

Heike Jöns · Peter Meusburger
Michael Heffernan
Editors

Klaus Tschira Symposia

Knowledge and Space 10

Mobilities of Knowledge

 Springer Open

Klaus Tschira Stiftung
Gemeinnützige GmbH



Knowledge and Space

Volume 10

Series editor

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Knowledge and Space

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Klaus Tschira Stiftung
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ISSN 1877-9220

Knowledge and Space

ISBN 978-3-319-44653-0

ISBN 978-3-319-44654-7 (eBook)

DOI 10.1007/978-3-319-44654-7

Library of Congress Control Number: 2016959460

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The registered company is Springer International Publishing AG

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Acknowledgments

The editors thank the Klaus Tschira Stiftung for funding the symposia and the *Knowledge and Space* book series. The staff of the Klaus Tschira Stiftung and Studio Villa Bosch have been crucially important for these symposia. Together with all the authors in this volume, we are especially grateful to James Bell for his tireless dedication as technical editor. Volker Schniepp in the Department of Geography at Heidelberg University and Mark Szegner in the Department of Geography at Loughborough University were enormously helpful in ensuring that the figures and maps met the publication standards. We also thank the students of Heidelberg University's Department of Geography who helped to organize the tenth symposium and prepare this publication, especially Helen Dorn, Claudia Kämper, Andreas Kalström, Laura Krauß, Julia Lekander, Solveig Liefefett, Pia Liepe, Anna Mateja Schmidt, Florence Wieder, and Angela Zissmann. We dedicate this volume to the late Klaus Tschira (1940–2015) to express our sincere gratitude for his outstanding long-term support of research and knowledge exchange in geography and associated disciplines.

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Chapter 1

Mobilities of Knowledge: An Introduction

Heike Jöns, Michael Heffernan, and Peter Meusbürger

Wenn man sich zu den Gegenständen selbst begibt, hält man nichts anderes eher für wahr, als bis man es selbst angeschaut hat, so mag der Weg vielleicht langsamer sein, aber er ist auch sicherer und reizender und der Stoff des Nachdenkens ebenso unerschöpflich als die Menge der Gegenstände in der Natur.

If one betakes to the things themselves, one does not accept anything else as truth unless one has looked at it oneself, so the journey may be slower, but it is also more secure and alluring and the intellectual nourishment equally inexhaustible as the amount of things in nature.

(Wilhelm von Humboldt to Friedrich Heinrich Jacobi, 17 November 1788 quoted in Geier, 2009, pp. 93–94; translation by authors).

This book examines how the geographical mobility of people, practices, institutions, ideas, technologies, and things has impacted epistemic systems of knowledge. The pivotal role of such mobilities in the acquisition, exchange, and generation of knowledge is vividly exemplified by the well-known brothers Wilhelm and Alexander von Humboldt, both of whom shaped cultural and intellectual life in eighteenth and nineteenth century Europe. Educated at home by private tutors in Berlin and nearby Tegel until their late teenage years, the Humboldt brothers studied at Frankfurt-on-Oder and Göttingen, where Wilhelm enrolled for law and Alexander for public finance, before the latter moved to Freiberg to continue his education in mineralogy and geology. During their time at university, the Humboldt brothers undertook separate European tours on which they met leading intellectuals, including the naturalist Georg Forster, veteran of James Cook's Pacific explorations. In 1789, Alexander toured the basalt landscapes of the Rhine, while Wilhelm

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H. Jöns et al. (eds.), *Mobilities of Knowledge*, Knowledge and Space 10,
DOI 10.1007/978-3-319-44654-7_1

witnessed the early days of the French Revolution in Paris, recording his impressions in a famous diary (Geier, 2009).

The travel experiences of the two brothers in this formative era had a discernible impact on their characters, interests, and subsequent mobilities. Alexander became one of the most accomplished and esteemed scientific travelers of the age, exploring remote landscapes and environments, especially in Latin America, and transforming the emerging disciplines of geography and the natural sciences (Rupke, 2005). His brother meanwhile, residing in the cities of Jena, Paris, Rome, and Berlin for most of his professional life, developed an essentially sedentary mode of humanistic research in philosophy and linguistics that was interspersed with stints in the Prussian diplomatic and educational civil service during which he established the new University of Berlin more or less single-handedly in 1809–1810 (Anderson, 2004). Together the Humboldt brothers epitomize the important role of geographical mobility for education and learning, and how knowledge production in different academic fields, or, more generally, the production of different types of knowledge, implies varying degrees of mobile and sedentary professional lives.

The essays in this volume follow in the footsteps of the Humboldt brothers by examining the role of geographical mobilities in the production and circulation of knowledge in different historical and geographical contexts. We define mobility as an entity's change of position in a specific system (Bähr, 2010), whether this relates to people, material things, or knowledge in geographical (King, 2012), social (Bourdieu, 1986), and/or epistemological space (Barnett & Phipps, 2005). The book *Mobilities of Knowledge* directs attention to geographical mobilities *for* knowledge in the process of its production and *of* knowledge as part of its dissemination and transfer, while stressing that geographical and epistemological movement across different places and fields of knowledge are closely intertwined (Barnett & Phipps, 2005). Three key research questions inform the individual analyses in this book: What role has geographical mobility played for the production and dissemination of knowledge in different historical, geographical, and sectoral contexts? How have different types of knowledge, as well as related practices and products, been transferred between individuals, institutions, and places? And to what extent have knowledge and its mediators, as well as places of origin and destinations, been transformed through geographical mobility and shaped by varying social, cultural, economic, and political contexts?

The contributions to this book build on research about the creation, mobility, reception, and geographical distribution of different types of knowledge in hitherto largely separate fields of inquiry, such as organization theory, the history and geography of science, the history of geography, migration studies, and the geographies of education. They specifically add detailed case studies and conceptual considerations to existing research in the geographies of science (e.g., Driver, 2001; Gregory, 2000; Heffernan, 1994; Keighren, Withers, & Bell, 2015; Livingstone, 2003; McEwan, 2000; Meusburger, Livingstone, & Jöns, 2010; Powell, 2007; Simões, Carneiro, & Diogo, 2003) and the migration of skilled people (e.g., Findlay & Gould, 1989; Salt, 1997; Smith & Favell, 2006; Van Riemsdijk & Wang, 2016). Scholars working in these areas have traced, analyzed, and critiqued the highly uneven mobile spaces of knowledge production and dissemination at different

geographical scales, focusing on professionals in high-tech industries (e.g., Harvey, 2009; Saxenian, 2006; Van Riemsdijk, 2014) and advanced producer services (e.g., Beaverstock, 2005; Beaverstock & Hall, 2012; Fechter & Walsh, 2012; Walsh, 2012), on researchers and academics (e.g., Ackers, 2005; Heffernan & Jöns, 2013; Jöns, 2003; 2007, 2015; Leung, 2013; Pietsch, 2013; Storme, Faulconbridge, Beaverstock, Derudder, & Witlox, 2016), and on international students (e.g., Alberts & Hazen, 2013; Brooks & Waters, 2011; Findlay, King, Smith, Geddes, & Skeldon, 2012; Geddie, 2015; Holloway, O'Hara, & Pimlott-Wilson, 2012; King & Raghuram, 2013; Madge, Raghuram, & Noxolo, 2015; Waters, 2012).

Drawing on the work of the sociologist John Urry (2000, 2007), the social sciences have recently developed a growing interest in everyday mobilities and the underlying material and technological embodiment of human agency. Conceptualizing social relationships as diverse connections at a distance, the emphasis of this research has been directed at the circulations sustaining such social relationships through the physical movement of people and multiple technologies of travel and communication (Sheller & Urry, 2006; Urry, 2007). Geographers have contributed to mobilities research by focusing on the practices, experiences, and representations of previously under-researched everyday mobilities across multiple scales, and their constitutive infrastructures, such as railways, motorways, and airports (e.g., Adey, 2010; Cresswell, 2006; Cresswell & Merriman, 2011; Merriman, 2012). Other authors have used related ideas for enriching work on established forms of human mobility and migration (e.g., Blunt, 2007; King, 2012; Storme et al., 2016; Waters, 2016), even if the geographer Russell King (2012) remarked critically that “the mobilities paradigm is so obviously about human movement over space and between places that geographers take this subject matter for granted” (p. 143).

The case studies included in this book can usefully be situated within Urry's (2007) “five interdependent ‘mobilities’” (p. 47) that he considers to be co-constitutive of social relationships over distances. This is because the chapters of this volume focus variously on what Urry (2007, p. 47) identified as the “corporeal travel of people” (e.g., chapter by Ellis); the “physical movement of objects” (e.g., chapter by Bloom); “imaginative travel” (e.g., chapter by Keighren); and “communicative travel” (e.g., chapter by Meusburger); while also addressing the role of “virtual travel” in contemporary mobilities (e.g., chapter by Mbah). Interestingly, Urry's (2007) focus on the material and communicative constitution of mobility systems seems to have led to the neglect of knowledge and concepts as the immaterial counterpart to material objects circulating in time and space. This resonates with Jöns's (2001, 2003, 2006) critique that actor-network theory has undervalued the focus of social constructivism on human interests, beliefs, and prior knowledge when stressing the material constitution of scientific knowledge production (see, in particular, the debate between Bloor [1999] and Latour [1999]). Her subsequent integration of these two complementary research foci in a “trinity of actants” outlines how both material and immaterial entities are produced, mediated, and transformed through the practices of humans and other “dynamic hybrids”, including non-human organisms and certain machines such as robots (Jöns, 2006), and thus need all to be considered as mediators and outcomes of socio-cultural/material relationships (Jöns, 2001, 2003).

Drawing on these insights, we suggest adding a sixth dimension to Urry's (2007) interdependent forms of mobility—circulating knowledge, concepts, and practices—as discussed in the chapter by Waters and Leung regarding the mobility of university degree programs from the United Kingdom to Hong Kong. Waters and Leung (2013) have shown that this form of transnational education has produced ambiguous results for Hong Kong graduates, with prospective employers in Hong Kong often expecting them to have gained authentic British cultural and linguistic experiences because they received a degree from a British university. Offering the British university degree in Hong Kong does, however, rarely include international mobility to the home university and thus fails to equip graduates with important embodied skills that university studies in Britain would provide (see also chapter by Waters and Leung). In a different case study context, Freytag (2003, 2016) has argued that the historically and ongoing underrepresentation of Hispanic university students and academics in comparison to their non-Hispanic White peers at the University of New Mexico, United States, can be explained by the identity struggle most of them, and especially those from rural areas, face when adjusting to Anglo-American educational practices and standards that tend to be at odds with their Hispanic cultural ideals, practices, and value systems. In both cases, the geographical movement of concepts and institutions—to Hong Kong and to New Mexico—thus devalued local cultural experiences and created the need for immobile local populations to adapt to the practices, knowledges, and values of a mobile system of educational standards representing a largely unfamiliar cultural context to them.

