized when a Danish naturalist and a South American fossil connected in Madrid? Excavations of megafauna fossils forced eighteenth-century naturalists to rethink the Earth's timescale. Gigantic, unidentified, petrified bones were difficult to collate and explain, and by mid-century most naturalists had abandoned the idea that the Earth was merely some 6,000 years old, rejecting the chronologies based on the biblical record.[38] The emerging notion of the Earth's long history, possibly not including human beings, challenged the constancy of natural laws and the concept of nature as God's unchanging Creation. Important questions were prompted by the bones of the unknown giant. 'The remains of so many considerable land animals, as well as of sea animals and plants, of which no originals are to be found in this present world', Abildgaard noted, 'have very much occupied human curiosity.' Large fossils caused 'considerable guesses and manifold questions', and he predicted they would 'still long represent many



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Kort Beretning
om
det Kongelige Naturalcabinet i Madrid,
med
en Beskrivelse
over
et gigantisk Skelet af et nyt ubekiendt Dyr,
som er opgravet i Peru og bevares i dette Museum.
Af
P. C. Abildgaard.

Ved mit korte Ophold i Madrid fra 20de December 1793 til følgende 9de Januar var det Kongel. Naturalcabinet een af de vigtigste Gienstande, som jeg havde foresat mig at anvende min Opmærksomhed paa. Dog maatte jeg formedelst Julefesten bie indtil den 2den Januar, førend jeg kunde faae det at see, og havde altsaa ikkun faa Timers Leilighed til at betragte dets Skatte. Det aabnes ellers to Gange ugentligen Formiddag og Eftermiddag, da det er alle og enhver uden Forskiel frit tilladt at besee det. Denne samme gode Indretning er der ved Naturaleabinetterne i Lissabon, Florenz, Wien og flere Steder. Det Madridske Naturalcabinet blev første Gang aabnet den 4de November 1776. Førend dette Kongel. Museum var der ingen andre Naturalsamlinger i Spanien, end Prindsens, den nuværende Konges, Infantens Don Louis Jayme's og et i Barcellona tilhørende Doctor Salvador. Men allerede Ferdinand VI. gav Ordre til at samle Naturalier fra alle hans Riger,

Front page of Abildgaard's article in *Nye Samling af det Kongelige Danske Videnskabernes Selskabs Skrifter* (1796). Photo Arthur Sand.

equally unsolvable problems'. Based on his discussion of the fossilized skeleton, he used the final part of his article to pose 'some questions, which seem to me the most important ones, and they also include some common remarks about this obscure issue.'[39]

How was a past, abstruse world to be understood, and was it fundamentally different from the present, familiar one? Eighteenth-century geology was characterized by learned amateurs, ambitiously formulating high-level causal theories about the Earth's workings. All-encompassing

theories, building on mineralogy, physical geography, and geognosy, provided accounts of Earth's workings, about its origin, development, and change over time. Such theories aimed to explain, within a single framework, all major features of the Earth as both a physical and biotic entity. While not excluding God as a primary cause, causal factors were perceived to be natural in character, and scholars relied on knowledge about the physical world and observable processes. Such theories aimed at explaining past, present, and future developments of the Earth—ideally accounting for both its beginning and end, or alternatively explaining why it was eternal. Towards the end of the century, the analytical focus changed as many moved towards more low-level and field-restricted theorizing.[40] Abildgaard was very much in line with this, his discussion being concentrated on the role of fossil specimens.

Large questions were attached to the bones, though, the first of which was how the Earth changed: 'Is it necessary to assume', he asked, that fossils with little or no resemblance to existing species were 'the remains of a Fore-world?'[41] The idea that the extinction of species was a regular feature of the natural world was a subject for learned discussion, challenging long-standing beliefs about a stable and diverse natural world: it seemed incomprehensible that God could have created a world where species died out. Abildgaard used the term fore-world—in Danish 'forverden'—probably a translation of 'Vorwelt', which was discussed by the German professor of medicine Johann Friedrich Blumenbach in his 1790 article, 'Naturgeschichte der Vorwelt'. Blumenbach denied that differences between past and present species could have been caused by a gradual transformation over time; instead he argued that a 'Total-revolution' between the fore-world and the present world, a massive and sudden natural disaster, had radically changed nature.[42] Clearly of another opinion, Abildgaard asked, 'Could it not equally be assumed that the originals of these fossil land animals could still be found in the unexplored areas of Africa and the southern countries?'[43]

The imperial powers' territorial expansion and the many politico-scientific expeditions throughout the century had led to a steady flow of new, unknown species of animals and plants to Europe from remote places. The idea that 'originals' could exist in distant places was thus not only a plausible explanation, it could even be considered ignorant to conclude that species were extinct, given the many blank spots on

the world's map and gaps in knowledge about the natural kingdom.[44] By arguing that such live relatives could still be found, Abildgaard could claim that the Earth's history was characterized by minor and local revolutions, not globe-encompassing, abrupt changes. At the same time, he answered potentially sceptical readers who might not accept the claimed similarity of the anteater and the fossil skeleton. If someone found his arguments to be weak or false, and believed the skeleton and the anteater not to be related at all, this would not mean that the species had been wiped out by one large natural catastrophe. Rather, if there were large differences between living animals and fossils, he assumed that living 'originals' could still be found in unknown and unexplored territories.

He continued with the question of differing size. 'How can it be explained,' Abildgaard asked, 'that the huge Part of Animal-fossils found … are so large that they, considering their Size cannot be compared with living Animals of the same Species?', and 'does this Experience give any Evidence, that there has been a Fore-world, in which all Animals were larger than in this new World?' Again, the naturalist presented a question in contra, emphasizing continuity rather than abrupt change: 'or have these merely in time generated out of their first original Size, which they in the beginning had on the present mainland?'[45] Differing size alone was not enough to assume extinction, Abildgaard argued; rather one should look for similarities through comparative anatomy, as he had done with the skeleton of the unknown animal. Structural similarity was more important than differences in size. And if his conclusion concerning the Madrid fossil and the anteater was correct, he had proven this hypothesis.

A commonly held belief among early modern naturalists was that the Earth's development was directional, that it had changed from a remote and unknown past into the familiar present. Often, this directionality was connected with the idea that at the beginning of history a proto-ocean had covered earth, and then gradually the sea had receded, resulting in the uncovering of mountain tops and islands, and eventually the lower continents.[46] Abildgaard's comment about evolving size and the 'present mainland' reflects this belief. He pursued the issue when he asked, 'Why are remains of sea animals normally found on the higher mountains, while on the contrary, remains of land

animals are normally found in the valleys and lower areas, particularly near rivers and their mouths?' Often, fossils of sea organisms were found far above the seas where one would think they once resided. The idea of a proto-ocean accounted for this phenomenon: as the ocean gradually fell, organisms left their traces in the mountains. But what about the animals? Abildgaard sketched out two possibilities: 'Did the land animals … cease to live because of the huge general revolution, which elevated the bottom of the sea to the present mainland', or had they perished 'by partial revolutions, by the flowing-over of rivers and changes in their courses, washed away and carried off in such a large amount, to the lower regions in which the rivers washed over and where they are found, particularly in North America and Siberia?'[47]

The 'general revolution' would not have been a sudden one, but stretched over a timespan long enough to account for both the appearance and disappearance of the large land animals, happening while the proto-ocean gradually disappeared. Such a revolution seems to have been the only one Abildgaard accepted could have had a fundamental global impact, and perhaps this was his way of answering claims about sudden and radical global change, as in Blumenbach's 'Totalrevolution'. Although the article's conclusion was formulated as questions, they were enumerated so as to guide the reader through the central debates and geological disagreements, hinting at Abildgaard's position. The argument about animal remains carried northwards by inundations was often heard at the time, and the unknown giant had to Abildgaard's knowledge been found in Peru. Thus it was an 'original', whose bones had remained in the southern hemisphere's tropical regions.

An associated problem was that the remains of sea animals were often found very deep in the ground, while the bones of animals 'almost always exist near the surface of the Earth, and often wholly exposed'.[48] Neither were such bones always 'petrified, but merely loose and covered with earth', and there were substantially fewer of them than of sea animals.[49] Added to this, there were 'merely very few and rare remains of the smaller land animals, and on the contrary, such a huge amount of the larger ones'—an observation that went to the heart of the problem with a long, potentially human-free history of earth: 'Could an explanation be that the bones of smaller animals dissolve more easily and disappear, and could this explain why one does not

find fossil remains of humans?'[50] If smaller bones were more fragile, then the absence of human petrified remains did not necessarily mean that there had been an earthly past without humans.

The issue of human fossils was not one Abildgaard took further, and instead he returned to the question of large animals. A puzzling problem was that remains of megafauna were mostly found in northern regions, such as North America and Siberia, where the climate was too cold for those animals, given that their present relatives only inhabited tropical climates. Abildgaard envisaged two possible explanations. The first was that the climate could have changed globally, by a violent revolution or by a more gradual and slow decrease in temperature. The second alternative, which he seemed to favour, was that fossils indeed belonged to present existing families, but that some past species had been particular variants adapted to a cold, northern climate. One example was 'the lynx and the wildcat', which lived 'in cold conditions, regardless of how the other species of the same Family, Lion, Tiger, Panther-animal, and others, only could live in the warmer regions'. Accept this argument and 'then one merely needed, in order to explain the Origin of these Remains, to assume a partial Revolution in the northern Part of the World as a cause of this downfall'.[51]

Among scholars, various hypotheses were seen as possible alternatives when seeking solutions to the problems presented by unknown fossils: they could represent extinct species; they were species that had migrated from the places where they were found to other parts of the world; or they were species that had transmuted, resulting in new, but related species.[52] Abildgaard seems to have opposed the idea of extinction, as it would have implied a too radical view on the evolution of the Earth. Rather, he favoured the two latter options—migration or transmutation—as they were compatible with a theory of partial, local change as the causal force in the Earth's history. The giant fossil intervened in discussions about the Earth's history, and Abildgaard used it as a very solid argument supporting continuity and local earthly changes—the long history of the Earth was perhaps not all that different from the present.

A fossil and its circulating versions

The fossilized skeleton in Madrid was rare, spectacular, and singular, the first of its kind. Various scholars have emphasized a decline in interest in singularities and curiosities in cabinets of natural history over the course of the eighteenth century, and that such items became associated with vulgarity and popular culture instead of science. As the collections of natural history became more 'scientific', it is often argued, it was the systematic, classificatory order of nature that became the primary interest.[53] Others have argued that this interpretation is too dualistic, and that an interest in curiosities and the singular continued throughout the eighteenth century.[54] In a Spanish context, officials all over the empire, upon royal orders, sent such items to Madrid—and the fossil arrived in accordance with these orders.[55] This interest in the spectacular and singular was not restricted to Spain, however, but was connected to the 'increasing rivalries among museum and *gabinete* directors to acquire the most unique and rare specimens and artifacts,' writes Susan Deans-Smith, who suggests that the presence of these items in collections 'reflected a cultural variation of European political and imperial rivalries of the day.'[56] The Madrid fossil fits well into such a dualistic understanding. It was singular and rare, at the same time as one tried to classify it using systematic classificatory approaches.

Imperial struggles, both political and territorial, played out within museum walls, and singular and rare objects were weapons. The 'dispute of the New World' was staged in large part in the field of natural history, and particularly so after Buffon made his claims about degenerate American nature in *Natural History* (1749–1788).[57] Abildgaard's account of the fossil, duly prepared and translated for circulation, proceeded with detailed, morphological studies, and with philosophical discussions about changes in nature. Yet, his conclusions were not immune from politics, and depended on what he believed about American nature (it was inferior and degenerate, and its animals were smaller, as Buffon argued). Our Danish naturalist seems to have missed the antbear displayed at the museum—the *Myrmecophaga jubata* referred to in his comparative analysis was something he had seen in Buffon's work—and had he seen the one on display he would have reckoned that it was in fact larger than a cat ('huuslars'), as he

claimed it to be, and also larger than the African anteater (he was probably referring to the aardvark).