The suggestion to extend Urry's (2007) interdependent mobilities from five to six dimensions through the inclusion of mobile knowledge, (institutional) concepts, and practices, as displayed in Table 1.1, can be justified in two ways. Firstly, this revised set of dimensions covers themes and conceptual considerations in previous research on travel, mobility, and migration conducted in geography and associated fields about the nature, or ontology, of travelling entities that are represented in this book (see also Jöns, 2006, 2007). Secondly, this conceptual move speaks to “the open nature and strategic diversity of the mobilities field” (Faulconbridge & Hui, 2016, p. 1), thereby underlining its connectivity to a range of existing debates across the social sciences and humanities. Such an open-ended approach to conceptual debates informed by previous studies also helps to shed a slightly different light on some of the novelty claims and hyperbole of the “new paradigm” language that inform key writings on what Urry (2007) himself presented as the new “mobilities paradigm” (p. 44). This is because recent work identifying with this agenda has indeed extended the researchers' gaze to previously under-researched scales and themes in a rapidly diversifying intellectual debate about travel, mobility, and migration, but at the same time this work has neglected links to well-established lines of inquiry such as Castells's (1996) concept of the “space of places” and the “space of flows” (pp. 423–428) as the two main spatial logics of human societies (see chapters by Taylor and Beaverstock). A closer engagement with this concept and Castells's (1996) three layers—the “material support of the space of flows” (p. 412), namely “a circuit of electronic impulses” (p. 412), “its nodes and hubs”

Table 1.1 Six interdependent forms of mobility

No.	Mobility of	Examples of knowledge production	Conceptual ideas	Authors
1.	Material things	Samples, specimen, instruments, books	Economic capital and objectified cultural capital Immutable mobiles	Bourdieu (1986) Latour (1987)
2.	People, other organisms, and robots	Students, researchers, military dolphins, Mars rover	Cyborgs Dynamic hybrids	Haraway (1991) Jöns (2006)
3.	Knowledge, concepts, and practices	Experiences, skills, institutions, forms of governance	Institutionalized and embodied cultural capital Ideoscapes	Bourdieu (1986) Appadurai (1990)
4.	Imaginations and representations	Geographical imaginations, stereotypes, mental/visual images, big bang theory	Orientalism and Eurocentrism Symbolic capital	Said (1978) and Gregory (1998) Bourdieu (1984)
5.	Communication	Speech, phone, letters, fax, text messages, emails, signals	Local buzz and global pipelines Communicator–recipient model	Bathelt et al. (2004) Meusburger (2009)
6.	Virtual information	Internet browsing	Technoscapes Information technology revolution	Appadurai (1990) Castells (1996)

Adapted from Urry, 2007, p. 47; Jöns, 2001, p. 118; Jöns, 2006, pp. 573–574 (Design by authors)

(p. 413; e.g., hi-tech parks, global cities), and “the spatial organization of the dominant, managerial elites” (p. 415)—might have shed a different light on Urry’s assessment that Castells’s (1996) “account is overly cognitivist” (Urry, 2007, p. 163) and thus prevented a similar conceptual oversight of knowledge and concepts as in one of its main sources of inspiration—actor-network theory (Jöns, 2006).

Building on a rich literature about knowledge production and dissemination in different disciplines, we define the rather elusive concept of knowledge in agreement with the sociologist Nico Stehr (1994) “as a capacity for social action” (p. 95). This capacity can relate to *codified* (or *explicit*) knowledge as “the kinds of knowledge that can be expressed formally in documents, blueprints, software, hardware, etc.” (Dicken, 2015, p. 108), thus representing the *know-what* and *know-why*, or to *tacit* (or *implicit*) knowledge as “the deeply personalized knowledge possessed by individuals that is virtually impossible to make explicit and to communicate to others through formal mechanisms” (Dicken, 2015, p. 108), also referred to as the *know-how* and *know-who* (Williams & Balaz, 2008, p. 57; for a critical perspective

on this codified/tacit binary, see chapter by Meusburger). Accordingly, the economic geographer Edward Malecki (2010) regards knowledge as being “more than data and information...less than competence, expertise, creativity and, certainly, wisdom...A simple view of knowledge, then, is that it is accumulated information and prior knowledge, providing skills and insights that can be used in future contexts” (p. 498).

From a geographical perspective, Meusburger (2000) has argued that it is of prime importance to differentiate between different types of knowledge and information because these imply varying degrees of spatial concentration, availability, and transferability, for example, when studying the spatial organization of work places. He showed that in a vertical division of labor, jobs requiring expert knowledge and highly skilled decision making are to be found at the upper level of organizational hierarchies and tend to be spatially concentrated, whereas low-skilled, routine tasks in production and services are mostly situated at lower levels of organizational hierarchies and spatially more decentralized, thus giving rise to complex spatial patterns of centers and peripheries that persist for a long time but also change due to organizational restructuring and the migration of people with different sets of skills (Meusburger, 1980, 2000).

According to Meusburger (2000, 2008), at least four types of knowledge and information can be differentiated based on their spatial ontology: (a) secret knowledge that is spatially most concentrated and not released as long as its control provides a competitive advantage and increased power; (b) tacit knowledge that is spatially concentrated because it is embodied in a select number of often talented and well-educated people—such as the Humboldt brothers—and requires advanced skills and often face-to-face interactions to be fully understood; (c) codified knowledge that is more widely available but also requires previous training to be taken on, decoded, and employed further; and (d) information that is widely available and highly mobile because it is easily articulated, disseminated, and understood without (much) prior knowledge, with its distribution being as ubiquitous as the required communication channels and infrastructure.

Depending on the degree of complexity and specific conditions at the site of both producers and receivers, these different types of knowledge and information also travel across space at varying speeds and are understood more or less easily by their potential receivers. Successful transfer of knowledge and information largely depends on the interest of knowledge producers to release knowledge and information (free of charge) and their abilities and resources to create and finance infrastructures and platforms required for such transfer to occur. The outcome is also contingent on the receivers’ prior knowledge, level of information, access to communication technologies and (temporary) knowledge clusters, and their ability and willingness to accept received content that may conflict with their personal experiences, values, and cultural identities—an aspect that is inextricably linked to that information’s usefulness to those in power or those gaining power (Meusburger, 2000, 2008; and chapter by Meusburger).

Drawing on work about the role of travel for the production of knowledge across the sciences and the humanities, Jöns (2003, 2007) found that the need for

geographical mobility arises partly from the place-specificity of different research practices and varies systematically along two dimensions: firstly, different degrees of materiality and immateriality (hence their conceptual integration in a trinity of actants); and secondly, different degrees of standardization. If the constitutive entities of knowledge-producing practices are characterized by a high degree of materialities that cannot be moved easily, such as field sites, groups of people, events, technical infrastructure, and archival documents, researchers may need to access specific places for their research at least once, as was exemplified by Alexander von Humboldt's highly mobile life as a transcontinental scientific traveler. Those scientists and scholars working primarily with immaterialities, such as theories, concepts, and ideas, are, in contrast, as mobile as the physical vehicles of these immaterial entities allow them to be (e.g., the researchers themselves, collaborators, computers, books). This means that they could theoretically work in different locations but often do not need to travel at all, and thus historically either conducted their research at home or traveled for informal peer discussions (Heffernan & Jöns, 2013). In Wilhelm von Humboldt's professional life, this was expressed through his largely sedentary humanistic research and writing in Jena, Paris, Rome, and Berlin.

In the case of a high degree of materiality, unstandardized physical field sites may be unique and thus require access through research travel, whereas highly standardized laboratory equipment may be found at several sites accessible to the networks of science, thereby offering more choice in regard to the research location. Within the theoretical sciences that show a higher degree of immateriality, research practices range from highly standardized, thus more ubiquitous, discourses in the natural and technical sciences (e.g., formulas) to less standardized, thus more place-specific and individualized, argumentative-interpretative work in the arts and humanities (e.g., writings building on a range of different authors and perspectives). The resulting three-dimensional matrix on the spatial relations of different research practices at different stages of the research process illustrates that the more immaterial and standardized the research practice, the lower is the place-specificity of one's work and the easier it would be to work at home or elsewhere; and the more material and unstandardized the research practice, the higher is the need for geographical mobility (Jöns, 2007).

Mobilities of knowledge thus vary substantially by the type of knowledge, subject-specific research practices, and the stage of knowledge production and dissemination. This needs to be considered when comparing the chapters in this edited book about mobilities of knowledge in different historical geographical contexts, sectors, and practices of both past and present knowledge-based societies (Burke, 2000). Generic concepts explaining the close links between fixities and flows (Cresswell, 2006), places and mobilities (Merriman, 2012), and centers and circulations (Jöns, 2015) in the constitution of Foucault's (1977) power/knowledge include De Certeau's (1986) notion of the "stockpiling" (p. 146) of knowledge through a series of episodic circuits involving a repetitive going out into the world and returning to a home base, where the accumulated knowledge and information are combined and interwoven to coherent and often linear narratives. Crang (2003) pointed out that Latour (1987) depicted this relationship in fairly similar ways when

discussing systematic “cycles of capitalization” in “centres of calculation” (p. 220) that have multiplied since early modern times and contributed to the global diffusion of European science, capitalism, and imperialism (see chapter by Jöns). The latter can be understood as venues in which the production of new knowledge builds upon the mobilization of heterogeneous resources that are subsequently systemized, classified, combined, and transformed to create new intellectual arguments and knowledge products.

Repeated circular movements have played a particular important role in the rise of knowledge centers, but Jöns (2015) has further argued that both incoming and outgoing circular, linear, and reciprocal movements can contribute to cumulative processes of knowledge production in the host and the home institutions and thus raise their centrality within local, regional, national, and global knowledge networks. The idea that multidirectional mobilities of knowledge can reinforce the centrality of particular sites is particularly evident in Castells’s (1996) notion of the “space of places” and the “space of flows” (pp. 423–428) because the movement of mobilities within the constitutive circuits of electronic exchanges, as well as of the flows of managerial elites between global cities, can be circular, linear, or reciprocal. The chapter by Taylor uses this theoretical framework to clarify controversial debates in archaeology and the social sciences about the origins of cities and agriculture by pointing out that flow-based cities preceded the rise of place-based agriculture.

Against these conceptual backgrounds, the peer-reviewed essays of this book are grouped according to two different research foci on the mobilities of knowledge. In the first part, authors examine the circulation, transfer, and adaptation of knowledge and its constitutive (im)materialities with an emphasis on the inter-personal communication process (chapter by Meusburger), techniques of papermaking (chapter by Bloom), the production and circulation of a geographical text (chapter by Keighren), indigenous knowledge in European exploration (chapter by Driver), the genealogy of spatial analysis (chapter by Barnes and Abrahamsson), and different disciplinary knowledges about the formation of cities and agriculture (chapter by Taylor). In the second part, authors analyze the interplay of mediators, networks, and learning by studying academic careers, travels, and collaborations for knowledge production in the British empire (chapters by Ellis; Pietsch; Jöns), public internationalism in early twentieth century Geneva (chapter by Herren), the mobility of corporate knowledge through expatriates in global cities (chapter by Beaverstock), graduate mobility from the global south to the global north (chapter by Mbah), and the mobility of higher education degree programs from Britain to Hong Kong (chapter by Waters and Leung).

The transfer and adaptation of knowledge and ideas has traditionally centered on human beings interacting in environments more or less instructive for such exchange and has subsequently been mediated by different communication technologies. Peter Meusburger’s chapter examines the microprocesses that shape the communication of different types of knowledges between a source of knowledge and its potential recipient. Emphasis is on the reasons why the communication of different types of knowledge and information is more or less successful and how this process

is shaped by different environments. Meusburger argues that a comparable level of prior knowledge and expertise on the side of the source and the potential recipient is crucial for successful knowledge transfer to occur, and that new communication technologies have increased rather than decreased spatial inequalities in the access to knowledge because only relatively standardized and lower value knowledge and information are freely accessible and comprehensible, whereas higher value and tacit knowledge require previous investment of time and money on the side of the recipient in order to be fully understood and utilized. This problematizes the popular binary of implicit/explicit knowledge and means that not only knowledge sources but especially competent receivers are spatially more concentrated than in the case of lower value types of knowledge and information. By discussing several steps of the communication process that can lead to misunderstandings, distortions, loss of information, and an eventual failure of knowledge transfer, Meusburger's outline of a communication model opens up avenues for future research on knowledge transfer in different empirical contexts.

Jonathan Bloom's chapter provides a detailed account of the transfer of paper and papermaking from central China, where it emerged c. 200 BCE, through mercantile and missionary traffic via the Islamic lands to Europe in a journey that lasted more than a millennium and was only completed by the 1500s. Bloom shows how the nature of paper and the spatial diffusion of the material practice of papermaking were shaped by the regional availability and cultural preference of raw materials and also transformed in different local environments according to the most suitable processing technologies such as human-, water-, or wind-powered paper mills, thereby being mediated by both varying physical and cultural contexts. Bloom's account also discusses how paper replaced the more traditional writing materials papyrus and parchment in the Arab Mediterranean lands, encouraging an extraordinary period of flourishing book-learning and scholarship, and how the Europeans subsequently adopted the technique of papermaking in such an efficient way that they quickly supplanted Arab producers of paper in their home markets through growing exports. By outlining the paradox that this longstanding and complex cultural geography of papermaking was subsequently largely forgotten in Europe and thus gave rise to the Eurocentric myth that the Chinese learned this technique from the ancient Egyptians, Bloom highlights the need to interrogate popular discourses and established bodies of knowledge through careful historical geographical scholarship.

By the time of Innes Keighren's case study on the production and circulation of the book *Travels in Europe, Asia, and Africa* (1782), paper-made books had become the main source in Britain and other European countries for informing wider publics about different places near and afar. Keighren's entertaining narrative traces how this first extra-European travel account published by John Murray, Britain's leading publisher of travel accounts in the nineteenth century, was mediated, translated, and received by multiple audiences in Britain, Ireland, Germany, and France. Keighren unravels how critics suspected that this highly popular anonymous and politically contentious account based on letters of the commercial traveler William Macintosh had been covertly upgraded in style by an accomplished literary editor. He discusses

how this lowered the credibility of the book's truth claims and impacted Murray's subsequent publishing practices but did not diminish the book's overall success. Within Britain, the book's radical content in the form of a highly critical account of Britain's imperial rule in India, in particular of the East India Company, stimulated harsh protest and refutation by offended colonial administrators, while it facilitated its republishing in Dublin and translations into German and French because it appealed to fellow humanists abroad. By arguing that the sophisticated strategies employed for appropriating the presentation of Macintosh's book to the needs of diverse interest groups outside of Britain facilitated its travels but changed the meaning of its political and geographical content through contextualization, Keighren stresses that successful knowledge transfer between different cultural contexts requires epistemological adaptation.

Driver's chapter discusses how conventional narratives of European exploration can be critically interrogated by unearthing the hidden histories of exploration from the archives. His chapter outlines some of the inclusive strategies that his team of researchers developed in collaboration with exhibition designers and colleagues at the Royal Geographical Society with the Institute of British Geographers (RGS-IBG) when preparing the exhibit *Hidden Histories of Exploration* at the RGS-IBG. The first strategy was to present the exhibit on two levels of the RGS-IBG in order to enroll the interested public in active knowledge production through access to the otherwise exclusive RGS-IBG research library. The second strategy aimed at telling the stories of largely forgotten indigenous people and intermediaries in the course of nineteenth and early twentieth century European explorations by valuing their local support and contributions to the explorers' growing knowledge and expertise as much as that of the often well-known, and heroically commemorated White explorers through the juxtaposition and naming of hitherto unnamed people carrying equipment, taking photographs, and guiding the way through territory familiar to them but not the explorers. Driver's account shows that in the late nineteenth century, it often required unconventional voices, such as that of the British colonial governor's daughter, to document biographical details of supportive Swahili women and to record their individuality and achievement in visual and textual form, but that by the mid-twentieth century, partly on the initiative of local populations, explorative knowledge production was increasingly portrayed as the collective endeavor it had always been.

During the 1950s, a new paradigm emerged in university-based geographical knowledge production—spatial analysis. The chapter by Trevor Barnes and Christian Abrahamsson traces the recorded development of this mathematical approach to the analysis of complex geographical configurations back to Alexandria in ancient Greece. It was then prominently taken up in fifteenth-century Bologna, mid-seventeenth century Amsterdam and late seventeenth-century Cambridge before it gained popularity via Walter Christaller's (1933) notion of central place theory in Freiburg, Tartu, and Lund and began to shape Anglo-American human geography, especially in Iowa and Seattle, during the 1950s and 1960s. Barnes and Abrahamsson conceptualize their geographical history of ideas as place-based knowledge production in creative milieus provided by heterotopias (Hetherington, 1997), truth spots (Gieryn, 2002), and centers of calculation (Latour, 1987) that are

linked with each other and to further places by diverse mobilities and circulations of people, resources, and ideas. Their people-centered account confirms the important role of academic mobility and migration for the international transfer of ideas, and stresses two further conceptual points, namely that the spatial science approaches transformed and evolved along the way and, as Burke (2000) has shown for early modern intellectual movements, could only flourish at a new and a peripheral institution because these were not under the spell of the regional geography paradigm and networks dominating human geography in the United States at the time.

Peter Taylor's chapter challenges conventional disciplinary knowledges in archaeology and the social sciences about the origins of cities, states, and agriculture. Taylor argues that the path dependency of academic knowledge production since the nineteenth century, when a division of labor between different university disciplines emerged, has resulted in an emphasis on understanding the emergence of states in the social sciences and agriculture in archaeology, thus leading to a neglect of the significant role of cities as drivers of social change. With a flow-based conceptualization of practical knowledge production in ancient trade networks that led to the formation of trade hubs, which subsequently grew into cities, Taylor develops the revolutionary argument that cities as centers of practical knowledge production produced both place-based states and agriculture. By examining the formation of disciplines in the nineteenth century, he explains that this reversal of prominent narratives in the social sciences and archaeology can only be proposed by an outsider who has not been indoctrinated with the apparent truths of long-established and reproduced disciplinary canons and can therefore interpret existing findings in a novel way. Taylor's chapter is thus a prime example of how a geographical perspective, which is open to epistemological pluralism because of its intradisciplinary diversity (King, 2012), can productively link debates about academic and practical knowledge production and help to question established truths produced within more rigid disciplinary frameworks.

From the perspective of people as key mediators of knowledge production and dissemination, the second set of essays demonstrates how important people's embeddedness within networks is for processes of learning, education, the production of new knowledge, and professional careers. Heather Ellis' chapter adds to debates about the role of empire for the production of knowledge by interrogating the extent to which British and other European academics identified with the British imperial project when using its infrastructures for their research during the nineteenth and early twentieth centuries. By examining the travels and collaborations of university scientists and scholars across the sciences and the humanities, she fleshes out a diverse spectrum of constellations, ranging from those individuals who were interested in supporting the cause of empire through their academic research, via those who used imperial infrastructures for their work but also ventured out of imperial territory if academic needs arose, to cosmopolitan academics propagating scientific internationalism, and those who, in similar ways as Keighren's William Macintosh a century earlier, actively critiqued imperial practices. Ellis therefore argues that the geographies of academic mobility and collaboration were not necessarily linked to the researchers' identification with wider political projects such as

British imperialism but often mediated by convenient transport and research infrastructure. In her opinion, those more open-minded academics from Britain and elsewhere, who made empire what she calls “a truly international space of research,” would deserve more scholarly attention in future studies.

Pietsch’s chapter examines more permanent but still frequent moves of academics for university positions between Britain, its settler empire, and other colonies by discussing the varying and changing nature and geographies of appointment practices at universities in Britain, Canada, Australia, New Zealand, South Africa, India, and South East Asia from the 1850s to 1940. Pietsch shows how in this period the gradual professionalization of academic work, prominently marked by the appointment of the Royal Commissions on Oxford and Cambridge in 1850, 1872, and 1919, and its progressive specialization meant that appointment criteria evolved from personal patronage and the word of scholarly gentlemen, via appointments based on the assessment of a combination of merit, such as first-class examination performance, and gentlemanly character through generalist selection committees, to specialized assessment procedures based on a combination of discipline-specific appointment committees, interviews, and personal knowledge about the candidates. These changing appointment practices remained strongly grounded in personal systems of trust, but Pietsch outlines how their nature varied in different places by cultural habits, forms of governance, and distance from Britain and became more independent from the British motherland over time. The resulting geography of imperial appointment practices based on British and antipodean alumni and friendship networks saw a highly exclusionary, classed, gendered, and raced reproduction of what Pietsch (2013) called the “British academic world” in settler universities, leaving out women, Jewish, Indian, U.S. American, and non-British European scholars, the latter two of whom constituted their own academic circuits (Honeck & Meusbürger, 2012).

Examining the changing geographies of academic travel from the University of Cambridge across all disciplines from the 1880s to the 1950s enables Heike Jöns to assess in her chapter the extent to which Cambridge academics travelled to different parts of the British empire in comparison to other destinations. Her study shows how imperial destinations were frequented more in the decades before 1945 than in the one afterwards but consistently less than the emerging hegemonic research institutions in the United States. These geographies varied not only by discipline and research practice but also by different types of academic work because the United States was most often visited for invited lectures, visiting posts, and research, whereas colonial destinations attracted most academics for advisory work and research, especially at the crisis-prone eve of decolonization that led to a postwar shift of imperial travels from British India to British Africa. Jöns exemplifies the close link between academic expertise, imperial governance, and friendship networks using the example of the most frequent overseas traveler from Cambridge in the period of interest, Sir Frank Leonard Engledow, Drapers’ Professor of Agriculture from 1930 to 1957. By advising colonial governments and corporate institutions on tropical agriculture, Engledow contributed to Britain’s colonial reform movement of the late 1930s, to African postwar empowerment through education, and to an

increasingly uneven integration of different parts of empire into British academic networks. However, due to his focus on imperial networks and the tropics, he did not participate in the growing Americanization and Europeanization of academic travel from Cambridge after 1945. Drawing on Tilley (2011) and complementing Ellis's analysis, Jöns argues that because of Engledow's ambivalent positionality, his academic advisory work both supported and undermined imperial rule.

Ambivalence is a concept that also features prominently in Madeleine Herren's analysis of the spatialities of public internationalism in interwar Geneva as she argues that this characterized the international "spirit of Geneva" after World War I. Herren's innovative place-based analysis aims to trace the "local buzz" (Bathelt, Maskell, & Malmberg, 2004) through accidental meetings between decision-makers of international organizations by analyzing the spatial arrangements of key institutions in relation to their workforces' places of work and residence in the city. At the heart of this cluster of public internationalism without diplomatic quarters (because Bern was Switzerland's capital) resided the Palace of Nations that opened in 1938 as the new home of the League of Nations and functioned as a global meeting point predestined for international knowledge transfer within its bar and assembly hall. Based on the earlier presence of the International Committee of the Red Cross, a range of humanitarian, pacifist, religious, and non-governmental organizations located nearby, thus constituting a spatial cluster of global expertise. Herren argues that the spatial proximity of these European, non-European, and international institutions, as well as the interspersed offices and private rooms of key decision-makers, suggests the existence of interactions, knowledge exchange, and networks across organizational and political boundaries that are hitherto undocumented and deserve further examination because of their likely explanatory power. By maintaining that these contact zones not only involved civil servants and administrators but also a large number of "subaltern diplomats," such as typists, translators, and drivers, as largely overlooked mediators of global discourses, who are difficult to identify with established methods for researching transboundary networks, Herren opens up new avenues for geographically sensitive historical research.

Jonathan Beaverstock's chapter unpacks the notion of expatriation, or international assignments, as a form of labor mobility within and between firms as the most efficient and cost-effective strategy for the international transfer of tacit knowledge in the world economy. Drawing on conceptual resources developed in the field of international human resource management since the 1960s, Beaverstock discusses the importance of expatriation for transnational companies as a strategy to fill vacancies in local labor markets; to enhance the skills, capital base, and careers of their employees; to share knowledge and best practice between headquarters and subsidiaries; to serve clients in co-location; and to offer tailor-made solutions to a diverse set of clients. Even in an age of increasingly integrated information and communication technologies, the transfer of tacit knowledge via face-to-face contacts is of such importance that the volume of international business assignments has been predicted to double in the decade 2010–2020. Due to the location of most transnational companies in world cities, these are conceptualized as the nodes that create, maintain, nurture, and develop global talent, especially in professional

services, thus reproducing the centrality, competitiveness, and cosmopolitanism of cities in the world city network. Beaverstock argues that expatriation as a form of physical mobility of employees within and between transnational companies will remain a key business strategy for the transfer of corporate knowledge within and between firms, and with their clients, despite the growing importance of information and communication technologies and shorter-term business travel, because value and skills are embodied in employees who are pivotal for a business's reputation, credentials, and successful employee-client relationships.