Abildgaard's account reflected his views on the shortcomings of Spanish science: the incompetent articulation of the skeleton, the control of the specimen, and the unwillingness to participate in the international museum community by sharing surplus bones were all connected when he put the fossil into circulation in the north. This cultural, scientific, and political enactment of the fossil skeleton resulted from a complex interplay of human and non-human actors—a highly interesting specimen, misplaced parts, hidden bones, strict control, incompetent naturalists, and inferior American nature were all collated by Abildgaard.[58] If these ideas and connections had been distributed in another language, the fossil's enactment might have circulated internationally, but, published in Danish, it only reached the readers of *Nye Samling af det Kongelige Danske Videnskabernes Selskabs Skrifter*, and its existence was probably confined to discussions among a northern audience.

While Abildgaard's version of the skeleton was made for circulation in the northern fringes of Europe, a local preparatory translation of the fossil skeleton can also be identified. The museum protected the specimen from foreign eyes to prevent it from leaving Spain, since it was not yet ready to set out for the international community of naturalists. It was about to be written, waiting to be transformed into the important, enacted specimen it could be. A Spaniard, Clavijo, was preparing its entrance with a text written in Latin, Spanish, English, and French. In the meantime, the object was put on display, but in a way that emphasized its rarity and protected its fragile form. Elevated high on a pedestal, it served to impress visitors while remaining beyond their reach. The skeleton was in the midst of the process of being transformed into a stable form, and thus, to some extent, it enabled the coming-into-being of Abildgaard's translation. The absence of a stable written account of the fossil in Spanish prompted the coming into being of foreign ones. The need for descriptions of this rare specimen within the learned international community was urgent. The fossil featured in scholarly debate, as it triggered questions about Earth's history and God's providence. It also triggered questions about political and national pride. Clavijo's text was never published, but in

1796, a Spanish translation of Cuvier's text was published in a book along with his sketches and a description by the museum dissector Juan Bru.[59] Bru's text, perhaps even more so than Abildgaard's, has slipped into scientific oblivion, since later generations of historians have judged it to be irrelevant and unscientific.[60] But that is another story and yet another version of the fossil, and outside the scope of the present discussion.

Different translations of the fossil came into being, and naturalists collated actors and elements, and thus prepared the fossil for circulation—this essay has been restricted to one such version. While the historically most famous and significant version of the giant unknown fossil was launched by Georges Cuvier, an almost unknown history has been traced here. Cuvier's description has circulated widely, it has moved and still moves around the world, and it has made a mark on the history of geology and science. Abildgaard's version, on the other hand, did not meet with global success; rather, it went north and remained there, passive, in a text inaccessible to an international audience.

Circulation implies movement. Given the analytical premise that knowledge always changes as it moves, that it is always situated locally and differently produced, it follows that circulating knowledge may be hard to identify as it is never exactly the same nor in the same place. So, how is it that knowledge can circulate, how can it return to its starting point, and how can it be the same as when it left? The fossil translated and split into various versions—a different thing in different places. And yet, it was also the same, a sameness that comes to the fore in the actual, physical object. All the different versions of the giant fossil circulating around Europe and the rest of the world also 'came back', in the sense that they all pointed towards the Madrid museum and the actual object. Some versions, like Cuvier's, returned with a great deal of impact, and could go round again and again, while other versions came back having had little or no influence. Abildgaard's among them. One could argue that some small traces of the Copenhagen-version returned to Madrid. Clavijo's appointment as a foreign member of the Copenhagen Natural History Society could be seen as an attempt to strengthen the fragile connections upholding the Danish version, as it could facilitate further collaboration between

the society and the museum. A few years later, however, Clavijo had to leave his post after turbulence at the museum, and he died in 1801. Abildgaard died the same year. The ties between Copenhagen and Madrid were cut and the Danish version of the fossil weakened. [61] In retrospect, one could add that later circulations of the Danish version have been restricted to appearances in footnotes in the literature on the *Megatherium americanum*.

Notes

1 Peter Christian Abildgaard, 'Kort Beretning om det kongelige naturalcabinet i Madrid med en Beskrivelse over et gigantisk Skelet af et nyt ubekiendt Dyr', *Nye Samling af det Kongelige Danse Videnskabernes Selskabs Skrifter* (1796), 402. All translations are my own unless otherwise stated.

2 See M. Villena, J. Almazán, J. Muñoz & F. Yagüe, *El Gabineto Perdido: Pedro Dávila Y La Historia Natural Del Siglo De Las Luces: Un Recorrido Por La Ciencia De La Illustración a Través De Las Real Gabinete (1745–1815)* (Madrid: Consejo Superior de Investigaciones Cienífica, 2009); J. Pimentel, *Testigos Del Mundo: Ciencia, Literatura Y Viajes En La Illustraction* (Madrid: Marcial Pons Historia, 2003);

3 P. Findlen, *Possessing Nature: Museums, collecting, and scientific culture in early modern Italy* (Berkeley & Los Angeles: University of California Press, 1996), 393–408; E. C. Spary, *Utopia's Garden: French natural history from the Old Regime to Revolution* (Chicago: University of Chiacago Press, 2000), 4; Pimentel, *Testigos de Mundo,* 164–5.

4 H. S. Kragh, *Natur, nytte og ånd 1730–1850* (Århus: Aarhus Universtitetsforlag, 2005), 88; E. Strøm, *Naturhistorie-selskabet i København 1789–1804* (Oslo: Historisk institutt, Universitetet i Oslo, 2007), 78–9. In 1798 Abildgaard helped found the Copenhagen Natural History Society, which played a leading part in the revitalization of Danish–Norwegian natural history in the period.

5 Abildgaard, 'Kort beretning', 406.

6 See R. MacLeod, 'Introduction', *Osiris* 15 (2001); A. Ophir & S. Shapin 'The place of knowledge: A methodological survey', *SIC Science in Context* 4/1 (1991); K. Raj, *Relocating modern science: Circulation and construction of knowledge in South Asia and Europe 1650–1900* (New York: Palgrave Macmillan, 2007); L. L. Schiebinger & C. Swan (eds.) *Colonial botany science: Commerce and politics in the early modern world* (Philadelphia: University of Pennsylvania Press, 2007); P. H. Smith & P. Findlen (eds.), *Merchants and marvels: Commerce, science and art in the early modern Europe* (New York: Routledge, 2002); D. W. Chambers & R. Gillespie, 'Locality in the History of Science: Colonial science, technoscience and indigenous knowledge', *Osiris* 15 (2001): 221–40.

7 J. Law & J. Hassard, *Actor network theory and after* (Oxford: Blackwell/Sociologigcal Review, 1999), 3.

8 B. Latour, 'Why has critique run out of steam? From matters of fact to matters of concern', *Critical Inquiry* 30 (2004): 246, original emphasis; see also T. Damsholt

et al., *Materialiseringer: Nye perspektiver på materialitet og kulturanalyse* (Århus: Aarhus universitetsforlag, 2009), 26.

9 A. Mol, *The body multiple: Ontology in medical practice* (Durham: Duke University Press, 2002), vii & 5.

10 F. Lopez Pelayo, *Del diluvio al megaterio: Los orígenes de la paleonotología en España* (Madrid: Departemento de Historia de la Ciencia, Consejo Superior de Investigaciones Científicas, 1996), 290–302; J. Pimentel, *The rhinoceros and the megatherium: An essay in natural history* (Cambridge, Mass.: HUP, 2017); M. J. S. Rudwick, *Bursting the limits of time: The reconstruction of geohistory in the age of revolution* (Chicago: University of Chicago Press, 2005): 356–64. The fossil can today be seen at the Museo Nacional de Ciencias Naturales in Madrid.

11 When William Carmichael, American consul to Madrid, saw the skeleton while it was being assembled in 1789, he got hold of copies of the sketches and observations by the museum dissector and painter Juan Bru, and sent them to Thomas Jefferson, a dedicated naturalist and later president of the US. In 1795, Philippe-Rose Roume, a French Creole from Santo Domingo, visited the museum, and was able to get some copies of Bru's plates, which he sent to Georges Cuvier at the Natural History Museum in Paris. See J. M. López Piñero & Thomas Glick, *El Megaterio de Bru y el Presidente Jefferson: relación insospechada en los albores de la paleonotlogía* (Valencia: Universidad Valencia/C.S.I.C., 1993); Pelayo, *Del diluvio al megaterio;* J. Pimentel, 'Across nations and ages: The creole collector and the many lives of the megatherium', in S. Schaffer et al. (eds.), *The brokered world: Go-betweeners and global intelligence 1770–1820* (Sagamore Beach: Science History Publications, 2009), 321–53; Rudwick, *Bursting the limits of time*; D. Outram, 'New spaces in natural history', in N. Jardine et al. (ed.), *Cultures of natural history* (Cambridge: CUP, 1996), 252.

12 See Pelayo, *Del diluvio al megaterio*, 296 n; and Rudwick, *Bursting the limits of time,* 359.

13 Abildgaard, 'Kort beretning', 408; see also María Ángeles Calatayud Arinero, *Catálago crítico de los documentos del Real Gabinete de Histora Natural, 1787–1815* (Madrid: Museo Nacional de Ciencias Naturales: Consejo Superior de Investigaciones Científicas, 2000), ref. 64. The Danish naturalist was not the only one who misunderstood, or was wrongly informed of, the fossil's provenance. Cuvier wrote that it had been found in Paraguay (Pimentel, 'Across nations and ages', 346).

14 Abildgaard, 'Kort beretning', 406.

15 Ibid. 406.

16 See Calatayud Arinero, *Catálogo Crítico*, ref. 504. In 1796 Cuvier published a description and gave it its binomial name (*Megatherium americanum*), see Pelayo, *Del diluvio al megaterio,* 290–302; Pimentel, 'Across nations and ages', 345–6; Rudwick, *Bursting the limits of time,* 356–364.

17 Abildgaard, 'Kort beretning', 408.

18 Ibid. 406–407.

19 Ibid. 407.

20 Ibid. 408.

21 Ibid. 408.

22 Ibid. 408.

23 Ibid. 408.
24 Rudwick, *Bursting the limits of time,* 263, 270, 358.
25 Abildgaard, 'Kort beretning', 408.
26 Ibid. 407 & 409.
27 Ibid. 409.
28 Rudwick, *Bursting the limits of time,* 274.
29 Abildgaard, 'Kort beretning', 410.
30 Ibid. 410.
31 In contrast to Abildgaard, Cuvier commented that since the bones had been found at the same spot, the articulation was probably correctly done (Rudwick, *Bursting the limits of time,* 358), thus demonstrating his confidence in the work of the museum dissector Juan Bru.
32 J. Cañizares-Esguerra, *Nature, empire and nation: Explorations of the history of science in the Iberian world* (Stanford: SUP, 2006), 23.
33 Cañizares-Esguerra, *Nature, empire and nation*, 20; J. Juderías, *La Leyenda negra y la verdad histórica: Contribución al estudio del concepto de España en Europa, de la causas de este concepto* (Madrid: Tip. de la 'Revisto de Archivos, Bibliotecas y Museos', 1914). H. Kamen, 'The decline of Spain: A historical myth?', *Past & Present* 81 (1978): 24–50 identifies Paris as the locus of eighteenth-century hostility towards Spain. The article about Spain in the *Encyclopédie Méthodique* written by Nicolás Masson de Morvilliers is often mentioned as example, quoted in Nicolas Masson de Morvilliers, 'La España de la Encyclopédie Méthodique de 1782', in Biblioteca Saavedra Fajardo (ed.), *Encyclopédie méthodique ou par ordre des matières* (Murcia Biblioteca Saavedra Fajardo 1782, 2010): 'Aujourd'hui le Danemarck, la Suède, la Russie, la Pologne même, l'Allemagne, l'Italie, l'Angleterre & la France, tous ces peuples, ennemis, amis, rivaux, tous brûlent d'une généreuse émulation pour le progrès des sciences & des arts! Chacun médite des conquêtes qu'il doit partager avec les autres nations; chacun d'eux, jusqu'ici, a fait quelque découverte utile, qui a tourné au profit de l'humanité! Mais que doit-on à l'Espagne? Et depuis deux siècles, depuis quatre, depuis six, qu'a-t-elle fait pour l'Europe? Elle ressemble aujourd'hui à ces colonies foibles & malheureuses, qui ont besoin sans cesse du bras protecteur de la métropole: il nous faut l'aider de nos arts, de nos découvertes; encore ressemble-t-elle à ces malades désespérés qui, ne sentant point leur mal, repoussent le bras qui leur apporte la vie! Cependant, s'il faut une crise politique pour la sortir de cette honteuse léthargie, qu'attend-elle encore? Les arts sont éteints chez elle; les sciences, le commerce! Elle a besoin de nos artistes dans ses manufactures! Les savans sont obligés de s'instruire en cachette de nos livres! Elle manque de mathématiciens, de physiciens, d'astronomes, de naturalistes!'
34 Calatayud Arinero, *Catálogo Crítico*, ref.64, 19/11/1793 letter from Clavijo to the Duke of Alcudia.
35 Ibid.
36 Clavijo never published on the unknown skeleton. In 1796, Cuvier published 'Notice sur le squelette d'une très grand espèce de Quadrupède inconnue jusqu'a présent, trouvé au Paraguay, et déposé au Cabinet d'Histoire Naturelle de Madrid' in the *Magasin Encyclopédique*. Thomas Jefferson also used the information about the giant