Melanie Mbah's chapter directs attention to "the triple nexus of education, migration, and integration" by analyzing the transnational migration experience of highly skilled Nigerians in the three destination countries Germany, the United Kingdom, and the United States as well as among the alumni of three Nigerian universities. Mbah identifies migration as a long-standing feature of Nigerian culture linked to early forms of nomadism, British colonial policies, and a postwar surplus of secondary school graduates as an important stimulus for migration. She shows that education, in the form of both received formal education and desired further higher education abroad, has been a key facilitator of migration, as have been often idealistic imaginations of a better life abroad and large family networks at home and abroad that have a vested interest in reproducing their cultural and financial capital through transnationalism. Based on the analysis of migration drivers and experiences, Mbah suggests two conceptual frameworks that help to understand the complexity and dynamics of the migration and integration process. The first is a sixfold typology of West African migrants that allows for multiple changes of status over time through integration, return migration, and transnationalism and links specific migrant types to typical knowledge flows between source and destination countries. The second considers the personal and structural contexts that shape changing migration aims at five moments of the migration and integration process, from initial considerations to different experiences in the destination countries. By discussing migration and integration as multidimensional and multidirectional, dynamic and flexible processes generating changing desires for permanent, return, and shuttle migration, Mbah provides a much nuanced assessment of how the multiple migration trajectories of highly skilled Nigerians to Europe and North America generate context-specific outcomes of brain drain, brain waste, brain gain, and brain circulation.

Corporeal mobility is not the only strategy for gaining access to international higher education. The chapter by Johanna Waters and Maggi Leung critically examines the types of knowledge and forms of capital transferred to immobile students who enrolled in over 600 degree programs delivered in the second decade of the twenty-first century by more than 35 U.K. universities at bachelor's, master's, and PhD levels in Hong Kong's higher education institutions. Drawing on Bourdieu's (1984, 1986) outline of economic, cultural, social, and symbolic forms of capital that individuals can accumulate through socialization, interaction with others, (birth) rights, education, work, and networking, Waters and Leung challenge the

widely promoted, conventional view that transnational education is unproblematic by unravelling the ambivalences of transnational education programs. The main problem they depict is that students' prime interest in increasing their employability is hampered because flying faculty programs, delivered by visiting U.K. academics, may provide transnational social capital but often hinder students' learning experience due to both their lacking English language skills and U.K. case studies irrelevant to the Hong Kongese context, whereas franchise programs delivered by locally sourced lecturers might have been adjusted to more place-specific case studies but often do not develop students' English language skills as a main criterion for employability in transnational companies because local lecturers tend to revert to Cantonese. Waters and Leung thus argue that operating in a transcultural space complicates the acquisition of cultural and social capital and requires educational providers to pay much more attention to the complex geographies of knowledge transfer and institutionalized cultural capital.

In conclusion, this collection of essays demonstrates the value of a profoundly comparative historical geographical perspective on mobilities of knowledge that covers case studies from the centuries before the common era to the present in a variety of world regions and at the global scale in order to identify generic as well as time- and place-specific practices and processes of knowledge production, dissemination, and transfer. Examples for generic processes are provided by the insights that knowledge production and dissemination are constituted by diverse circulations of people and (im)material resources, depend especially on prior skills, mentors, informants, and support networks, and require the critical interrogation of established truths and disciplinary narratives in the light of new empirical and conceptual considerations (chapters by Driver, Taylor, Ellis, Jöns). Knowledge transfer, which acknowledges the almost inevitable transformation of mobile knowledge, necessitates specific interests and skills on the side of both the communicators and recipients and the adaptation of the circulated knowledge to different contexts and audiences (chapters by Meusburger, Bloom, Keighren, Barnes and Abrahamsson). It is facilitated by face-to-face contacts in knowledge clusters such as cities as the most complex and widely networked nodes in historical and contemporary spaces of flows (chapters by Herren and Beaverstock) and proceeds relatively easily within established epistemic communities and friendship networks, which explains the social and epistemic reproduction of knowledge and careers in distinct classed, raced, and gendered personal and cultural networks; complications mostly arise at the intersection of different cultural and institutional practices and value systems (chapters by Pietsch, Mbah, Waters and Leung). In the words of Wilhelm von Humboldt, betaking "to the things themselves" is therefore a sustainable strategy for producing context-specific empirical insights that should inform flexible conceptual interpretations on the mobilities of knowledge—past, present, and future.

References

- Ackers, L. (2005). Moving people and knowledge: Scientific mobility in the European Union. *International Migration*, 43, 99–131. doi:[10.1111/j.1468-2435.2005.00343.x](https://doi.org/10.1111/j.1468-2435.2005.00343.x)
- Adey, P. (2010). *Aerial life: Spaces, mobilities, affects*. Oxford: Wiley-Blackwell.
- Alberts, H., & Hazen, H. (Eds.). (2013). *International students and scholars in the United States: Coming from abroad*. New York: Palgrave Macmillan.
- Anderson, R. D. (2004). *European universities from the enlightenment to 1914*. Oxford: Oxford University Press.
- Appadurai, A. (1990). Disjuncture and difference in the global cultural economy. *Theory, Culture & Society*, 7, 295–310.
- Bähr, J. (2010). *Bevölkerungsgeographie* [Population geography]. (5th ed.) Stuttgart: UTB.
- Barnett, R., & Phipps, A. (2005). Academic travel: Modes and directions. *The Review of Education, Pedagogy, and Cultural Studies*, 27, 3–16. doi:[10.1080/10714410590917461](https://doi.org/10.1080/10714410590917461)
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28, 31–56. doi:[10.1191/0309132504ph469oa](https://doi.org/10.1191/0309132504ph469oa)
- Beaverstock, J. V. (2005). Transnational elites in the city: British highly-skilled inter-company transferees in New York City's financial district. *Journal of Ethnic and Migration Studies*, 31, 245–268. doi:[10.1080/1369183042000339918](https://doi.org/10.1080/1369183042000339918)
- Beaverstock, J. V., & Hall, S. (2012). Competing for talent: Global mobility, immigration and the City of London's labour market. *Cambridge Journal of Regions, Economy & Society*, 5, 271–288. doi:[10.1093/cjres/rss005](https://doi.org/10.1093/cjres/rss005)
- Bloor, D. (1999). Anti-Latour. *Studies in History and Philosophy of Science*, 30, 81–112. doi:[10.1016/s0039-3681\(98\)00038-7](https://doi.org/10.1016/s0039-3681(98)00038-7)
- Blunt, A. (2007). Cultural geographies of migration: Mobility, transnationality and diaspora. *Progress in Human Geography*, 31, 684–694. doi:[10.1177/0309132507078945](https://doi.org/10.1177/0309132507078945)
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. London: Routledge Kegan & Paul.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York: Greenwood Press.
- Brooks, R., & Waters, J. (2011). *Student mobilities, migration and the internationalization of higher education*. Basingstoke: Palgrave Macmillan.
- Burke, P. (2000). *A social history of knowledge: From Gutenberg to Diderot*. Cambridge, MA: Polity.
- Castells, M. (1996). *The rise of the network society: The information age: Economy, society, and culture: Vol. 1*. Oxford: Blackwell.
- Crang, M. (2003). Telling materials. In M. Pryke, G. Rose, & S. Whatmore (Eds.), *Using social theory: Thinking through research* (pp. 137–144). London: Sage.
- Cresswell, T. (2006). *On the move: The politics of mobility in the modern west*. London: Routledge.
- Cresswell, T., & Merriman, P. (Eds.). (2011). *Geographies of mobilities: Practices, spaces, subjects*. Aldershot: Ashgate.
- De Certeau, M. (1986). *Heterologies: Discourse on the other* (B. Massumi, Trans.). Manchester: Manchester University Press.
- Dicken, P. (2015). *Global shift: Mapping the changing contours of the world economy*. London: Sage.
- Driver, F. (2001). *Geography militant: Cultures of exploration and empire*. Oxford: Blackwell.
- Faulconbridge, J., & Hui, A. (2016). Traces of a mobile field: Ten years of mobilities research. *Mobilities*, 11, 1–14. doi:[10.1080/17450101.2015.1103534](https://doi.org/10.1080/17450101.2015.1103534)
- Fechter, A.-M., & Walsh, K. (Eds.). (2012). *The new expatriates: Postcolonial approaches to mobile professionals*. London: Routledge.
- Findlay, A., & Gould, W. T. S. (1989). Skilled international migration: A research agenda. *Area*, 21, 3–11.

- Findlay, A., King, R., Smith, F. M., Geddes, A., & Skeldon, R. (2012). World class? An investigation of globalisation, difference and international student mobility. *Transactions of the Institute of British Geographers*, 37, 118–131. doi:[10.1111/j.1475-5661.2011.00454.x](https://doi.org/10.1111/j.1475-5661.2011.00454.x)
- Foucault, M. (1977). *Discipline and punishment: The birth of the prison*. New York: Vintage Books.
- Freytag, T. (2003). *Bildungswesen, Bildungsverhalten und kulturelle Identität: Ursachen für das unterdurchschnittliche Ausbildungsniveau der hispanischen Bevölkerung in New Mexico* [Education, educational behaviour, and cultural identity: Causes of the below-average education in the Hispanic population in New Mexico]. Heidelberg: Geographische Arbeiten: Vol. 118. Heidelberg: Selbstverlag des Geographischen Instituts der Universität Heidelberg.
- Freytag, T. (2016). Educational inequalities reflecting sociocultural and geographical embeddedness? Exploring the place of Hispanics and Hispanic Cultures in higher education and research institutions in New Mexico. In P. Meusburger, T. Freytag, & L. Suarsana (Eds.), *Ethnic and cultural dimensions of knowledge* (pp. 93–108). Knowledge and Space: Vol. 8. Dordrecht: Springer.
- Geddie, K. (2015). Policy mobilities in the race for talent: Competitive state strategies in international student mobility. *Transactions of the Institute of British Geographers*, 40, 235–248. doi:[10.1111/tran.12072](https://doi.org/10.1111/tran.12072)
- Geier, M. (2009). *Die Brüder Humboldt: Eine Biographie* [The Humboldt brothers: A biography]. Reinbek: Rowohlt.
- Gieryn, T. F. (2002). Three truth-spots. *Journal of the History of Behavioural Sciences*, 38, 113–132. doi:[10/1002/jhbs.10036](https://doi.org/10/1002/jhbs.10036)
- Gregory, D. (1998). Power, knowledge and geography. In D. Gregory, *Explorations in critical human geography* (pp. 9–40). Hettner-Lecture: Vol. 1. Heidelberg: Department of Geography.
- Gregory, D. (2000). Cultures of travel and spatial formations of knowledge. *Erdkunde*, 54, 297–319.
- Haraway, D. (1991). *Simians, cyborgs and women: The reinvention of nature*. New York: Routledge.
- Harvey, W. (2009). British and Indian expatriate scientists finding jobs in Boston. *Global Networks*, 8, 453–473. doi:[10.1111/j.1471-0374.2008.00234.x](https://doi.org/10.1111/j.1471-0374.2008.00234.x)
- Heffernan, M. (1994). A state scholarship: The political geography of French international science during the nineteenth century. *Transactions of the Institute of British Geographers*, 19, 21–45. doi:[10.2307/622444](https://doi.org/10.2307/622444)
- Heffernan, M., & Jöns, H. (2013). Research travel and disciplinary identities in the University of Cambridge, 1885–1955. *The British Journal for the History of Science*, 46, 255–286. doi:[10.1017/S000708741200074X](https://doi.org/10.1017/S000708741200074X)
- Hetherington, K. (1997). *The badlands of modernity: Heterotopia and social ordering*. London: Routledge.
- Holloway, S. L., O'Hara, S. L., & Pimlott-Wilson, H. (2012). Educational mobility and the gendered geography of cultural capital: The case of international student flows between Central Asia and the UK. *Environment and Planning A*, 44, 2278–2294. doi:[10.1068/a44655](https://doi.org/10.1068/a44655)
- Honeck, M., & Meusburger, P. (2012). American students up to 1914. In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University* (pp. 296–299). Knittlingen: Bibliotheca Palatina.
- Jöns, H. (2001). Foreign banks are branching out: Changing geographies of Hungarian banking, 1987–1999. In P. Meusburger & H. Jöns (Eds.), *Transformations in Hungary: Essays in Economy and Society* (pp. 65–124). Heidelberg: Physica-Verlag.
- Jöns, H. (2003). *Grenzüberschreitende Mobilität und Kooperation in den Wissenschaften: Deutschlandaufenthalte US-amerikanischer Humboldt-Forschungspreisträger aus einer erweiterten Akteursnetzwerkperspektive* [Boundary-crossing academic mobility and collaboration: Research stays of U.S. Humboldt Award Winners in Germany from an extended actor-network perspective]. Heidelberg: Geographische Arbeiten: Vol. 116. Heidelberg: Selbstverlag des Geographischen Instituts der Universität Heidelberg.

- Jöns, H. (2006). Dynamic hybrids and the geographies of technoscience: Discussing conceptual resources beyond the human/non-human binary. *Social and Cultural Geography*, 7, 559–580. doi:[10.1080/14649360600825703](https://doi.org/10.1080/14649360600825703)
- Jöns, H. (2007). Transnational mobility and the spaces of knowledge production: A comparison of global patterns, motivations and collaborations in different academic fields. *Social Geography*, 2, 97–114. doi:[10.5194/sg-2-97-2007](https://doi.org/10.5194/sg-2-97-2007)
- Jöns, H. (2015). Talent mobility and the shifting geographies of Latourian knowledge hubs. *Population, Space and Place*, 21, 372–389. doi:[10.1002/psp.1878](https://doi.org/10.1002/psp.1878)
- Keighren, I. M., Withers, C. W. J., & Bell, B. (2015). *Travels into print: Exploration, writing, and publishing with John Murray, 1773–1859*. Chicago: The University of Chicago Press.
- King, R., & Raghuram, P. (2013). International student migration: Mapping the field and new research agendas. *Population, Space and Place*, 19, 127–137. doi: [10.1002/psp.1746](https://doi.org/10.1002/psp.1746)
- King, R. (2012). Geography and migration studies: Retrospect and prospect. *Population, Space and Place*, 18, 134–153. doi:[10.1002/psp.685](https://doi.org/10.1002/psp.685)
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Latour, B. (1999). *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press.
- Leung, M. W. H. (2013). 'Read ten thousand books, walk ten thousand miles': Geographical mobility and capital accumulation among Chinese scholars. *Transactions of the Institute of British Geographers*, 38, 311–324. doi:[10.1111/j.1475-5661.2012.00526.x](https://doi.org/10.1111/j.1475-5661.2012.00526.x)
- Livingstone, D. N. (2003). *Putting science in its place: Geographies of scientific knowledge*. Chicago: University of Chicago Press.
- Madge, C., Raghuram, P., & Noxolo, P. (2015). Conceptualizing international education: From international student to international study. *Progress in Human Geography*, 39, 681–701. doi:[10.1177/0309132514526442](https://doi.org/10.1177/0309132514526442)
- Malecki, E. J. (2010). Everywhere? The geography of knowledge. *Journal of Regional Science*, 50, 493–513.
- McEwan, C. (2000). *Gender, geography and empire: Victorian women travellers in West Africa*. Aldershot: Ashgate.
- Merriman, P. (2012) *Mobility, space and culture*. London: Routledge.
- Meusburger, P. (1980). *Beiträge zur Geographie des Bildungs- und Qualifikationswesens. Regionale und soziale Unterschiede des Ausbildungsniveaus der österreichischen Bevölkerung* [Contributions to the geography of education and qualification: Regional and social disparities of the educational achievement of the Austrian population]. Innsbrucker Geographische Studien: Vol. 7. Innsbruck: Innsbruck University, Department of Geography.
- Meusburger, P. (2000). The spatial concentration of knowledge: Some theoretical considerations. *Erdkunde*, 54, 352–364. doi:[10.3112/erdkunde.2000.04.05](https://doi.org/10.3112/erdkunde.2000.04.05)
- Meusburger, P. (2008). The nexus of knowledge and space. In P. Meusburger, M. Welker, & E. Wunder (Eds.), *Clashes of knowledge: Orthodoxies and heterodoxies in science and religion* (pp. 35–90). Knowledge and Space: Vol. 1. Dordrecht: Springer. doi:[10.1007/978-1-4020-5555-3_2](https://doi.org/10.1007/978-1-4020-5555-3_2)
- Meusburger, P. (2009). Spatial mobility of knowledge: A proposal for a more realistic communication model. *disP—The Planning Review*, 177, 29–39. doi:[10.1080/02513625.2009.10557033](https://doi.org/10.1080/02513625.2009.10557033)
- Meusburger, P., Livingstone, D. N., & Jöns, H. (Eds.). (2010). *Geographies of Science*. Knowledge and Space: Vol. 3. Dordrecht: Springer. doi:[10.1007/978-90-481-8611-2](https://doi.org/10.1007/978-90-481-8611-2)
- Pietsch, T. (2013). *Empire of scholars: Universities, networks and the British academic world, 1850–1939*. Manchester: Manchester University Press.
- Powell, R. C. (2007). Geographies of science: Histories, localities, practices, futures. *Progress in Human Geography*, 31, 309–329.
- Rupke, N. A. (2005). *Alexander von Humboldt: A metabiography*. Frankfurt a.M.: Peter Lang.
- Said, E. (1978). *Orientalism*. London: Routledge & Kegan Paul.

- Salt, J. (1997). *International movements of the highly skilled*. OECD Working Papers 91. Paris: OECD.
- Saxenian, A. (2006). *The new argonauts: Regional advantage in a global economy*. Cambridge, MA: Harvard University Press.
- Sheller, M., & Urry, J. (2006). The new mobilities paradigm. *Environment and Planning A*, 38, 207–226. doi:10.1068/a37268
- Simões, A., Carneiro, A., & Diogo, M. P. (2003). *Travels of learning: A geography of science in Europe*. Dordrecht: Kluwer Academic.
- Smith, M. P., & Favell, A. (Eds.). (2006). *The human face of global mobility: International highly skilled migration in Europe, North America and the Asia-Pacific*. New Brunswick: Transaction.
- Stehr, N. (1994). *Knowledge societies*. London: Sage.
- Storme, T., Faulconbridge, J. R., Beaverstock, J. V., Derudder, B., & Witlox, F. (2016). Mobility and professional networks in academia: An exploration of the obligations of presence. *Mobilities*. doi:10.1080/17450101.2015.1116884
- Urry, J. (2000). *Sociology beyond societies: Mobilities for the twenty-first century*. New York: Routledge.
- Urry, J. (2007). *Mobilities*. Cambridge: Polity Press.
- Van Riemsdijk, M. (2014). International migration and local emplacement: Everyday place-making practices of skilled migrants in Oslo, Norway. *Environment and Planning A*, 46, 963–979.
- Van Riemsdijk, M., & Wang, Q. (Eds.). (2016). *Rethinking international skilled migration*. New York: Routledge.
- Walsh, K. (2012). Emotion and migration: British transnationals in Dubai. *Environment and Planning D*, 30, 43–59.
- Waters, J. L. (2012). Geographies of international education: Mobilities and the reproduction of social (dis)advantage. *Geography Compass*, 6, 123–136.
- Waters, J. L. (2016). Education unbound? Enlivening debates with a mobilities perspective on learning. *Progress in Human Geography, OnlineFirst*, 1–20. doi:10.1177/0309132516637908
- Williams, A. M., & Balaz, V. (2008). *International migration and knowledge*. New York: Routledge.

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Part I
Circulation, Transfer, and Adaptation

Chapter 2

Spatial Mobility of Knowledge: Communicating Different Categories of Knowledge

Peter Meusbürger

[D]irect communication between the adherents of different thought styles is impossible.

(Fleck 1935/1979, p. 36)

Learning processes, spatial mobility of knowledge, and, accordingly, the spatial diffusion of social and technical innovations belong to the basic issues of human civilizations. The exchange of knowledge and information over distances is an indispensable prerequisite for the emergence, coordination, and functioning of complex social systems based on division of labor. Knowledge exchange, education, research, creativity, innovative activities, and in-migration of talent shape regional economies and the global competitiveness of areas.

Unfortunately, a considerable part of research about knowledge spillovers, knowledge sharing, knowledge exchange, knowledge management, knowledge governance, and territorial knowledge dynamics oversimplifies the communication process of various categories of knowledge. Many categories and grades of knowledge are not as mobile in the spatial dimension as some authors assume. Depending on the category of knowledge, the communication of knowledge¹ between people, institutions, different epistemic communities, and locations can be a highly complex process. Very few authors seem to be interested in the questions of why the transfer of knowledge from A to B did not come about, was delayed for years, or failed; why various categories of knowledge travel at different speeds; why the

This chapter contains some arguments, paragraphs, and figures of an earlier publication (Meusbürger, P., 2009b). Those parts of this paper published in 2009 are reprinted with permission of the editors of *disP—The Planning Review*.

¹It will be shown in later paragraphs that only information or messages can be transmitted. It depends on the recipient whether he or she is able to understand the information and integrate it into the existing knowledge base. Nevertheless, the expression “knowledge” is used in order to refer to the existing literature.

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mobility of higher grades of knowledge is so selective in the spatial dimension; and which factors, interventions, language barriers, and psychological processes prevent, impede, or modify the communication process between the sources of knowledge and the recipients of information.

In order to avoid misunderstandings about the mobility of knowledge, it is necessary to distinguish different categories of knowledge transfer, such as the mobility of persons; knowledge exchange between scholars; knowledge transfer where the use of knowledge is regulated by contracts, formal technology-transfer agreements, intellectual property rights or bureaucratic instructions; processes of exploration in which indigenous knowledge was absorbed into European systems of knowledge and intermediaries such as guides, brokers, explorers, and interpreters played a significant role in the process of translation (Gregory, 2000; see chapter by Driver in this volume). Premediated knowledge exchange and knowledge exchange bound by contract have to be distinguished from unintended and discretionary knowledge transfer.

Figure 2.1 shows two diametrically opposed categories of the spatial dissemination of knowledge: Collaborative knowledge sharing between cooperating economic agents in which case the owner of knowledge has an exclusive right to exploit that substantive knowledge for monetary profit and is willing to sell it; and discretionary knowledge dissemination in which case it is not clear from the outset who will be able and willing to absorb and use the publically available knowledge. Collaborative knowledge sharing within organizations or between cooperating units of different social systems and the role of spatial, cognitive, organizational, and institutional proximity (for details see James, Vissers, Larsson, & Dahlström, 2016; Tsai, 2001; Vissers & Dankbaar, 2016) are only part of the story. Therefore, research results about collaborative knowledge sharing should not be seen as universally applicable; they represent cases of knowledge transfer that are relatively straightforward and easily described. The most unambiguous and traceable transfers of knowledge are those in which someone has an exclusive right to exploit his or her substantive knowledge² (in this case a private good) for monetary profit (Crevoisier, 2016, pp. 191–192) and is willing to sell it. In such cases “a precise description of the content of knowledge is a prerequisite for its mobility” (Crevoisier, 2016, p. 195), and the use of the knowledge is regulated by contracts, formal technology transfer-agreements, or intellectual property rights. Economic actors will only pay for patents or intellectual property rights if they fully understand the contents of the knowledge and are convinced of its usefulness and value. Discretionary knowledge dissemination is a much more complex communication process. Caught in a cross-fire of influences, it seems to be a greater scientific challenge from a geographer’s point of view than collaborative knowledge sharing.

Summing up, communication processes of certain categories of knowledge may encounter a lot of impediments, misunderstandings, resistance, contingencies, and

²“From an economic point of view, substantive knowledge is a resource... which is under the control of an actor (generally a firm) who holds exclusivity and can therefore derive income from it” (Crevoisier, 2016, p. 194). “Consequently, rules for the sharing of knowledge become vital to its continued existence and development” (p. 194).