skeleton in his publications. According to Pimentel, even though heavily reliant upon Bru's work, neither Cuvier nor Jefferson credited Bru in their publications. In 1796, after the publication of Cuvier's article, José Garriga convinced Bru to include his drawings and description of the fossil in a published booklet reproducing Cuvier's text translated into Spanish, see Garriga, *Descripcion del esqueleto de un quadrúpedo my corpulento y raro que se conserva en el Real Gabinete de Historia Natural de Madrid* (Madrid: Joaquin Ibarra, 1796); Pimentel, *Across nations and ages,* 348; Pimentel, *The rhinoceros and the megatherium,* 143–51.

37 A transcript of the correspondence between members of the Society's board on this matter is provided in Strøm, *Naturhistorie-selskabet i København,* 84–5.

38 See Rudwick, *Bursting the limits of time*; H. Kragh, 'The arrow of time and the historization of nature', *Tidsskrift for kulturforskning* 3 (2008).

39 Abildgaard, 'Kort beretning', 413.

40 Rudwick, *Bursting the limits of time,* 133–9.

41 Abildgaard, 'Kort beretning', 413.

42 In the article *Naturgeschicte der Vorwelt* published in 1790, Blumenbach denied that the differences between actual and primitive species could have been caused by a gradual transformation over a long time; he instead argued that it was an complete revolution, a massive and sudden natural disaster between the fore-world and the present world, which had radically changed nature. See Pimentel, *The rhinocheros and the megatherium*, 227–228; Rudwick, *Bursting the limits of time,* 297–300.

43 Abildgaard, 'Kort beretning', 413.

44 Rudwick, *Bursting the limits of time,* 244.

45 Abildgaard, 'Kort beretning', 413.

46 Rudwick, *Bursting the limits of time,* 173.

47 Abildgaard, 'Kort beretning', 413–14.

48 Ibid. 413.

49 Ibid. 414.

50 Ibid. 414.

51 Ibid. 414.

52 Rudwick, *Bursting the limits of time,* 242–243.

53 Lorraine Daston & Kathrine Park, *Wonders and the order of nature 1150–1750* (New York: Zone, 2001), ch. 9; Findlen, *Posessing nature,* 393–408; Tony Bennett, *The birth of the museum: History, theory, politics* (London: Routledge, 1995).

54 Paula De Vos, 'The rare, the singular and the extraordinary: Natural history and the collection of curiosities in the Spanish Empire', in Daniella Bleichmar et al. (eds.), *Science in the Spanish and Portugese empires 1500–1800* (Stanford: SUP, 2009), 275; Bettina Dietz & Thomas Nutz, 'Collections Curieuses: The Aesthetics of Curiosity and Elite Lifestyle in Eighteenth-Century Paris', *Eighteenth-Century Life* 29/3 (2005): 44–75.

55 De Vos, 'The rare, the singular and the extraordinary', 277. These orders related to the establishment of the Royal Cabinet of Natural History, the precursor to the House of Geography and Natural History (1752) and the Royal and Public Library (1715). Such royal orders had a long-standing tradition within the Spanish empire, stretching back to the colonization of America and the *Relaciones geográficas* in the sixteenth

century. See Antonio Barrera-Osorio, *Experiencing nature: The Spanish American empire and the early scientific revolution* (Austin: University of Texas Press, 2006).

56 Susan Deans-Smith, 'Nature and scientific knowledge in the Spanish Empire Introduction', *Colonial Latin America Review* 15/1 (2006): 178; also quoted in De Vos, 'The rare, the singular and the extraordinary', 288.

57 For the dispute over the New World, see Antonello Gerbi, *The dispute of the New World: The history of a polemic 1750–1900* (Pittsburgh: University of Pittsburgh Press, 1973); Jorge Cañizares-Esguerra, *How to write the history of the new world: Histories, epistemologies and identities in the Eighteenth-Century Atlantic world* (Stanford: SUP, 2001); see also Spary, *Utopia's garden,* 102–105.

58 Latour, 'Why has critique run out of steam?', 246.

59 Garriga, *Descripcion del esqueleto*; see Pimentel, *The rhinoceros and the megatherium*, 147 for a discussion of Bru's alleged plagiarism concerning this publication and others.

60 Abildgaard did not publish until two years later, in 1796, corresponding with Cuvier's description and classification. Clavijo's manuscript was never published.

CHAPTER 11

Guaiacum

A circulating cure for syphilis

Susann Holmberg

Mercury was a commonly used treatment for skin diseases, a cure introduced to Europe by Arab doctors.[1] It was first used as a treatment for the great pox that swept through Europe from the end of the fifteenth century.[2] But in the early sixteenth century, guaiacum wood was introduced as an alternative cure for sufferers. Guaiacum, from an American tree, became a very popular treatment in Europe in the sixteenth century, but it was eventually surpassed by mercury. Then in the early eighteenth century efforts were made to relaunch it as a cure, but quickly fizzled out again. Throughout this circulation in time and geography, guaiacum wood remained a constant, but its conceptualization can be said to have changed.

In this essay, I examine the arguments that were used to promote guaiacum, both initially in the sixteenth century and two centuries later. I will further compare the central arguments with the practice in more peripheral Denmark–Norway to see how widespread they were—and guaiacum's popularity. I will show that depending on date and geography, the argument changed, but it ultimately came down to two things: authority and origin. The main difference is to be found in the categories' content. Here we will see that circulation can manifest itself as something as concrete as the physical movement of an object, in this case guaiacum. The other part of this point is that because of its journey perceptions of the object changed. This alteration of its conceptualization is bound up with its physical circulation, geographically and temporally. The circulation of guaiacum is thus part of what makes it guaiacum.

As an American plant imported to Europe, guaiacum has been noted by historians of the history of trade in the early modern period.[3] Global historians, too, soon took an interest in circulation as a concept in reflecting the transference of knowledge in a wider perspective, as it imparts a greater flexibility than does a one-way transference of knowledge. They have noted the effect such circulation can have on the objects themselves, as Claude Markovits, Jacques Pouchepadass, and Sanjay Subrahmanyam remark: 'In circulating, things, men and notions often transform themselves.'[4] Bruno Latour has focused on material circulation. For him, what is needed 'to provide a piece of information is the action of putting something into form'. This materiality he further exemplifies as 'a paper slip, a document, a report, an account, a map'.[5] The 'information' must then be understood as some sort of written or illustrated account. Though I use books here as well, they are merely products of the main object of circulation in my account, which is guaiacum. As opposed to Latour's 'immutable mobiles', or unchangeable objects in circulation, we will see that guaiacum did change in its relationship with people through its circulation.[6]

The pox, today often referred to as syphilis, devastated Europe from the start of its epidemic following a siege by Charles VIII in Naples in 1495. This marked the beginning of the struggle to locate a cure. Mercury had been used early on and to some effect, but it was recognized as a dangerous treatment that could just as well kill as cure. The mood was set for a different 'miracle cure', which arrived in 1508 in the shape of guaiacum.

The power of religion and the exotic

The fact that guaiacum came from the 'New World', more specifically the Caribbean, was a key part of the argument for its use as a cure for the pox. Two of the most quoted books with regard to guaiacum are the German physician Nicolaus Pol's *De cura morbi gallici per lignum guayacanum* and the German knight Ulrich von Hutten's *Von der wunderbarliche artzney des holtz Guaiacum genant, und wie man die frantzosen oder blatteren heilen sol*.[7] They both made a point of its great effect when used by the Spanish. Hutten goes further and explains that the Spanish got the cure from the natives on the American islands,

Sixteenth century illustration of the preparation and use of guaiacum as a treatment for the pox. Line engraving by P. Galle after J. van der Straet. Wellcome Library, London.

where the pox was 'as common as smallpox was to Europeans'.[8] Pol's and Hutten's arguments are both based on stories of successes that prompted their exploration of this alleged cure. So the rumours of guaiacum's effectiveness would therefore have been instrumental in their exploration of this new treatment.

For the Spanish, too, the origin of guaiacum was a topic of major importance. The physician and botanist Nicolás Monardes wrote *Historia medicinal de las cosas que se traen de nuestras Indias Occidentales*. In a similar phrase to Hutten's, Monardes explained the validity of guaiacum as a cure for the pox—that it was used in America where 'the Pox bee as common among the Indians, and as familiar, as the Measelles bee onto us'.[9] Monardes emphasized further that it was natural that the cure for the pox would come from America, as this was also the place the disease had originated.[10] This argument became positively circular when his fellow Spaniard, Ruiz Diaz de Isla, used the effectiveness of guaiacum as an argument that proved the pox originated in America.[11] The obvious contradictions notwithstanding, it does show the importance of origin in locating and arguing for a

cure. The idea was that the place that was the source of the disease would also be the place to find the cure, as if the place in itself must balance its problems with resources to handle them. The problem and solution were to their minds automatically interlocked as a part of a worldview, where there was a reason behind every aspect of it.

The fascination with origin can be seen in a wider context of a time where origin was an important validating argument. In contemporary European historiography there was a great focus on origin stories, in particular for peoples. Greek and Roman classical culture was still the ideal, and can account for the fact that both England and France were claimed to be founded by the Trojans.[12] Religious authority was also a key factor in an origin story, and the Scandinavian historian Olof Rudbeck claimed that the Northern people descended directly from Noah's son Japheth.[13] It was not enough to live by these ideals, but preferable to attach one's people's story of origin to this idealized people in order to borrow their authority and validate one's own greatness. This type of origin story was a historical one, but also attached to place, as they used their countries geographical superiority in order to explain how the idealized people came to settle down there eventually.[14] The origin of guaiacum—the same as the disease it claimed to cure—thus fell within a recognizable rhetoric of the time, which might have helped its success.

With the emphasis on origin as a reason for guaiacum's potency we can find a certain amount of exoticism in the argument. Exoticism is generally thought of as a product of the eighteenth century, with the popularity of emphasizing the strange and foreign in the portrayal of 'the other'.[15] But the exotic, meaning foreign, was more evident in the sixteenth century where a whole new world was discovered and introduced to Europeans. In such a setting it was hardly necessary to emphasize that that world and all its new elements were more foreign than evidenced by its mere existence. In the meeting between cultures there were different portrayals, some which idealized and others which demonized 'the other'.[16] This duality of 'evil' and 'good' was reflected in the idea of this 'new world' as the origin of both the disease and its cure; the dreadfulness that it inflicted upon Europe and its possible salvation. This was linked with the newness of the world, and thereby its exoticness, in the correspondence between the emergence of the

disease with the discovery of this new place. A degree of the exotic in the argument for guaiacum as a cure was therefore natural.