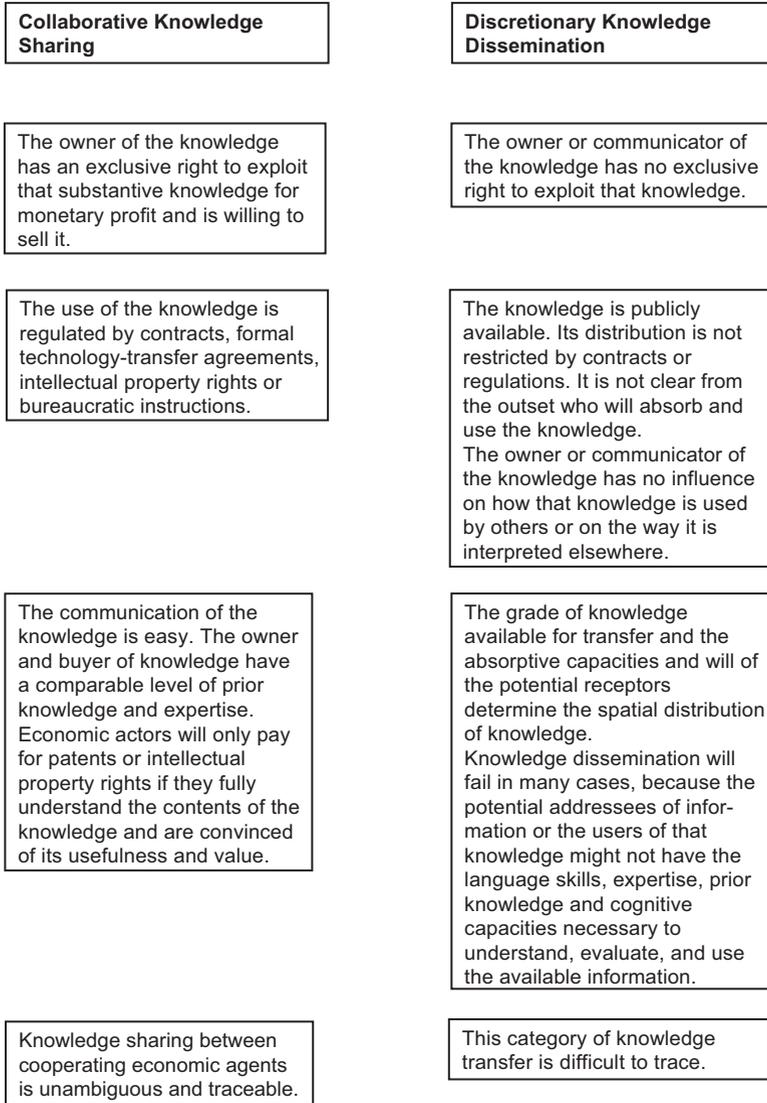


Fig. 2.1 Two diametrically opposed categories of knowledge transfer (Design by author)

pitfalls.³ In order to avoid misunderstandings and inadequate generalizations, scholars should specify more clearly which categories of knowledge they are talking about and between whom, for which purpose, and under which external conditions the knowledge in question is communicated. So-called low grade, routine knowledge (e.g., the result of a soccer match or the price of a good) can be spread globally in seconds. Other categories of knowledge are place-based or bound to particular contexts; they will remain local or indigenous knowledge and will never (or seldom) be transferred to different (social) environments (for details see Antweiler, 2016; Nüsser & Baghel, 2016; Senft, 2016; Sillitoe, 2016). Some contents of knowledge will be kept secret as long as possible or necessary. Another group of knowledge categories such as scientific knowledge or specialized professional knowledge will only be understood, applied, accepted, or replicated at a small number of places where experienced and knowledgeable experts or “absorptive capacities” (Cohen & Levinthal, 1990) are available.

In this chapter I focus on the questions of why the communication process between a source of knowledge and potential receivers of information may fail or be delayed; why the dissemination of high grade knowledge is so selective, and why many agents (social systems) fail in their evaluation of which kind of knowledge might become valuable for them. In the first part, I discuss some of the assumptions and premises that are often leading to narrow conclusions about the mobility of knowledge. In the second section I propose a likely more adequate and more realistic communicator-recipient model that focuses especially on the steps in which the communication process between two agents may fail because part of the information is withheld, not understood, distorted, or rejected as untrue or useless.

Shortcomings and Disputable Assumptions in Research About the Mobility of Knowledge

Free Access to Knowledge Is Not Equivalent to Acquisition of Knowledge

A large part of authors doing research on knowledge spin-offs, knowledge spillovers,⁴ knowledge sharing, knowledge flows, or spatial innovation systems focuses predominantly on coordinated, organized, or stipulated knowledge sharing

³The difficulty of communicating, understanding, and interpreting a text is a main issue of hermeneutics. “Our relation to the speech of others, or to the texts of the past, is not one of mutual respect and interaction. It is a relationship in which we have to fight against misunderstanding...., one in which the focus on communality in language provides but a harmful illusion” (Ramberg & Gjesdal, 2005/2014, sec. 8, para. 3).

⁴Fershtman and Gandal (2011) distinguish between direct and indirect spillovers. “Direct contributor spillovers exist whenever there are knowledge spillovers between contributors who are directly connected, that is they work together on the same project. (ii) Indirect contributor spill-

within an organization, a community of practice, or an epistemic community; respectively on knowledge exchange among a network of customers and suppliers or between cooperating firms (for an overview of the research see Bathelt, Malmberg, & Maskell, 2004; Butzin & Widmaier, 2016; Crevoisier & Jeannerat, 2009; Crevoisier, 2016; Fershtman & Gandal, 2011; Fischer, 2001; Fischer, Scherngell, & Jansenberger, 2006; Foss, Husted, & Michailova, 2010; Glückler, 2007, 2013; Grabher & Ibert, 2006; Grabher, Ibert, & Flohr, 2008; Henderson, 2007; Huber, 2012; Jaffe, Trajtenberg, & Henderson, 1993; James, Vissers, Larsson, & Dahlström, 2016; Jeannerat & Crevoisier, 2016; Malmberg & Maskell, 2002; Oinas & Malecki, 2002; Scherngell, 2007; Vissers & Dankbaar, 2016).

Within a thick network “which is supported by close social interactions and by institutions building trust and encouraging informal relations among actors” (Huber, 2012, p. 110; see also Breschi & Malerba, 2001, pp. 819–820) and within an epistemic community whose members command a comparable level of prior knowledge and expertise, communication of knowledge and local learning processes seem to be comparatively unproblematic.

It is a popular idea that firms located in clusters benefit from local knowledge spillovers: knowledge created by a local agent can be accessed and used by other agents without market interaction and financial compensation for the producer of the knowledge. (Huber, 2012, p. 108)

The basic idea of knowledge spin-offs or spillover is “that the creation of new knowledge by one firm has positive external effects on the knowledge production activities of other firms, either because knowledge cannot be kept secret, or because patents do not guarantee full protection from imitation” (Karlsson & Manduchi, 2001, p. 110). Fischer (2001) speaks of knowledge spillovers when “knowledge created by one firm can be used by another without compensation or with compensation less than the value of the knowledge” (p. 204). In the last couple of years, an increasing number of authors found that “in an innovative technology cluster local knowledge spillovers and territorial learning might not be as widespread as the literature tends to suggest” (Huber, 2012, p. 114; see also the critiques of Breschi & Lissoni, 2001a, b; Breschi & Malerba, 2001; Foss et al., 2010; Karlsson & Manduchi, 2001). Communication and dissemination of particular scientific or technical knowledge will only be successful when the source of knowledge and the recipient of information have a comparable level of prior knowledge and expertise, when they speak a common language,⁵ and share common goals, interests, and “thought styles” (in the sense of Fleck, 1935/1979, pp. 99, 142; see also Trenn & Merton, 1979, p. 159). In reality, agents and firms differ greatly in their knowledge and expertise, their ability to learn, their competence to interpret signs and data, and their inventiveness.

overs exist whenever there are knowledge spillovers between contributors who are not directly connected” (p. 77).

⁵According to Gadamer, “human being...is a being in language. It is through language that the world is opened up for us. We learn to know the world by learning to master a language” (as paraphrased in Ramberg & Gjesdal, 2005/2014, sec. 5, para. 3).

The assumption that new and valuable knowledge will be taken up with benevolence or great enthusiasm is naïve. Even within the same epistemic community, new knowledge is not disseminated inherently; it may be criticized, rejected, or just ignored. Studies on the history of science offer many examples showing that it may take years or decades for path-breaking new paradigms and seminal new research results to be taken up by other scholars of the same research field, let alone those of neighboring disciplines. An easy access to globally available scientific publications is not at all tantamount to the mobility of the knowledge presented in those publications. This refers not only to the humanities and social sciences, sometimes called “fragmented adhocracies” (Whitley, 1984a, p. 776; Whitley, 1984b, p. 34; see also Froese & Mevissen, 2016, pp. 35–37) that tend “to produce rather diffuse and broad contributions to general intellectual problems which are subject to contrasting interpretations and evaluations” (Whitley, 1984b, p. 36), but also to the hard sciences. The so-called Semmelweis reflex—a metaphor for the reflex-like tendency to reject new theories, new methods, new research questions or new knowledge because they contradict dominant paradigms, established norms or beliefs—is also widespread in the sciences.⁶

Research on the mobility of knowledge should focus more on the complexity of communication processes. Scholars should ask why pathbreaking new research results or technical inventions may be ignored, contested, and declined for long periods of time in spite of their great medical, technical, or economic usefulness. They should also pay more attention to the fact that in a competitive world there are many situations in which agents and organizations need to acquire external knowledge that is not voluntarily offered or shared by others. In such cases, agents need

⁶ A number of famous scientists had the impression of coming up against a brick wall when they first published their outstanding scientific results. It took more than 30 years for the significance of Gregor Mendel’s (1822–1884) genetics to be recognized. The pathbreaking findings of Ignaz Semmelweis (1818–1865) about childbed fever (published in 1847 and 1848) were repudiated by professors of medicine until the late 1860s. Alfred Wegener’s (1880–1930) theory of continental drift (1912) continued to be attacked by his colleagues until the early 1960s. Even Nobel Prize winners had to wait for many years until their research gained the recognition of their colleagues. Physiologist Albrecht Kossel (1863–1927) was one of three Heidelberg physiologists who established biochemistry as a key subject of the life sciences. Kossel was awarded the Nobel Prize in Medicine in 1910 for his contributions to knowledge about the “chemistry of the cell nucleus”. His research laid the foundation for biochemistry and molecular biology and was unique in its effect on the development of the life sciences. Efforts to make biochemistry an independent discipline at Heidelberg University were continually interrupted not only by outside circumstances (World War I and II) but also by dissent from the professors inside the fields of chemistry and medicine. It was not until 1961 that the first full professor of physiological chemistry was appointed at Heidelberg university (Schafmeier, Franke-Schaub, Schirmer, & Brunner, 2012, p. 223). Harald zur Hausen (born 1936), Heidelberg’s Nobel Prize winner in medicine in 2008 (for details see Mager, 2012) started his seminal research about human papillomavirus 6 in 1972. In 1976, he published the hypothesis that human papillomavirus plays an important role in the cause of cervical cancer. His work on papillomaviruses and cervical cancer received a great deal of scientific criticism, and sparked a major scientific controversy with other scientists favoring herpes simplex as a cause for cervical cancer. It took some 10 years for zur Hausen’s research results to become widely accepted by his colleagues (https://en.wikipedia.org/wiki/Harald_zur_Hausen).

the cognitive capacity and experience to interpret data, signs, and patterns; to anticipate grassroots developments; to draw conclusions from incomplete information; to disclose secrets; to evaluate the potential of new ideas; to foresee new markets; to invent new techniques; and to explore unknown grounds by crossing disciplinary borders.

The Impact of New Information and Communication Technologies on the Mobility of Knowledge

Some of the problematic assumptions about the mobility of knowledge can be traced back to the opinion that the social and economic impacts of new communication technologies are clear and unambiguous, that various means of telecommunication will substantially reduce the amount of face-to-face contacts and therefore diminish the role of centers. This misjudgment has a long history. At the end of nineteenth century, the Bell Company advertised the telephone with the argument that it would decrease the need for business travel because many discussions, negotiations, and decisions would no longer need face-to-face contacts. It was expected that power and decision making could be more decentralized and cities would lose part of their location advantages. However, the Bell Company was one of the first to centralize its decision making after introducing the phone.⁷

Similar forecasts were made after the introduction of the Internet and other electronic communication. Some observers (Cairncross, 1997; Knoke, 1996; Naisbitt, 1982; Negroponte, 1995; Relph, 1976; Toffler, 1980) went as far as to predict that advances in electronic communication would lead to an almost unbounded mobility of knowledge. Anyone using the Internet would have access to the knowledge he or she needed. Others criticized this theoretical position as early as the 1970s and 1980s (Short, Williams, & Christie, 1976; Meusburger, 1980, pp. 105–107). They argued that new information technologies would primarily facilitate access to freely offered, easily understandable information but not replace the need for face-to-face contacts among high-level decisions makers. Almost any proliferation of new communication devices increased the division of labor, promoted further differentiation of complex social systems, and made some aspects of face-to-face contacts dispensable—although it simultaneously created a large new demand for them.