We can detect the value of the exotic in the argument for guaiacum in Hutten's description of guaiacum wood. 'In hardness it surpasses all oak. It is so hard it practically never splits … then this gum which flows off as it burns, its hardness such that it can scarce be cut'.[17] Monardes also focuses on its uniqueness. 'It is a newe tree, neuer sæne in our partes, nor in any other of the discoueries, and as the country is new, so is the tree a new thing also'.[18] It seems as if it is its very difference that gives it its power. By emphasizing its strangeness, its foreign origin and so its potential as a cure was implicitly underlined.

The exotic, almost magical properties of guaiacum should be seen in the context of the magical properties of pre-Reformation Christianity and later Catholicism.[19] Spanish Monardes emphasized God's hand in both the disease and the cure when explaining the logic of guaiacum's origin: 'The Lord God would from whence the euill of the Pox came, from thence should come the remedy for them'.[20] Such an explicit use of God as the ultimate authority on the disease's origin and cure is absent from the Protestants Pol and Hutten. But a big part of the recommended guaiacum treatment was a strict diet and chastity, as Hutten notes—'should I not venture to say that this medicine comes to us as a divine gift when it removes the disease only as one begins a pure life?'[21] Corresponding to the various belief systems, God is present in the argument, but more as an autocratic God in the Catholic world-view, while the Protestant God can be reached through people's piety.

This difference in religious context depending on the geography is very distinct if we look at the local names guaiacum was given in various countries plotted on a map of Reformation Europe. In the Protestant areas, the local names, where they were not just a variation on the formal name, guaiacum, reflect the wood's strong ties to the disease it is claimed to cure. Names such as the German *Franzosen-baum* and the Danish *Pokkenholt* simply describe it as pox tree or pox wood. In Catholic countries, though, the local names are all variants on holy wood (*palo santo*, *legno santo*, *saint-bois*). By calling it sacred or holy, the wood would have been imbued with a religious power, most prominent in the name's association with relics in the Catholic countries. It is difficult to know how this name came about; whether

Local names for guaiacum in different European countries.

it was given as a result of its perceived healing abilities, or to enhance its healing properties by playing on the magical powers a name could have. The fact that it had the same name, 'holy wood', in different Catholic countries shows the pervasiveness of its association with the most holy relic of all—the cross of Jesus. Such a powerful name would have been an important factor in popularizing the wood.

As for Protestants, even though Hutten ridiculed the trend of giving various cures religious 'boastful names', 'ascribing the names in superstition', he on the other hand seemed to think guaiacum would be worthy of such a name.[22] His comment also emphasizes the power of religion in Protestant countries, even though it might be dismissed

by some as superstition. The association with religious power must have been an important factor in keeping the treatment popular, even when the results seemed to be flagging. As doubts increased regarding the effect of guaiacum compared to that of mercury, its popularity dwindled towards the seventeenth century. Some argued that the wood lost its power on the long journey, or that it was only guaiacum wood from a certain location that worked. In spite of various efforts to keep the guaiacum cure alive, it was upstaged by mercury.[23]

The power of history and scientific medicine

Two centuries after guaiacum became popular, the Dutch physician Herman Boerhaave relaunched it as a possible cure in his book *A treatise on the Venereal disease and its cure in all its Stages and Circumstances.*[24] The key to solving the problem of the pox was still seen to be located in the disease's origin, as Boerhaave writes of his source of knowledge on the pox: 'I have been most fond of those [authors], who wrote nearest the Time the Disorder first sprung up.'[25] Though Boerhaave did not state explicitly that guaiacum worked, he instead promoted Hutten's book as a help for patients where mercury no longer had an effect: 'Read it over and over, and there you'll be convinc'd, that all the Poison may be entirely wash'd away by a strong *Lixivium* of *Guaiacum*'.[26] The ultimate authority in Boerhaave's argument is the age of the cure and thereby its close connection with the origin of the disease. This relates to the argument in the sixteenth century, that with the source of the disease you will find the source of the cure. But in this case it is in the authority of the old doctors and scholars, rather than the place of origin—the focus being on temporal origin rather than geographical origin.

The British physician Daniel Turner, inspired by Boerhaave, republished a revised edition of Hutten's text with his own introductory remarks shortly after Boerhaave's book came out. He quotes Boerhaave extensively in his introduction, which he mainly uses to explain his choice to translate and republish Hutten's then 200-year-old book. He too emphasizes the age of the original publication with his title *De Morbo Gallico. A Treatise of the French Disease, Publish'd above 200 Years past by Sir Ulrich Hutten.*[27] He does not seem convinced of guaiacum's

healing properties, but recommends continuing experimentation. 'I have made as yet no such Experiments as to be convinced this Elixivium or Decoction of Guajacum will succeed where Mercury will not. I should be glad I am sure as any, to find it will; … especially since it has had of late so famous a voucher as Dr Boerhaave.'[28] The authority of his argument depends on Boerhaave's authority. Though God still had a prominent position in society, a separation between the burgeoning sciences and religion had taken place. For eighteenth-century people, religion was a private matter; God was not to be used as a rhetorical trope. Faith in the developing medical profession and its most skilled actors instead weighed heavily. Though their skills and knowledge would have been seen to have been given by the grace of God, it was their skill that was referred to. By doing so they also emphasized the authority of their own profession, and strengthened their position in the fight against what they saw as quacks. Their somewhat coy treatment of guaiacum should be seen in the light of their desperation to find a better treatment for the still devastating pox, where plenty of alternative cures were promoted. In their caution in recommending guaiacum could be seen a wish to compete in this market for a cure, but still not fall into the role of overzealous quacks themselves.

Denmark–Norway

The stress on an external medical authority as key to validating the use of guaiacum is something we also find in the introduction of the treatment in sixteenth-century Denmark–Norway. It was first mentioned in Christiern Pedersen's *En nøttelig Legebog Faar Fattige och Rige Unge och Gamle* from 1533. It was not the only treatment presented, but it was introduced as an apothecary wood, which is 'the best and most excellent treatment to be had'.[29] The apothecary's role here can be merely one of sharing practical information, telling the reader where they can get hold of the wood. This would have been obvious for the Danish reader, where we know there were apothecaries as early as 1465, but in Norway the first that we know of was established in Bergen in 1588. The book must therefore have been aimed at a Danish audience rather than a Norwegian one.[30] With that in mind, it is tempting to see this as the use of the apothecary as a medical professional to lend

authority to the new treatment. Its argument seems then to centre on an early version of the eighteenth-century authority.

Guaiacum cannot have been in common use this far north by this point, as it was not mentioned at all in the physician Henrik Smith's comprehensive medical book from 1555, despite its detailed account of the pox.[31] I have not been able to find it mentioned in any medical books in Danish in connection with venereal disease until 1755, yet if we look at the lists of goods arriving in Norway, we find that guaiacum was imported from at least as early as 1685 and throughout the eighteenth century, with a marked increase towards the end of that period. Of course, as guaiacum was a wood it could have been imported with other uses in mind rather than medicinal purposes, but the fact that it was shipped in on an increasing scale proves that it was at least known in Norway. This shows that the medical books did not necessarily reflect the treatments and herbs that in fact were in use. As archival material on Norwegian apothecaries is scarce for the period and no ledgers survive that show their stock, it is difficult to prove the scale of guaiacum's medical use in Norway, but medical books and labels on old apothecary jars indicate that it was in circulation.

When guaiacum is mentioned again in 1755, it is in the German physician Christian Weisbach's book, translated into Danish as *Retskafne og grundige Cuur af alle det Menneskelige Legeme paakommende Sygdomme, efter Naturens fornuftige og bestandige Methode*. Here guaiacum is mentioned as just one type of wood to be used in what is described as the 'wood-drink' ('Træ-Drik'), along with sarsaparilla, China root, soapwort, sassafras, juniper, and pimpinella.[32] Guaiacum's power had diminished to the point where it was no longer the single unique plant that could alone heal the sick, but is seen as part of a family of plants that together could have the power to aid those suffering from venereal disease. Even bolstered by other healing herbs, Weisbach still recommends the use of mercury if the illness has progressed too far, though the wood-drink is used alongside of the mercury treatment. Guaiacum's unique standing as the *Pokkenholt* was no more, although it lived on in the still pervasive idea of healing wood. The fact that most of the other plants used in the wood-drink were also indigenous to America and Asia, and consequently had to be imported, gives weight to the argument that foreign and thereby exotic plants were

thought to have particular healing powers for a disease whose origins were still blamed on 'the others', be they Swedes, Germans, French, Italians, or Native Americans.

A few years later, in 1767, the Danish physician Christian Mangor published his book *Et Land-Apothek, til Danske Landsmænds Nytte.*[33] He differentiates between gonorrhoea, syphilis, and Norwegian *Radesyke*, and guaiacum is only mentioned as an ingredient in a cure for the first, when all else fails. As in Weisbach, no explanation is given for its use and expected success. This implies that this was superfluous—it was known and did not require an authority's backing in order for it to be used. But in light of Weisbach's book, we can also see this as part of the reduced status of guaiacum, as just one of many herbs to be used in a concoction to be taken against serious venereal diseases. This was commonly the case in the late eighteenth century Danish medical texts. Guaiacum is suggested in some cases of venereal disease, not all (and in one case for women, not men), without any persuasive argument for its use. But it remained in medical use and was found in the first Danish pharmacopoeia of 1772, again in 1786, and into the nineteenth century. The fact that it continued to be an ingredient in the treatment of venereal diseases in spite of it having to be imported, and presumably despite its expense, tells of the pervasiveness of its initial introduction as a medical herb.

Conclusion

Circulation transforms the knowledge that is in motion. This transformation is imbued with power, the power not only to shape and define media, but to produce and restrict the movement and transformation of knowledge.[34] This power was very much in evidence in guaiacum's circulation in the past. While Latour posited that some objects are unchangeable this was not the case here. Hutten's book, repopularized 200 years after its initial publication, despite meeting with a positive reception, was speaking to a completely different audience and was thereby seen differently. From representing something new and exotic, it became the voice of the past. This historicity of knowledge became more important than its exoticism. By focusing on the materiality of the story we find here two different types of circulation: one in the

sixteenth century, which was concerned with geography and exoticism, and the other only with history. Only by focusing on the object, guaiacum, does this pattern manifest itself.

Guaiacum underwent a journey not only geographically, but also temporally, which reflected these external factors rather than any changes to guaiacum itself. Its local names were dependent on religion and geography. Its conceptualization shifted over time from religious/magical object to mere plant, yet guaiacum continued to be thought of as a medicinal herb. Religious authority and mysticism allowed for a more enduring and persuasive argument to be made, and believed, about guaiacum in the sixteenth century, even in the newly Protestant countries. A greater separation between religion and medicine for medical professionals in the eighteenth century undercut this argument. Medical authority had great power to revive the cure, but not enough to keep it alive. The fact that we can still see it clinging to its medical identity in the late eighteenth century is remarkable, and most likely a credit to the initial power of its argument. Its story tells of the key role that time and argument play in medical treatment, whether a success or a failure, which should be considered when studying any medical history. By focusing on circulation, the forces that shaped guaiacum on its journey become more evident. This brings a greater understanding of why guaiacum became popular in the first place, and why it was brought back into temporal and geographical circulation—though not unchanged.

Notes

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3 Teresa Huguet-Termes, 'New World Materia Medica in Spanish Renaissance Medicine: From Scholarly Reception to Practical Impact', *Medical History* 45/3 (2001); Harold J. Cook & Timothy D. Walker, 'Circulation of Medicine in the Early Modern Atlantic World', *Social History of Medicine* 26/3 (2013); Martha K. Robinson, 'New Worlds, New Medicines: Indian Remedies and English Medicine in Early America', *Early American Studies: An Interdisciplinary Journal* 3/1 (2005).

4 Sanjay Subrahmanyam, Claude Markovits & Jacques Pouchepadass, *Society and Circulation: Mobile People and Itinerant Cultures in South Asia, 1750–1950* (London: Anthem, 2006), 2–3.

5 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: OUP, 2005), 223.
6 Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Milton Keynes: Open University Press, 1987), 227.
7 Max H. Fisch & Dorothy M. Schullian, *Nicolaus Pol Doctor 1494: With a Critical Text of His Guaiac Tract* (New York: Herbert Reichner, 1947); Claudia Stein, *Negotiating the French Pox in Early Modern Germany* (Farnham: Ashgate, 2009), 18. Pol's report was written in 1517, but not printed until 1535, while Hutten's text was printed in 1519.
8 Ulrich von Hutten & Clarence W. Mendell, 'The Remarkable Medicine Guaiacum and the Cure of the Gallic Disease', *Archives of Dermatology and Syphilology* 23/3 (1931): 418.
9 Nicolás Monardes, *Ioyfull Newes out of the New-Found Vvorlde Wherein Are Declared, the Rare and Singuler Vertues of Diuers Herbs, Trees, Plants, Oyles & Stones, with Their Applications, Aswell to the Vse of Phisicke, as of Chirurgery: Which Being Well Applyed, Bring Such* (1596), 10–11.
10 Monardes, *Ioyfull News*.
11 Robert S. Munger, 'Guaiacum, the Holy Wood from the New World', *Journal of the History of Medicine / Allied Sciences* 4/2 (1949): 215.
12 José Rabasa, Ian Hesketh & Daniel Woolf, *The Oxford History of Historical Writing*, iii: *1400–1800* (Oxford: OUP, 2012), 262.
13 Ingar Stene, 'Historiografenes verden: En studie av to skandinaviske forestillinger om verden, endring og kunnskap ved utgangen av det 17 århundret', unpub MA diss., Univeristy of Oslo (2016), 2.
14 Stene, 'Historiografenes verden', 43.
15 Benjamin Schmidt, *Inventing Exoticism: Geography, Globalism, and Europe's Early Modern World* (Philadelphia: University of Pennsylvania Press, 2015), 17.
16 Anthony Grafton, April Shelford & Nansy Siraisi, *New Worlds, Ancient Texts: The Power of Tradition and the Shock of Discovery* (Cambridge, Mass: Belknap, 1992), 84.
17 Hutten & Mendell, 'The Remarkable Medicine', 419.
18 Monarardes, *Ioyfull News*, 11. The value of the exotic imports from America is further emphasized by the English title: 'Ioyfvll newes Out of the New-found Vvorlde'.
19 Keith Thomas, *Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth- and Seventeenth-Century England* (Harmondsworth: Penguin, 1991), 57, 89.
20 Monardes, *Ioyfull News*, 10–11.
21 Hutten & Mendell, 'The Remarkable Medicine', 690.
22 Ibid. 419.
23 Munger, 'Guaiacum', 214–18.
24 Herman Boerhaave, *A Treatise on the Venereal Disease* (London: T. Cox & J. Clarke, 1729).
25 Ibid. 5.
26 Ibid. 76.
27 Ulrich von Hutten, *De Morbo Gallico* (London: John Clarke, 1730).
28 Hutten, *De Morbo*, viii.

29 Christiern Pedersen & Poul Hauberg, *Christiern Pedersens Lægebog* (Copenhagen: Levin & Munksgaard, 1933), lxxxvi.

30 Jan Overø, 'Apotek', *Den Store Danske*, Gyldendal, http://denstoredanske.dk/Krop,_psyke_og_sundhed/Sundhedsvidenskab/Farmakologi/apotek; Finn Erhard Johannessen, 'Jon Skeie, and museum Norsk farmasihistorisk', in *Bitre Piller Og Sterke Dråper: Norske Apotek Gjennom 400 År, 1595–1995* (Oslo: Norsk farmasihistorisk museum, 1995), 8.

31 Henrik Smith & Anna-Elisabeth Brade, *Henrik Smiths Lægebog*, 6 vols (Copenhagen: Rosenkilde og Bagger, 1976), i. 151–58.

32 Christian Weisbach & Carl Jensenius, *Christian Weisbachs Retskafne Og Grundige Cuur Af Alle Det Menneskelige Legeme Paakommende Sygdomme* (Copenhagen: Bekostet af Friedrich Christian Pelt, 1755), 353–54. Many of the ingredients of the wood-drink were foreign (guaiacum, sassafras, sarsaparilla, and China root), and their foreignness was part of their perceived healing abilities.

33 Johan A. Darelius & Christian Elovius Mangor, *Et Land-Apothek, Til Danske Landmænds Nytte* (Copenhagen: Joh. Fr. Heineck og Faber, 1767).

34 Philipp Sarasin & Andreas Kilcher, 'Editorial', *Nach Feierabend: Züricher Jahrbuch für Wissensgeschichte 7* (2011).

CHAPTER 12

The printed work as a site of knowledge circulation

Dialogues, systems, and the question of genre

Helge Jordheim

In shifting our gaze from origins and producers of knowledge to processes and practices of reception and circulation, to 'knowledge in transit', as James Secord puts it, we are faced with the challenge of determining where and at what we direct our attention.[1] Most studies of knowledge circulation, generally inspired by the call to 'follow the actors',[2] set out to trace the movements of certain practices or inscriptions from one site—in the widest possible sense of the word—to another. Included in the idea of sites are thus both sites of knowledge production, such as observatories, laboratories, and offices, and sites of knowledge reception, such as classrooms, public lecture halls, and libraries. Thus, the main task of these studies consists in following how knowledge moves between these sites, and how it is transformed by processes of transfer and translation. In this essay, however, I want to suggest a different idea of the site, and thus a different way of studying the circulation of knowledge.

In the following I will mainly deal with knowledge circulation in early modern print culture, more specifically in the seventeenth and eighteenth centuries in Europe. For this period, most studies of the production, dissemination, and reception of knowledge tend to conceive of the printed work as the vehicle of circulation, an 'immutable mobile' in Bruno Latour's words, by means of print technology, in transit from one reader to the next.[3] Far from rejecting this model of knowledge circulation, this essay will try out a different, somewhat

complementary model, in which published works are no longer by necessity that which moves and circulates. According to an understanding that will be set out shortly, the work is understood less as a vehicle or carrier of knowledge, which in itself is more or less immutable, than as a *site* through which knowledge circulates—given shape, organized, and channelled in different ways. Thus, the work itself mutates from a vehicle to a site of knowledge circulation.

It follows that 'work' is conceived less as an aesthetic category, based on ideas of originality, autonomy, and coherence, and more as a general label, or a container for a wide range of different writing, printing, and publication practices. In addition to the authorial production of meaning, it includes multiple editions, revisions, translations, changing paratexts, and illustrations. The work as a site of knowledge circulation expands both synchronically, in terms of translations and editions in multiple languages, as well as different editions in the same language, and diachronically, in terms of successive new revised editions, with different illustrations, bindings, and prices. Thus, knowledge circulates through the work both geographically and temporally, in different shapes and forms. In this essay, I discuss how works become sites of knowledge circulation, by means of genre conventions, stylistic and terminological choices, and printing practices known from a series of editions and translations, published over the course of a century. The work I take as my case study was one of the greatest bestsellers of late seventeenth- and eighteenth-century print culture: Bernhard de Fontenelle's *Entretiens sur la pluralité des mondes*, first published in 1686.

Fontenelle's *Entretiens sur la pluralité des mondes*

Fontenelles's *Entretiens* is a fairly short text, containing five, later six, conversations. The author was a relatively well-known writer at the end of the seventeenth century, who prior to the *Entretiens* had published works in most of the popular literary genres—poems, tragedies, comedies, and dialogues—with varying degrees of success. Shortly after the publication, he was made the permanent secretary of the Académie des sciences in Paris. The conversations making up the work include two persons, at least until the translator intervenes:

a philosopher, clearly the voice of the author himself, and a certain Marquise de G., who in later research has been identified as modelled on the Marquise de la Mésangère.[4] The two interlocutors are strolling around the rococo gardens of a palace, talking and flirting. In this scene, so familiar from contemporary French and European literature, what stands out is the subject of their elegant, learned, and flirtatious conversation: the Universe. Stars and planets are not evoked solely as an excuse for romantic reveries, but also as objects of scientific, and mainly cosmological and astronomical, discourse, unfolding over the course of five, and in later editions six, evenings.

As a contribution to the scientific revolution—one of the typical grand narratives, or myths of succession, which Secord attacks in his article[5]—Fontenelle's book of astronomy comes across as fundamentally unoriginal. Instead the well-established author employs his considerable literary talent to repeat the most salient aspects of Copernican heliocentric cosmology, based on a Cartesian, radically mechanistic physics, which he systematically strips of all traces of Aristotelian or Christian teleology. According to Fontenelle, the universe is made of an infinite multitude of *tourbillions*—'vortices', 'whirlwinds' or 'whirlings', as Aphra Behn names them in her translation, which we will discuss shortly—each with a star in its centre, always in motion, always in contact with one another. Our solar system, Fontenelle argues, is one such *tourbillion*. In addition, every planet has its own *tourbillion*, and this is why the Moon can be seen to circumnavigate the Earth. In other words, there is no movement in the universe that cannot be explained by reference to mechanistic and atomistic principles, as opposed to transcendent causes or any divine plan or will. In this way Fontenelle places himself firmly in the tradition of Copernicus, Galileo, and Kepler, insisting that objects on Earth and celestial bodies do not belong to different orders of reality, but move according to the same laws of motion that govern the entire Universe.[6] This theory finds its most developed form so far in a work which came out less than a year after Fontenelle's *Entretiens*, Newton's *Principia Mathematica*, published in three volumes in 1687. How these two works, Fontenelle's *Entretiens* and Newton's *Principia*, differ in the ways they circulate knowledge will be a topic for discussion below.

To say that Fontenelle's *Entretiens* was a literary success would be an

understatement. Only two years after the first edition, three English editions were circulating, translated and published by central figures in English print culture. In Fontenelle's lifetime—born in 1657, he lived to be a hundred—the *Entretiens* was published in no fewer than thirty-three French editions, with numerous additions and revisions, and was translated into several languages, such as German, Danish, Swedish, Russian, and Italian. Among the translators were some of the most famous writers of seventeenth- and eighteenth-century Europe, including the English female dramatist and novelist, Aphra Behn, and the leading figure of German Classicism, Johann Christoph Gottsched.

What really caught the imagination of the European reading audience, from England to Russia, from Sweden to Italy, was the fundamental claim that each planet is also a *world*; hence, in the Universe there is not one, but a plurality of worlds. Already half a century earlier, in 1638, John Wilkins had published his *Discovery of a World in the Moone*, republished only a few years later with the explanatory subtitle 'Discourse tending to prove that 'tis probable that there may be another World in the Moone'. But Fontenelle's particular mix of scientific discourse and elegant dialogue had a much wider and more lasting effect on the readers than Wilkins, and changed the concept of the world in a much more pervasive way.[7]

To explain why a work with so little original content became an instant bestseller, critics often refer to Fontenelle's extraordinary abilities as what in English is often called a 'popularizer'.[8] In French, the *Entretiens* has been called *une chef-d'oeuvre de vulgarization*.[9] But, as Secord argues, these kinds of labels—'popular', 'bestseller', a 'sensation'—have no value in themselves, if we do not take the trouble to investigate beyond origins and producers, and try to understand the reception and audiences—the actual circulation.[10] Indeed, this way of reading Fontenelle is a good example of how the lack of focus on dissemination, reception, and circulation risks committing historical fallacies and anachronisms. On the one hand, the idea of 'popularization' or 'vulgarization' ends up reproducing a concept of knowledge that evokes something pure, abstract, and original, produced in the mind of a genius or among a very select elite, later to be watered down and disseminated to broader audiences; and on the other hand, there is always the risk that such an approach projects backwards in history the

idea of 'two cultures',[11] one scientific and one humanist, and recognizes in Fontenelle a kind of bridging figure, whose function is to give the hard sciences a more accessible artistic form.[12] In the late seventeenth and early eighteenth centuries, however, knowledge about nature and knowledge about man, gained using different methods, still existed alongside each other within the same frame of reference. As Anthony Grafton and others have pointed out, the *res publica literaria*, 'the literary republic', did not operate with the same disciplinary distinctions as we do today.[13] On the contrary, 'literary' was to be taken in the widest possible sense, more or less equivalent to the concept that is at the centre of this book—knowledge.