Many new means of communication (script, paper, printing machine, telephone, Internet, and so on) benefited in the first phase of their dissemination primarily those in power and created new inequalities concerning the access to knowledge (see chapter by Bloor in this book). New telecommunication technologies also contributed to the spatial bifurcation of skills; to a further spatial concentration of workplaces affiliated with high-level decision making in regional, national, and global

⁷Personal information of Jean Gottmann (Oxford) in March 1977.

centers⁸; and to a decentralization of routine activities in low-cost peripheries (Meusbürger, 1980, 1998, 2000, 2008; Meusbürger, Koch, & Christmann, 2011).

It is true that communication devices improved access to information; they changed the structure, size, and complexity of organizations and the ways in which social systems and networks were coordinated and governed in space. But none of these inventions ever abolished the spatial concentration of power or central-peripheral disparities pertaining to the production, dissemination, and use of high-level knowledge. On the contrary, the knowledge gap between better and less educated segments of society (Tichenor, Donohue, & Olien, 1970) and the research gap between the global centers and peripheries increased. Studies about the spatial distribution of Nobel Prize winners (Mager, 2012) or about worldwide scientific collaborations of research centers (see Raditsch, 2012, p. 289; Seltmann, 2012, p. 284) belong to the most convincing evidence for the selectivity of knowledge exchange.

When it comes to the mobility of high-grade knowledge, some authors seem to focus too much on the technically imaginable and to overlook relations between power and knowledge; asymmetric power relations between top and base or center and periphery of a social system; and spatial disparities of literacy, educational achievement, and international reputation of research. They underestimate emotional and psychological aspects of communication, the role of mutual trust, the symbolic meaning of places, and the importance of nonverbal communication. What is possible from a technical point of view (e.g., decentralization of decision making in social systems) may not be feasible because of human preferences and psychological processes.

When asking in which situations communication technologies may replace face-to-face contacts, it is necessary to distinguish between different categories of contacts, for example, between orientation contacts, planning contacts, and routine contacts; between internal (within the social system) and external contacts (with other social systems); and between face-to-face contacts and indirect contacts (via letter, phone, email, etc.). This was already being emphasized in the 1970s and early 1980s by Goddard (1971), Goddard and Morris (1976), Goddard and Pye (1977), and others. However, most of these categorical distinctions seem to be neglected nowadays.

The importance of face-to-face contacts and the possibility of replacing them with indirect contacts (e.g., letters, phone, emails) depend on the type and grade of knowledge (information) that has to be transferred from A to B, on the relations between the persons communicating with each other (cooperation or competition, trust or distrust, friend or stranger), on the degree of uncertainty a person or social system is exposed to in the external environment, and on many other issues discussed in organization theory and human geography (for details see Bathelt & Glückler, 2011; Goddard, 1971; Goddard & Morris, 1976; Goddard & Pye, 1977; Mintzberg, 1979; Storper & Venables, 2004).

⁸The term center is not defined in a topographic sense but from the viewpoint of organization theory. A center is the place where the highest authority of a social system is located (Gottmann, 1980; Strassoldo, 1980).

There is no doubt that digital information systems provide new opportunities for the internal sharing and joint utilization of voluntarily offered, easily understandable information, especially *within* organizations or supply chains, between a headquarters and its spatially dispersed production and customer bases. Communication partners who trust each other and have a long history of successful cooperation will exchange most of their routine information by indirect contacts. However, indirect contacts are seldom used when the degree of uncertainty and risk is high and the degree of mutual trust still low; when communication has to be kept secret; or when hazardous cooperation has to be cautiously prepared. Motivation, mutual trust, and persuasion⁹ are easier achieved by face-to-face contacts than by letters or other forms of indirect communication.

A large part of information needed for crucial decision making in risky situations is not stored in databases and not shared via phone or email but is predominantly acquired via face-to-face contacts between highly experienced experts and top decision-makers of different organizations. In such situations nonverbal communication, careful observation of facial expressions of conversational partners, and interpretation of signs and patterns in the environment become very important. However, by the time agents or units of different social systems have come to trust each other and are cooperating well, or the processes of research, design, and production are ready to be formalized and standardized, many face-to-face contacts have become routine and replaceable with electronic communication.

Is Codified Knowledge a Public Good and a Tradable Commodity? The Necessity to Distinguish Between Knowledge and Information

For many years, economists regarded codified knowledge as a public good and a tradable commodity. This premise is almost inalienable to neoclassical economic theory, but highly questionable. Knowledge is only a public good—in the economic sense—if it can be used without additional costs. Knowledge is only tradable if possible recipients are able to understand and use the offered information. “[A]chieving understanding is the initial step in a transfer process that ends when the recipient is able to use the shared knowledge in his or her area of expertise or domain” (Tortoriello, Reagans, & McEvily, 2012, pp. 1025–1026). Scholars supporting the assumption that knowledge is a tradable commodity should not forget to mention the number of persons who are able to take advantage of a particular kind of knowledge. It makes a difference whether a scientific publication is understood by 100, 10,000, or 500 million people and whether these persons are randomly distributed in space or concentrated in a few places (e.g., research laboratories).

⁹For details about successful persuasion see Cialdini (2008).

The premise that codified knowledge is a public good and a tradable commodity is justified by two arguments. Some economists argue that new knowledge cannot be kept secret and becomes public in the long term. However, this argument overlooks the fact that in highly competitive situations, success or failure in achieving a certain goal does not depend on knowledge or information per se but on a short lead in knowledge, on receiving information, acquiring skills, or installing new technologies earlier than competitors.¹⁰ In most cases it is the *earlier* availability of specialized, unique, or rare knowledge that makes one social system, institution, or region more successful than the other (for details see Liebeskind, 1996, p. 98; Meusburger, 2013, p. 37).

The second argument used by economists to defend their premise is that knowledge and information are more or less the same, that a large part of knowledge can be codified, and that codified knowledge can almost completely be transformed into information easily transferable to other agents (a detailed discussion is provided by Ancori, Bureth, & Cohendet, 2000, p. 256; Cowan, David, & Foray, 2000, p. 221; Spinner, 1994). Ancori et al. (2000) explained why the codification of knowledge is a major concern of economists and why they find it difficult to give up their claim that there is (almost) no difference between codified knowledge and information. To be treated as an economic good with discernible and measurable characteristics, knowledge must be put into a form that can be exchanged, and that form is information. This view has been challenged not only by work in sociology of science (Callon et al., 1999; Collins, 1983), geography of knowledge (Livingstone, 1995, 2000, 2002, 2003; Meusburger, 1998, 2008), philosophy (Abel, 2004; Gadamer, 1960/1999), and communication theory but also by some economists (Amin & Cohendet, 2004; Ancori et al., 2000). Cohendet and Steinmüller (2001) present a number of arguments why a clear distinction between knowledge and information is indispensable.

The fact that codified knowledge is made public or available for free does not mean that it is understood, accepted, or used by all those who have access to the information and could profit from it. The quality and accuracy of codifying knowledge or the accessibility of information is only one side of the coin. The other side concerns the cognitive abilities, goals, interests, motivation, attention, emotions, ideology, and prejudices of the (potential) recipients of information and the milieus they are embedded in.¹¹ It should not be taken for granted that all the potential receivers have the cognitive capacity and willingness to use the available information to their benefit. If information is published in Chinese characters, Gujarati, or cuneiform script, billions of people having access to this information via the Internet

¹⁰In the financial system or the stock market an information lead or delay of seconds or minutes may decide whether people earn or lose money; for news agencies a lead of 1 h may be decisive; for scientists, days or weeks may determine whether their publication is regarded as pioneering work or not.

¹¹The importance of knowledge milieus or discipline-specific contexts for knowledge transfers and research is discussed by Fleck (1935/1979), Froese and Mevissen (2016), Matthiesen (2009, 2013), Meusburger (2009a, 2015b), and others.

For Lorentzian (2+1)-gravity with vanishing cosmological constant, each element $\lambda \in \pi_1(M)$ is associated with two canonical Wilson loop observables which are the fundamental physical observables of the theory. It is shown in [16, 17] that they generate via the Poisson bracket the two fundamental transformations that change the geometry of the (2+1)-spacetime, grafting and earthquake performed simultaneously on all surfaces of constant cosmological time. These canonical Wilson loop observables, in the following referred to as ‘mass’ m_λ and ‘spin’ s_λ of $\lambda \in \pi_1(M)$, are obtained by applying the functions $m, s : ISO_0^+(2, 1) \rightarrow \mathbb{R}$

$$m : (e^{n^b J_b}, \mathbf{a}) \mapsto |\mathbf{n}|, \quad s : (e^{n^b J_b}, \mathbf{a}) \mapsto \mathbf{a} \cdot \hat{\mathbf{n}}, \quad (2.29)$$

to the holonomy along λ . Note that they are closely related to the traces of the Poincaré-valued holonomies. Using the $\mathfrak{su}(1, 1)$ representation (2.4) one finds

$$\begin{aligned} \text{Tr}(e^{n^b J_b}) &= 2 \cosh\left(\frac{1}{2}m(e^{n^b J_b}, \mathbf{a})\right), \\ \text{Tr}(e^{n^b J_b} \cdot a^c J_c) &= \sinh\left(\frac{1}{2}m(e^{n^b J_b}, \mathbf{a})\right) \cdot s(e^{n^b J_b}, \mathbf{a}). \end{aligned} \quad (2.30)$$

It has been shown that the mass and spin observables associated with all elements of the fundamental group $\pi_1(S_g) \cong \Gamma$ form a complete set of observables. Their values determine the spacetime uniquely and they parametrize the physical phase space (2.27) of the theory.

Fig. 2.2 The ability to read an information does not mean to understand it (Source of the text: Meusburger, C., 2009, p. 11)

will not be able to read it. A certain type or content of knowledge may be perfectly codified in equations, published in international journals, and well understood by 50 to 100 theoretical physicists, but the rest of the world population may just not have acquired the prior knowledge¹² necessary to read and understand the mathematical equations and to integrate this new information in their own knowledge base.

This discrepancy between knowledge and information can be demonstrated by Fig. 2.2. This paragraph is taken from a paper published in an important international journal available on the Internet, where billions of people have access to it. It uses two codes—the English language and mathematical formulas. English is the most widespread language in the world, and although the mathematical formulas may be understood by less people, they can be learned in a reasonable amount of time. However, the mastery of these two codes does not mean that readers will be able to understand the message presented in this information and to integrate it into their knowledge base. They can only understand the offered information if they have studied and gathered research experience in special fields of theoretical physics. One needs prior knowledge to understand the information offered in Fig. 2.2.

From the viewpoint of the producer (source) of new knowledge, the boundary between information and knowledge might become blurred. With regard to the recipient of a message, the difference between knowledge and information becomes quite distinct. As soon as the communication process occurs between two individu-

¹²The term *Vorwissen* (here translated as prior knowledge) draws on Gadamer’s (1960/1999) term *Vorverständnis* (prior understanding).

als, the distinction between knowledge and information becomes indispensable. Receiving information is in many cases not equivalent with gaining knowledge. The higher the grade of knowledge, the clearer the discrepancy between knowledge and information becomes from the viewpoint of the receivers of information. Making information available is not tantamount to disseminating knowledge. A scientific publication may be available worldwide and free of charge, but the proportion of the population being able to understand the semantic meaning of the information may be less than one per million. Knowledge does not move from A to B if people at place B do not understand the information offered to them.

Therefore, I question the assumption shared by Fujita, Krugman, and Venables (1999), Maskell and Malmberg (1999), and many others that the more codified or the more public the knowledge involved, the more mobile it is and that knowledge, once codified, is almost instantly available to all firms at zero cost regardless of their location. Their assumption is only valid for easily understandable information that has little value in economic competition.