And 'the literary republic' is nothing if not a system of knowledge circulation. In this circulation system, questions of genre and style are more influential and pervasive than questions of discipline and fields, and should not be short-circuited by the introduction of disciplinary borders and clear distinctions between knowledge and dissemination, which were not yet in place. A much more salient and historically reflective question would be how different styles and genres contribute to the circulation of knowledge in different ways. In response to this question, I will first discuss how two different genres operated as sites of knowledge circulation: the dialogue and the system.

Dialogue and system in modern science

In his 1956 essay on the role of 'Renaissance symbolism' in 'the mathematical transformation of thinking' and the emergence of 'the world of modern science', Walter Ong argues that the exploration of Copernican cosmic space—to which Fontenelle is an important contributor—is intrinsically linked to a new way of thinking and writing about the world in general. Following 'the greatest shift in the way of conceiving knowledge between the ancient and the modern world', knowledge is no longer conceived 'in terms of hearing and persons' but 'in terms of observation and sights and objects'.[14] In other words, how one cosmological theory, the Copernican, supplants another, the Aristotelian, is linked to 'even more subtle psychological shifts felt through the whole of society and affecting man's entire outlook on society'.[15]

In somewhat less totalizing language, Ong appears to be making an

argument about genre, and about one genre supplanting another. The genre that is supplanted is the dialogue: an oral exchange between two people in order to arrive at the truth, well known from Plato onwards, and based entirely on sound, hearing, and voice. As Ong would have it, science in the Renaissance was trying to liberate itself from orality and the auditory by organizing objects in neutral geometric space and finding a way of moving from one to the other—a 'method'. In the book in which Ong offers 'full documentation' for his claim, 'largely from original sources' and which carries the title *Ramus, Method and the Decay of Dialogue*, he points out how for Scholastics like Peter of Spain and his successor Peter Ramus, the problem with the Aristotelian notion of dialectics was that it 'conceives of dialectic as a rational structure, more or less involved in dialogue between persons, made up of probabilities only, so that it never arrives at full certainty, but argues from probable premises to probable conclusions.'[16] Modern sciences, on the other hand, base their results on quantification and mathematical method, applied to knowledge objects distributed in a neutral geometrical space. Later editions of Fontenelle's *Entretiens*, not least the German edition from 1780, published by the Prussian Academy of Sciences with comments and copperplates by the leading astronomer of the time, Johann Elert Bode—which was later also published in French and thus elevated Fontenelle's work to the level of science, in a modern sense—adhered to these principles by adding both updated measurements and illustrations.[17] However, the dialogical form, full of rhetorical feints and flirtatious remarks, and completely dependent on the physical presence of people, sound, and hearing in addition to observation, remained and continued to circulate ever new forms of knowledge, even until the present day.

According to Ong, what supplanted dialogue was 'the notion of system', which is an ancient Greek term, translatable into something like 'organized, composite whole'. In the sixteenth and seventeenth centuries 'system' was applied 'to the realm of the mind, and in particular to philosophy';[18] hence we are dealing with a 'philosophical system', imagined like 'something which whirled dazzling around a centre in the mind like the Copernican spheres around the sun, a whole self-contained and independent of the rest of reality'.[19] In his recent book, Clifford Siskin, drawing on Ong, engages 'system as a genre—as

a form that works physically in the world to mediate our efforts to know it' and thus plays a central role 'in the shaping and reshaping of modern knowledge'.[20] Replacing idea or notion with genre means for Siskin to give system a more physical existence, for 'what we see, as with Galileo, operate a computer, or be made on a page, like a sonnet and a letter'; at the same time, and maybe even more important here, it places system into competition with other genres, 'such as treatises and essays'. Siskin continues: 'These genres competed because they shared features with each other, each one is discernible as a kind by the features it has and has not shared with other kinds. In that sense, genres exist in their interrelations with other genres.'[21] Another of these genres, which dominated the sixteenth and seventeenth centuries, was the dialogue, which just like a system had a physical existence based on sound, hearing, and voice, but which organized, operated, and indeed circulated knowledge in a very different way from a system.

For Siskin, the case in point to illustrate the way system is linked to the breakthrough of modern science is Newton's *Principia*, first published in July 1687, only a year after Fontenelle's *Entretiens* and in the same year as its first English translation. Common to both publications, in addition to the closeness of the publication dates, is the exploration of Copernican mathematical and geometrical space. Their ways of performing these explorations, including choice of objects of study, genre, and audience, as well as the implications for the development of modern science, are of course radically different. Newton wanted to reveal the mathematical structure of physical nature, to understand the movements of all bodies, and to be able to calculate them mathematically, according to universal laws; Fontenelle, meanwhile, was less interested in universality than plurality, 'the plurality of worlds', rather than the universality of mathematical principles. In the perspective of the rise of disciplines, which were to become the organizing principle of modern knowledge, Newton becomes the founder of the natural sciences, first and foremost mathematics, physics, and astronomy, and his *Principia* the founding text, whereas Fontenelle's *Entretiens*—after early attempts to include it in the canon of astronomy—ends up on the other side of the great divide between the two cultures, in literature, philology, and history. Only recently, in response to theories about quantum mechanics and the multiverse,

has Fontenelle's work re-entered the discussion of questions in the natural sciences.[22]

A more systematic comparison of the reception of Newton's *Principia* and Fontenelle's *Entretiens* in view of the ongoing reshaping of the modern order of knowledge, with new concepts of information brought on by quantum theory and digital practice, will have to wait for another time. The idea here is rather to point at two different ways in which knowledge circulates and works become sites of knowledge circulation, dependent on the genres these works draw on and deploy. The genres in question are the system and the dialogue. In his discussion of Newton's deployment of the genre of system, Siskin points out how the genre label is taken up in the title of the revised third volume of the *Principia*: *De mundi sistemate*, or in the English translation: *The System of the World*. Even more interesting here, however, is how Newton in his own writing enacts the shift from sound, hearing, and voice—that is from dialogue—to the methodical observation of objects in space, which then are presented as part of a complete, distinct, and spatially conceived system. In this work there is no need for interlocutors and dialogue partners: after Newton had first published on optics in a 1672 article in the *Philosophical Transactions of the Royal Society*, which attracted a great deal of criticism, and involved him in a lengthy discussion, he decided never again to get involved in this kind of philosophical dialogue, but only to present his results as complete and comprehensive systems of arguments.[23] According to Siskin, he not only altered his style, but chose system 'as the form for consolidating and conveying what his new principles could demonstrate'.[24]

Why Newton's choice of the genre of the system, and his rejection of the dialogue, turned out to be one of the most successful rhetorical moves in the history of science, is not the topic of discussion here.[25] Instead, I am interested in a work of scientific prose, which seemingly completely ignores the 'greatest shift in the way of conceiving knowledge between the ancient and the modern world', in Ong's words. It does observe objects in space—indeed an endless number of them—but in the course of representing them it holds on to sound, hearing, and voice, and, most strikingly, the ancient genre of the dialogue. In the long run, in the perspective of the emergence of modern science, this

choice undoubtedly contributed to sidelining Fontenelle's *Entretiens* from scientific discussion, relocating the work in literature and in departments of French. But for a little more than a hundred years, at the same time as the genre of the system kept proliferating and dominating Enlightenment print culture,[26] Fontenelle's dialogues on the plurality of worlds were one of the most prolific sites of knowledge circulation in the Western world. For the rest of this essay I will look at how the genre of the dialogue serves as a site of knowledge circulation by means of the very same conventions and resources that Ong suggested belonged to a premodern ideal of science: voice and person, speaking and listening. Because of its dialogical structure, which, I will argue, includes questions, replies, interjections, corrections, comments, Fontenelle's *Entretiens* becomes a site through which very different forms of knowledge are circulated, and in part rub off on one another: anthropological, theological, and linguistic. The primary materials for observing and analysing these processes of circulation are the translations.

Fontenelle in English

Fontenelle's *Entretiens* was a work on astronomy and cosmology, in which key ideas from the Copernican revolution, combined with Cartesian mechanistic physics, were disseminated by means of a popular literary form of the seventeenth and eighteenth centuries: the dialogue. Facts and conjectures about the size, movement, and inhabitants of other planets, spread out in a universe presumed to be endless, were only some of the many forms of knowledge that circulated through this set of editions and translations. To study the *Entretiens* as a site of knowledge circulation is to study all forms of knowledge that are disseminated in the conversations that make up the book, and that cannot easily be contained within concepts of genre and discipline usually deployed to organize studies in the history of knowledge.

I have analysed the seventeenth- and eighteenth-century translations of the *Entretiens* as prisms or reliefs in order to identify some of the forms of knowledge, concepts, ideas, and tropes, which are circulated in the conversations, and to attempt to identify some of the discourses they originate in or draw from—separate and often quite distinct from

the astronomical and cosmological discourses that they rehearse, or at least pass through.

I will start in London. The only English translation of Fontenelle's *Entretiens* to have received any critical attention, was completed by Aphra Behn and published in 1688 with the title *A Discovery of New Worlds*. As has been discussed at some length by Sarah Goodfellow, Behn was already considered 'unnatural' due to her 'masculine' ambitions to establish herself as a writer and make a living from it. Still, her plays enjoyed wide popularity among readers and were regularly staged at one of the two theatres in London at the time.[27] Even less appropriate for a seventeenth-century woman, however, was her interest in natural philosophy and the translation of scientific works. In the full title of the translation, Behn presents her intentions in translating Fontenelle in more detail: *A Discovery of New Worlds. From the French. Made English by Mrs. A. Behn. To which is prefixed a Preface by way of Essay on Translated Prose; wherein the Arguments of Father Tacquet, and others, against the System of Copernicus (as to the Motion of the Earth) are likewise considered, and answered*. In her preface Behn defends the heliocentric system against critics, who base their criticism less on natural philosophy than on religion, most prominently 'Father Tacquet', the author of 'a large course on Mathematics', probably referring to the Jesuit mathematician Andreas Tacquet and his *Opera Mathematica* (1669) and *Arithmeticae Theoria et Praxis* (1665).[28] What Behn is defending, however, is less the author of the *Entretiens* than Copernican theory. If it serves her purpose of refuting religious criticism of heliocentrism, she is more than willing to attack the very work she is translating. In the preface, Behn admits that she might have written something that 'some may understand as a Satyre against Him'—Fontenelle, that is. She accuses him of having 'turned [this part of Natural Philosophy] into Ridicule' and 'pushed his wild Notion of the Plurality of Worlds to that height of Extravagancy, that we most certainly will confound [his] readers'. Indeed, she ends up denouncing him completely—'one would almost take him to be a Pagan'.[29]

Reading Behn's preface, one is struck by another concern that all but overshadows her need to chastise the author for his frivolous and indeed irreligious speculations about life on other planets: Behn uses

Fontenelle's beautifully crafted conversations between a philosopher and a noblewomen to share and discuss the challenges of translation and the character and peculiarities of different vernaculars, linked to the nations in which they originate. In striking, almost proto-Romantic reflection of the differences between French and English, Behn ends up producing a rather succinct argument for cultural relativism:

> But as the French do not value a plain Suit without a Garniture, they are not satisfied with the Advantages they have, but confound their own Language with needless Repetitions and Tautologies; and by a certain Rhetorical Figure, peculiar to themselves, imply twenty Lines, to express what an English Man would say, with more Ease and Sense in five; and this is the great Misfortune of translating French into English Standard, it is no Translation. If one follows their Flourishes and Embroideries, it is worse than French Tinsel. But these defects are only comparatively, in respect to English: And I do not say this so much to condemn the French, as to praise our Mother-Tongue for what we think a Deformity, they may think a Perfection; as the Negroes of Guinney think us as ugly, as we think them.[30]

Due to the comparative differences between French and English, Behn argues, a literal translation is out of the question. Hence, the specific kind of knowledge that is circulated through Behn's translation consists of a nascent understanding of cultural difference and diversity, responding to the close connection between anthropology and cosmology already at work in the French original.[31]

The extent to which John Glanvill, son of Joseph Glanvill the famous scientist and fellow of the Royal Society, offers a more literal translation of the *Entretiens* can be recognized even from the choice of title. Whereas Behn discards the original French title and replaces it with the more narratively appealing 'A Discovery of New Worlds', Glanvill neither corrects nor embellishes the original. *A Plurality of Worlds* was published in London, in 1688, the same year as Behn's translation, without any kind of preface or dedication—just the text in a version quite faithful to the original. Because most of the translation is so literal, the exceptions stand out even more and can be seen to function as sites of knowledge circulation in their own right. In the

first conversation the philosopher tells the marquise about a 'German named Copernicus':

> seiz'd with the noble rage of Astronomy, he snatcheth up the Earth from the Centre of the Universe, sends her packing, and placeth the Sun in the centre to which it more justly belongs, the Planets no longer turn around the earth, and do not enclose it in the Circles they describe; if they give us light, it is but by chance, and as they meet us in their way.[32]

In this passage Glanvill is more creative than usual in his use of the English language, to great effect. The cosmological drama of the rather neutral French formulation 'il prend la Terre et l'envoie bien loin du centre de l'univers, où elle s'était place' is strongly amplified by Glanvill's use of the expressions 'snatcheth up the Earth' and 'sends her packing' in his explanation of heliocentrism. By this choice of words the Earth is reduced to a random object to be manipulated, at the mercy of a German astronomer, and indeed in the book in question, by his French counterpart. Glanvill offers his readers a warning that the alliance between Christian theology and natural philosophy, dominant in the circles of the Royal Society in the seventeenth century, is about to collapse.

To what extent the speculations about a plurality of inhabited worlds threaten religion is spelled out towards the end of the preface—in the original: 'Quand on vous dites que la Lune est habitée, vous vous representez auβi-tost des Hommes faits comme nous & puis si vous estes un peu Theologien, vous voila plain des difficultez.'[33] Again Glanvill deviates from his literal style of translation: 'When 'tis said the Moon is inhabited, some presently fancy that there are such Men there, as we are, and Church Men, without any more ado, think him an Atheist, who is of that opinion.'[34] The introduction of the word 'Atheist', in terms of what the German historian Reinhart Koselleck would call a *Gegenbegriff*, a 'counter-concept', which is characterized by naming one's opponents, but at the same time delegitimizing them, is striking, since there is no such word in the French original, which has instead 'lots of difficulties', 'plain des difficultez'.[35] His introduction of the concept 'Atheist', which as the historian of atheism Michael J.

Buckley notes entered the English language in another translation, that of Plutarch's *On Superstition* by the Greek scholar Sir John Cheke in 1540, means a specific kind of knowledge is circulated through Glanvill's translation of Fontenelle's *Entretiens*.[36] In Glanvill's translation, the term is used to illustrate a certain kind of theological rhetoric, employed to disqualify natural philosophers of Fontenelle's kind as 'godless', in accordance with the most prominent meaning of the term 'atheism', both in an epistemological and a moral sense, and to ban them from public discourse.[37] In Gavin Hyman's discussion of the rise of the concept in English, he emphasizes how 'atheism' from the mid-sixteenth century onwards increasingly came to signify a position 'outside' and 'external to' to the theological tradition, which had been incomprehensible a hundred years earlier.[38] In Fontenelle's *Entretiens* this view from the outside gains physical, that is, cosmological reality in the claim that there are other planets from which other inhabitants observe the Earth and make judgements about it.

In Behn's translation, the title launches another field of knowledge into circulation. Her title *A Discovery of New Worlds*, which indeed changes the wording to an extent that turns it into a speech act in its own right, echoes the title of another book, it too a bestseller, published almost fifty years earlier: *The Discovery of a World in the Moone* by the Anglican clergyman, later Bishop of Chester, natural philosopher, and co-founder of the Royal Society, John Wilkins. In his book of 1638, Wilkins speculated about the nature of Earth's satellite, the moon, the likelihood of it being inhabited, and of lunar travel. For her translation of Fontenelle, Behn adopts Wilkins' title, but she also makes some small changes: the shift from the definite to the indefinite article indicates that this is just one of an infinite series of possible discoveries, corresponding to another obvious semantic shift, from 'a World in the Moone', in the singular and regarding only one planet, to simply 'New Worlds'. Whereas Wilkins' book and similarly Cyrano de Bergerac's *Histoire comique des États et Empires de la Lune* from 1655 were concerned with the possibility of travelling to the moon, Fontenelle's dialogue presents a much more radical cosmological speculation about the infinite diversity of possible life forms in a boundless universe.

However, by her use of the term 'discovery' Behn also taps into the

language of exploration and colonialism. Famously, the term 'new world', *mundus novus*, was coined by Amerigo Vespucci in a letter to a friend and former patron in Florence in 1503, published in the same year and immediately translated into several European languages. In the conversation on the second evening, Fontenelle draws several parallels between the discovery of other continents and the discovery of other planets, comparing the inhabitants of the moon to the inhabitants of China, Australia, and America. The English edition that most prominently makes use of Fontenelle's text to circulate this kind of colonialist and imperialist fantasies and aspirations is a translation by one 'W. D. Knight', thought to be the initials of the Irish politician and barrister William Domville. Domville dedicated his translation to another Irish lawyer, landowner and prolific natural philosopher, William Molyneux, who had several publications in the *Philosophical Transactions,* and who founded the Dublin Philosophical Society. At first, Domville writes in his preface, he considered Fontenelle's work to be but a 'Diversion':

> But when I consider'd his Chimerical Design (let us suppose it such) of enlarging the French Monarchy beyond the Moon, (for all Discoverys of the Subject belong to the Sovereign;) I grew jealous of the Attempt, and concern'd for the Honour of our Nation, we have hitherto outdone the French by the Progress of our Arms in *this World*, why should we fall short of them in our Discovery of *others*, when a *Chimera* will do the business.[39]

I am not suggesting that Domville's address to Molyneux, and indeed his general ambition to make Fontenelle's work 'more proper for Men'—by which he countered Behn's emphasis on how the book addressed women readers even before her translations reached the press—should be understood as a serious political proposal. Nevertheless, I would like to draw attention to the way he makes use of the *Entretiens* to enact by means of translation, intentionally or not, the interconnections between science and politics, well known from other studies of seventeenth-century history of science.[40] In invoking Molyneux's work on optics he even brings in a specific tool, not the air-pump but the telescope: 'I have rectify'd his French Telescope the

best I could use of an English Eye, and recommend it first to yours as the best Judge that I know, of what may be performed by Opticks.'[41]

What these English translations illustrate is how Fontenelle's work becomes the site for the circulation of various forms of knowledge, ranging from translation and anthropology to theology and atheism. More precisely, knowledge is circulated in prefaces, in which the translators comment on their own translation as well as the original work, pointing out to readers what they should pay attention to and what they should ignore, as well as in the translations themselves, in which choices of wording, such as 'atheism' and 'discovery' and even certain rhetorical phrases, circulate certain kinds of knowledge into the original work, to be received by new audiences. However, the extent to which this kind of knowledge circulation can and does take place is at least in part dependent on the genre of the original text. Translations are activating and reusing structural and rhetorical possibilities, which were already there in the original, but which are used for circulating different new and other kinds of knowledge, as we will see in the German and Danish translations of Fontenelle's *Entretiens*.

German and Danish dialogues

Both the German and Danish translations of Fontenelle are examples of how translators use the genre of the dialogue to circulate different kinds of knowledge, which interest them as much or more than Fontenelle's original cosmological speculations, by inserting their own voices. The translator who is most explicit about this, both in theory and practice, is the dominant figure of German classicism, Johann Christoph Gottsched, famous for his works in rhetoric and poetics, such as *Versuch einer critischen Dichtkunst* from 1729, later ridiculed, especially by the Romantics, for his extreme insistence on the rules of literary production. Less known is his work as what Walter Schatzberg, echoing the critical work on Fontenelle, calls a 'popularizer of science',[42] which begins with his translation of Fontenelle's *Entretiens*, first published in 1726, and then in six editions until 1760. There had been one earlier translation, from 1698, which Gottsched mentions in the preface to the third edition of his own, and in 1780 Gottsched's translation received competition from Bode's much more scientific

and (in Ong's sense) spatial and systematic edition. During almost the entire eighteenth century, however, the German-speaking audience read Fontenelle's *Gespräche von Mehr als einer Welt*, in the translation by the ultimate German classicist.

In the context of this essay, the primary distinguishing feature of Gottsched's translation is how it enacts the dialogical structure of the work and employs it for his own purposes. In the 1751 edition of the translation, Fontenelle's *Gespräche* are published together with the translations of other works by the same author, not least his *Dialogue des morts*, ('Dialogues of the Dead') first published in French in 1683. In addition to prefaces by the translator the book is equipped with a rather comprehensive introductory essay, entitled *Von Gesprächen überhaupt* ('About conversations in general'), in which Gottsched brings up the history of the genre of the dialogue, with examples mostly from Greek or Latin. At the end of the introduction, he arrives at Fontenelle's *Entretiens*: 'Hardly,' he writes, 'have more ingenious conversations been brought to light in modern times.' And he trusts his readers to recognize 'how beautifully he follows every rule for a good conversation, especially in the dialogues about more than one world.'[43] In this way Gottsched the classicist uses Fontenelle's work to communicate both historical and poetological knowledge regarding one of the most prolific and innovative genres of Classicism, both among the Ancients and among the Moderns, the dialogue, thus turning the translation into an addition to or even an extension of his numerous manuals on rhetoric and poetics.

That Fontenelle's conversations about 'more than one world' are formed in close connection with Gottsched's theories of the dialogue can also be recognized in the translations themselves. Whereas the French original is printed as running text on the page, in line with conventions for printing literary prose, the German translation breaks up the text in lines, introduced by abbreviations for names of the persons involved, well known from dramatic texts. By the same revision of the French original, Gottsched, rids himself of the fictional character of the philosopher and simply names the male interlocutor 'Fontenelle', abbreviated 'Font', conversing with 'Die Gr.', short for 'Die Gräfin', or the marquise. In addition to stressing the continuity with the tradition of the dialogue as a genre, especially with the Greek and

Latin models, from Plato to Lucian, excerpts of which are reproduced in the same graphic style in the introduction, by translating lines for both interlocutors Gottsched makes it easier for a third person to join in the conversation—himself. On every page of the translation there are footnotes by the translator, which are not, however, concerned with questions of translation; on the contrary, they should rather be considered to be a third voice entering the conversation, on equal terms as the two others, discussing with them the intricacies of the Copernican cosmology and the theory of a plurality of worlds, and adding elements and suggestions from other authors and works, such as Tycho Brahe or Christiaan Huygens' *Cosmotheoros* (1698). Furthermore, the third voice makes sure that the conversation is updated with the latest relevant astronomical observations and measurements, as well as new explanations and theories, thus ensuring that the dialogue does not freeze or stop, but continues throughout most of the eighteenth century.

The possibility of adding new voices to the conversations is also illustrated in two additional translations, published outside the centres of European Enlightenment, such as London, Dublin, Paris, Leipzig, and Berlin. In 1748, a Danish translation of Fontenelle's *Entretiens* was published in Copenhagen, by Friederich Christian Eilschow, a student of philosophy and medicine, who died at the age of 25, but still managed to translate both Fontenelle and Voltaire, and even to write a couple of books of his own in defence of female philosophers.[44] According to the title page, *Bernhard Fontenelles Samtaler Om Meer end een Verden* has been translated from the latest French edition, but with the notes from Gottsched's German translation. Then there is a second set of notes added by the translator himself.[45] These notes, however, presenting the fourth voice in the conversation (which already included the philosopher, the marquise, and the German classicist Gottsched), are of a very different character than the ones added in the German translation. To a certain extent the entire work, which in the German tradition was firmly placed in the tradition and the structure of the dialogue, is pulled more in the direction of the system. Even though Eilschow knows Gottsched's translation, he does not adopt his restructuring of the text into dramatic lines, and where Gottsched added his comments as footnotes, Eilschow places both

his and Gottsched's comments at the end of the book, in the form of endnotes. A reader might thus feel that there are two conversations taking place in the book, the one between the philosopher and the marquise, the other between Gottsched and Eilschow.

Whereas Gottsched brought to the conversation his knowledge of the latest advances in astronomy and cosmology, Eilschow draws on another field of knowledge entirely—theology. In his comprehensive notes to his translation he lists a series of theological questions and objections concerning Fontenelle's theory of the plurality of inhabited worlds, not unlike the ones we found in the translations by Behn and Glanvill. In his comments on the passage I quoted earlier, where Glanvill added his accusation of atheism and even Behn was struggling to defend the author, Eilschow lists no fewer than six arguments, interpreting, criticizing, and also defending Fontenelle. First and foremost, Eilschow writes, every good Christian should look to himself and his own home, and not be curious about people on other planets. Only God knows all his subjects—'just like the king of Spain knows his subjects both in Spain and in America'.[46] Then, in a second comment, he attacks human hubris, in order to make room for Fontenelle's cosmological speculation in a Christian worldview: good deeds cannot be fully fathomed by any man, His glory is infinite. 'Should all the other globes remain vacant, only because we don't know those who live on them?'[47] And then, after having defended the possibility of a plurality of possible worlds, Eilschow takes one step further: if we were to guess as to the condition of the inhabitants of other planets, we could presume that they are like the spirits of the Bible, good and evil. Based on this, he makes his optimistic conjecture that we who dwell on Earth, the Devils excepted, are 'the only Sinners in the World, the infinitely small evil part of the World compared to the infinitely huge rest, which is completely inhabited by good creatures'.[48]

These comments, partly Gottsched's, partly Eilschow's, continue for 150 pages in rather small print, thus making up a much larger amount of text than Fontenelle's conversations, before they are succeeded, somewhat tongue-in-cheek, by another text by Fontenelle, entitled 'On patience'. After Eilschow's death in 1764, another edition of the translation appeared, which reused Eilschow's translation, but repackaged it completely, replacing the Christian iconography

adorning the first edition, including angels and Hebrew letters, with French rococo gardens and a castle, and also with an altered title to subtly different *Samtaler om Flere end een Verden*. In other words, the conversation continues, only on different levels and with new tools, including visual ones.

Conclusion

In this essay I have attempted to show how a published work, understood to include numerous editions and translations, can serve as a site of knowledge circulation, a site through which many different forms and pieces of knowledge are circulated to readers in different parts of the European republic of letters in the seventeenth and eighteenth centuries. Furthermore, I have argued that this circulation of knowledge is affected by, and even dependent on, the genre of the original work, and how the genre of the dialogue, at the very moment when it is about to be replaced by the system as the genre of knowledge, if we are to believe Ong and Siskin, remains a very effective disseminator of knowledge, both new and old, useful and non-useful, at least for another century. In the context of the history of knowledge, some more general insights can be inferred from this.

Firstly, in attempting to understand and analyse knowledge circulation, works do not have to be understood as closed units, autonomous and self-reliant systems of meaning, or even 'immutable mobiles' that move between sites of knowledge production and reception, without changing their form of content; instead, works can be perceived as much more 'open'—to paraphrase Umberto Eco—and porous artefacts, which expand in time and space, comprise different editions and translations, and through which very different kinds of knowledge circulate.

Secondly, and more analytically and methodologically, this shift in the concept of the work, rendering it at the same time more comprehensive and more porous, demands a different set of reading strategies, in which we try to identify the elements in the works, textual, paratextual, or material, through which different forms of knowledge are installed or seep into the text and are circulated to ever new readers and reading audiences, as sets of possible readings and possibilities for generating knowledge.

Thirdly and finally, the ability of a work to circulate knowledge seems to depend on the genre of the work. Whereas the system might be more effective in arranging and consolidating 'modern science', and establishing the order of disciplines that still organize knowledge circulation in modern society, the dialogue takes on a very different role. Because of its structural openness and open-endedness, the dialogue keeps circulating ever-new forms and kinds of knowledge, at the same time combining them and showing how they overlap and rub off on one another. Another affordance of the dialogue as a genre of knowledge circulation is its ability to invite ever-more voices into the conversation, responding, criticizing and building on what has already been said, across in principle time without limit.

On that note, I would like to return to the present, at a moment in the history of knowledge when the order of disciplines that took hold in the eighteenth century is starting to fall apart, and the belief in the all-comprehensive systems of science is under attack from theories of new multiplicities introduced by quantum mechanics and information theory. Perhaps we should let this feeling of discontinuity with parts of our own past, even our immediate past, prompt us to ask what patterns of knowledge circulation and thus of knowledge can be rediscovered in the forgotten trajectories and roads-not-taken. In the seventeenth- and eighteenth-century genre of the dialogue, exemplified by Fontenelle's *Entretiens*, but of which there are many other examples[49]—cosmology, anthropology, theology, and a whole range of other disciplines—knowledge was brought together and tested in conversation by sound, hearing, and voice. In interesting ways, these works kept knowledge circulating, at a time when the disciplines and silos of the modern order of knowledge were constructed. Perhaps they can do it again.

Notes

1 James A. Secord, 'Knowledge in Transit', *Isis* 95/4 (2004): 654–72.
2 Bruno Latour, *Reassembling the Social* (Oxford: OUP, 2005), 61.
3 Bruno Latour, 'Visualisation and Cognition: Drawing Things Together', in Henrika Kuklick (ed.), *Knowledge and Society: Studies in the Sociology of Culture Past and Present* (Greenwich, Conn.: Jai, 1986), 7–13.
4 Bernhard de Fontenelle, *Entretiens sur la pluralité des mondes* (Paris: Flammarion, 1998), 57 n. 1.

5 Secord, 'Knowledge in Transit', 663.
6 For a discussion of Fontenelle in the context of the 'Copernican Revolution', see Hans Blumenberg, *Die Genesis der kopernikanischen Welt*, iii: *Der kopernikanische Komparativ: Die kopernikanische Optik* (Frankfurt am Main: Suhrkamp, 1981), 726–9 and *passim*.
7 Fontenelle's effect on the concept of the world is discussed in Helge Jordheim, 'The Fontenellian Moment: Revisiting 16th and 17th Century Worlds', in Helge Jordheim & Erling Sandmo (eds.), *Conceptualizing the World* (New York: Berghahn Books, forthcoming 2018).
8 Steven F. Rendall, 'Fontenelle and his Public', *MLN* 86/4 (1971): 496.
9 Christoph Martin's introduction to Fontenelle, *Entretiens*, 23.
10 Secord, 'Knowledge in Transit', 662.
11 C.P. Snow, *The Two Cultures* (Cambridge: CUP, 1998).
12 Nina Rattner Gelbart's introduction to Fontenelle, *Conversations on the Plurality of Worlds*, trans. H.A. Hargreaves (Berkeley & Los Angeles: University of California Press, 1990), xix.
13 See, for example, Anthony Grafton, *Worlds made by Words: Scholarship and Community in the Modern West* (Cambridge, Mass: Harvard, 2009).
14 Walter J. Ong, 'System, Space, and Intellect in Renaissance Symbolism', *Bibliothéque d'Humanisme et Renaissance* 18/2 (1956): 224.
15 Ong, 'System', 227.
16 Walter J. Ong, *Ramus, Method, and the Decay of Dialogue* (Chicago: University of Chicago Press, 2004), 61.
17 *Bernhard von Fontenelle Dialogen über die Mehrheit der Welten: Mit Anmerkungen und Kupfertafeln von Johann Elert Bode, Astronom der königl. Akademie der Wissenschaften zu Berlin* (Berlin: Bey Christian Friedrich Himburg, 1780).
18 Ong, 'System', 232.
19 Ibid. 237.
20 Clifford Siskin, *System: The Shaping of Modern Knowledge* (Cambridge, Mass.: MIT Press, 2016), 1.
21 Siskin, *System*, 2; for a similar take on genres, see Hans Robert Jauss, 'Theorie der Gattungen und Literatur des Mittelalters', in *Alterität und Modernität der mittelalterlichen Literatur: Gesammelte Aufsätze 1956–1976* (Munich: Wilhelm Fink, 1977).
22 Mary-Jane Rubinstein, *Worlds Without End: The Many Lives of the Mutiverse* (New York: Colombia University Press, 2014), 106–126.
23 Siskin, *System*, 100–101.
24 Ibid. 101.
25 Charles Bazerman, *Shaping Written Knowledge: The Genre and Activity of the Written Article in Science* (Madison: University of Wisconsin Press, 1998), 119.
26 Siskin, *System*.
27 Sarah Goodfellow, '"Such Maculine Strokes": Aphra Behn as a Translator of the Discovery of New Worlds', *Albion: A Quarterly Journal Concerned with British Studies* 28/2 (1996), 235.
28 Fontenelle, *A Discovery of New Worlds*, trans. A. Behn (London: William Canning, 1688), 9.

29 Aphra Behn, 'Translator's Preface', in Fontenelle, *A Discovery of New Worlds*, unpag.
30 Behn, 'Translator's Preface', unpag.
31 See, for example, Sauter's concept of 'celestial anthropology' in Michael J. Sauter, *The Liminality of Man* (Lomas de Santa Fe, Mexico: CIDE, 2010).
32 Fontenelle, *A Plurality of Worlds. Written in French by the author of the Dialogues of the Dead. Translated into English by Mr. Glanvill* (London: R. Bentley & S. Magnes, 1688), 38.
33 Fontenelle, 'Preface' in *Entretiens sur la pluralité des mondes* (Paris: Veuve C. Blageart, 1686), unpag.
34 Fontenelle, 'Preface' in *A Plurality of Worlds*, unpag.
35 Reinhart Koselleck, *Vergangene Zukunft: Zur Semantik geschichtlicher Zeiten* (Frankfurt am Main: Suhrkamp, 1979), 211–259.
36 Michael J. Buckley, *At the Origins of Modern Atheism* (Yale: YUP, 2009), 9–10.
37 http://www.oed.com/view/Entry/12450?redirectedFrom=atheist#eid.
38 Gavin Hyman, *A Short History of Atheism* (London: I. B. Tauris, 2010), 4.
39 Fontenelle, *A Discourse of the Plurality of Worlds. Written in the French by the most Ingenious Author of the Dialogues of the Dead and Translated into English by Sir W.D. Knight* (Dublin: Andrew Cooke & Sam. Hather, 1687), 2.
40 See, for example, Steven Shapin & Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: PUP, 1985).
41 Fontenelle, *A Discourse of the Plurality of Worlds,* 3.
42 Walter Schatzberg, 'Gottsched as a Popularizer of Science', *MLN* 83/5 (Oct. 1968): 753.
43 *Herrn Bernhards von Fontenelle, der königl. Priser Akademie der Wissenschaften beständigen Secretärs, und der franz. Akademie daselbst Mitgliedes, Auserlesene Schriften, nämlich von mehr als einer Welt, Gespräche der Todten und die Historie der heidnischen Orakel; vormals einzeln herausgegeben, nun aber mit verschiedenen Zugaben und schönen Kupferns vermehrter ans Licht gestellet, von Johann Christoph Gottscheden* (Leipzig: Bernhard Christoph Breitkopf, 1751), LXI.
44 Friderich Christian Eilschow, *Beviis for at Naturens Lov ej forbyder den Respect for Fruentimmer som Moden har indfört* (Copenhagen, 1748); *Fruentimmerphilosophie i tre Samtaler* (Copenhagen, 1749).
45 *Bernhard Fontenelles Samtaler Om Meer end een Verden. Imellom et Fruentimmer og en lærd Mand: Af det nyeste Franske Oplag oversatte paa Dansk, med Figurer oplyste, med Professor Gottschedenes og egne nye Anmerkninger forsynede af Friderich Christian Eilschow, Phil. Mag.* (Copenhagen: Christoph Georg Glasing, 1748).
46 Ibid. 174–5.
47 Ibid. 177.
48 Ibid. 178.
49 See, for example, James Secord's work on Humphry Davy's *Consolation in Travel* in his *Visions of Sciences: Books and Readers at the Dawn of the Victorian Age* (Chicago: University of Chicago Press, 2015), 34–8 and *passim*.

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