Nominal and Ordinal Differentiations of Knowledge

Metaphors such as knowledge spillovers or knowledge flows are misleading for various reasons. They suggest that codified knowledge or information disseminate like a liquid once they are no longer secret. Liquids spilling out of a bowl or flowing on a plain affect first the proximate and finally the distant agents. Most categories of knowledge do not follow a linear diffusion model as the liquid metaphor suggests.

In order to avoid misunderstandings, studies on the mobility of knowledge should always specify which categories of knowledge are being addressed. Knowledge embodied in people has to be distinguished from knowledge presented in publications and knowledge integrated in machines. Knowledge sharing within organizations or between cooperating units should be distinguished from knowledge acquisition in a risky and competitive external environment. Codified routine knowledge storable in databases has to be distinguished from intuition, foresight, and competence based on years of experience and learning. Knowledge exchange between experts in the same domain (e.g., between the owner and user of a patent or between two molecular biologists doing research about the same topic) has to be discerned from communication between expert and layperson.

Most categorizations of knowledge used so far—for example, the distinctions between codified and tacit knowledge; explicit and implicit knowledge; analytical, synthetic, and symbolic knowledge (Asheim, 2007); factual knowledge¹³ and orien-

¹³Factual knowledge is needed in order to analyze a situation as precisely as possible and to offer solutions to technical or scientific problems. Depending on the task to be solved, it may consist of scientific knowledge, domain-specific expertise, professional skills, familiarity with codes (foreign languages, mathematical equations) and theoretical concepts, or various cognitive abilities, such as the skills of perceiving problems earlier than others or evaluating situations in a more realistic way

tation knowledge¹⁴ (Meusburger, 2015a); or between substantive and significant knowledge (Crevoisier, 2016)—are nominal distinctions. Some of these distinctions—those between codified and tacit or implicit¹⁵ and explicit knowledge—are quite problematic. What is implicit knowledge for one person or at one point in time can be perfectly explicit for another person or at some other time. It is not possible to draw a generally valid line between tacit and codified knowledge. Some authors view codified and tacit knowledge as essentially complementary because all forms of codified knowledge require tacit knowledge to be useful (Ancori et al., 2000, p. 257). Knowledge may remain tacit just because the source and recipient have no skills of how to codify a specific sort of knowledge (Ancori et al., 2000, pp. 273–274; Baumard, 1999; Collins, 2001).

In spite of the fact that the concept of tacit knowledge is widely discussed (see Ancori et al., 2000; Baumard, 1999; Collins, 2001; Cowan et al., 2000; Gertler, 2003; Lam, 2000; Polanyi, 1967; Reber, 1993), “the terminology and meaning of ‘tacitness’ in the economics literature [have] drifted far from its original epistemological and psychological moorings [and have] become unproductively amorphous” (Cowan et al., 2000, p. 213). Some authors use the concept of tacit knowledge as a kind of umbrella term for nonverbal knowledge that cannot be articulated by using linguistic expressions (e.g., the competence to play violin or to ski) and nonpropositional knowledge (e.g., knowing how to understand a bodily movement).¹⁶ In summary, “The concept...of knowledge tacitness has been stretched too far for being still useful” (Breschi & Lissoni, 2001b, p. 262).

In addition to nominal categorizations of knowledge, ordinal categorizations of knowledge¹⁷ focusing on different grades of knowledge are needed as well. It has already been mentioned that certain types of information can only be read and

than others. Factual knowledge searches for and relies on a kind of truth that can be empirically tested and rejected.

¹⁴Orientation knowledge provides a point of moral reference; it declares what is good or evil, right and wrong. It may consist of, for example, religious and ideological convictions, prejudices and stereotypes, national myths, political legends, loyalty to a community, or cultural traditions. Orientation knowledge creates collective memories and sustains the internal cohesion and motivation of a social system; it mobilizes loyalty.

With regard to the individual actor, it is evident that there is no clear boundary between factual and orientation knowledge. Both knowledge systems intermingle with each other. However, on the level of large and complex organizations, a clear functional differentiation between factual knowledge and orientation knowledge can be observed. Experts of factual knowledge have other tasks, need different training and skills, and use other methods than experts of orientation knowledge do (for details see Meusburger, 2015a).

¹⁵According to the philosopher Abel (2004), “tacit knowledge means those aspects of knowing that are implicit in situations of perceiving, speaking, thinking and acting, but are not made explicit, are not disclosed at surface” (p. 322).

¹⁶A number of authors argue, ironically, that the meaning and functioning of tacit knowledge usually remains tacit (Martin & Sunley, 2003, p. 17; Huber, 2012, p. 109).

¹⁷Another example of an ordinal categorization of knowledge has been presented by Willke (1998, p. 172) who discriminated between “simple knowledge” (observations of first order) and “reflexive knowledge” (observations of second order).

understood by people having a certain degree of prior knowledge at their disposal. The acquisition of this prior knowledge may take days, months, or many years and is associated with costs.¹⁸ Prior knowledge may refer to learning a foreign language, graduating in a scientific discipline, doing research about a specific topic for many years, gaining experience in a profession or community of practice for more than 10 years, improving one's cognitive skills and creativity, or just become literate.

It is possible to categorize knowledge in an ordinal scale according to the cognitive capacities, efforts, time, and costs needed to acquire it. High grades of knowledge demanding well-developed cognitive skills, years of study, research, professional training, and experience to be understood by the recipients of the information have to be distinguished from lower grades of knowledge, requiring much less educational achievement, less professional skills, and less experience to be understood, and from everyday routine knowledge easily understood by almost anybody. Such an ordinal differentiation of knowledge seems to be indispensable when it comes to the *spatial* dissemination of various categories of knowledge.

An Attempt to Construct a More Realistic Communication Model

When studying the communication and spatial dissemination of different categories of knowledge it is first necessary to consider both the cognitive processes of a communicator and potential recipients of information and the intervening obstacles and learning loops within the communication process. In this chapter, the emphasis is on microprocesses of communication, on factors that influence the knowledge transfer between individuals, such as the role of cognitive skills, competencies, interests, needs, motivation, beliefs, and ideologies. This micro scale of communication is the basis for communication links on the macro scale, for example, between institutions. As Foss et al. (2010) have pointed out,

macro–macro links are, methodologically speaking, shorthand for a more complex sub-structure of individual action and interaction. For example, organizational structure never *directly* impacts organizational performance; it may well effect, but only indirectly, namely through influencing individual conditions, actions and interactions. (p. 464)

In order to reduce the complexity of the communication process between person X in place A and person Y in place B, I propose a model focusing on some of the factors crucial to the process of knowledge exchange between communicator and recipient that can interrupt, distort, delay, modify, or stop it. They include at a minimum

- the willingness of person X to share his or her knowledge with others,
- the ability of person X to verbalize and codify his or her knowledge,

¹⁸ Among others, Foss et al. (2010) mentioned “that costs of sharing and integrating knowledge differ as a function of the characteristics of knowledge” (p. 468).

- the degree of attention, reputation, and visibility of the platform where the information is first or predominantly presented,
- the code in which an information is written,
- the communication channel (and type of contact) used to transmit the information,
- the place- or context-dependent chances of recipient Y to receive the information in time,
- the ability of recipient Y to read the used code,
- the prior knowledge¹⁹ or cognitive and absorptive capacities needed by Y to understand the information and integrate it into his or her knowledge base (rule-based processing of information, reflective system),²⁰
- the willingness (motivation) of the recipient to accept the new information (associative processing of information, impulsive system), and
- the pressure and control of the social environment, knowledge milieu, and culture the recipient of an information is exposed to.²¹

Each stage of the communication process has a high degree of actor-, community-, and place-dependent contingency and can act like a filter,²² letting some information pass in its original meaning and withholding, transforming, or distorting other information. In this context, the term *filter* is used as a metaphor for various cognitive processes, mind-sets, thought-styles,²³ and power relations that influence

¹⁹Prior knowledge is not something people possess; it is something they constantly develop in a way similar to the knowledge spiral described by Nonaka and Takeuchi (1995, p. 71). Such learning processes may encompass personal experience, professional training, graduation in a scientific discipline, or *encultured knowledge* (Blackler, 2002) arising from socialization and acculturation in specific cultural settings or shaped by stable relationships in organizational routines and interpersonal relationships. Prior knowledge also includes latent subconscious experience and intuition.

²⁰In recent years many social and cognitive psychologists have proposed that social behavior is controlled by two interacting systems—the reflective and the impulsive system—that follow different operating principles (for an overview of the literature see Krishna & Strack, 2017; Smith & DeCoster, 2000; Strack & Deutsch, 2004, 2007). “The reflective system generates behavioral decisions that are based on knowledge about facts and values, whereas the impulsive system elicits behavior through associative links and motivational orientations” (Strack & Deutsch, 2004, p. 220).

²¹It goes without saying that both the communicator and recipient of information are embedded in and influenced by contexts and spatial relations that affect the generation and diffusion of knowledge. However, this topic has already been discussed elsewhere (Meusburger, 2008, 2009a, 2013, 2015a, b) and will not be repeated here.

²²The concept of filter has already been used by Fiedler and Wänke (2009), Shera (1970) and Wagner and Sternberg (1987). “Knowledge...is the consequence of a filtering process; the process of filtering...facts through the ethical system or the intellectual system, or the system of scholarship...of the individual who receives it” (Shera, 1970, p. 96). In a similar way, Meusburger (1998) and Andrews and Delahaye (2000) examine the influence of the psychological filter on knowledge processes. Psychological determinants of individual engagement in knowledge sharing are also examined by Osterloh and Frey (2000).

²³Fleck (1935/1979) defines “thought style as the readiness for directed perception and appropriate assimilation of what has been perceived” (p. 142). In a more detailed definition he describes

the selectivity and direction of the perception, processing, evaluation, and interpretation of incoming information and the enactment of knowledge into practice. At each step of the communication process, selective perception, loss of information, misunderstandings, distortions, and misrepresentations are possible. The effects of these filters and other cultural, social, and psychological factors and processes are the most important reason why certain grades and contents of knowledge circulate only between particular people and places and bypass others, why the dispersion of particular research results is delayed for many years, and why certain categories of knowledge travel at different speeds and very selectively in the spatial dimension.

Any visualized model runs the risk of being misunderstood as a description of *static relations* and mechanistic interactions. In reality, these processes and steps of communication are not arranged sequentially as depicted in Fig. 2.3. They must be conceived of as interactive learning loops that incorporate cognitive skills, intellectual capacities, interests, motives, and prejudice of agents; organizational structures, strategic visions, resources, and work practices of social systems (institutions); and cultural influences, power relations, and spatial contexts.

The first step in the communication process is clarifying whether and to what extent a producer (communicator) of new knowledge is willing to share his or her knowledge. Andrews and Delahaye (2000); Cabrera, Collins, and Salgado (2006); and others identified various psychological, organizational, and system-related determinants of individual engagement in knowledge sharing. Scholars and other holders of valuable knowledge “actively make decisions about what knowledge they would share with whom, when” (Andrews & Delahaye, 2000, p. 803). In many situations, it may be wise or an advantage to leave competitors or opponents uncertain about one’s knowledge and goals. A new bargain is normally made public only after it has been signed. Particular scientific results may be shared only if scholars trust their colleagues or after the research results have been published or patented. Scholars, inventors, journalists, and other agents want to retain the ownership of their ideas. In the interviews conducted by Andrews and Delahaye (2000), “scientists spoke of the enormous personal impact of sharing knowledge unwisely: they could be *swallowed up, cut out of the chain*, and risked *losing credit, visibility, first authorship*, and a place on the patent” (p. 803).

The act of keeping knowledge secret, or restricting access to it, has a long tradition in human history because it provides the owner of secret knowledge competitive advantages or privileges. Many religions had their holy or secret knowledge that priests or shamans passed on only to chosen successors; some religions had temple precincts and sanctums that only priests were allowed to enter. In modern

“thought style as [the readiness for] directed perception, with corresponding mental and objective assimilation of what has been so perceived. It is characterized by common features in the problems of interest to a thought collective, by the judgment which the thought collective considers evident, and by the methods which it applies as a means of cognition. The thought style may also be accompanied by a technical and literary style characteristic of the given system of knowledge” (Fleck, 1935/1979, p. 99).

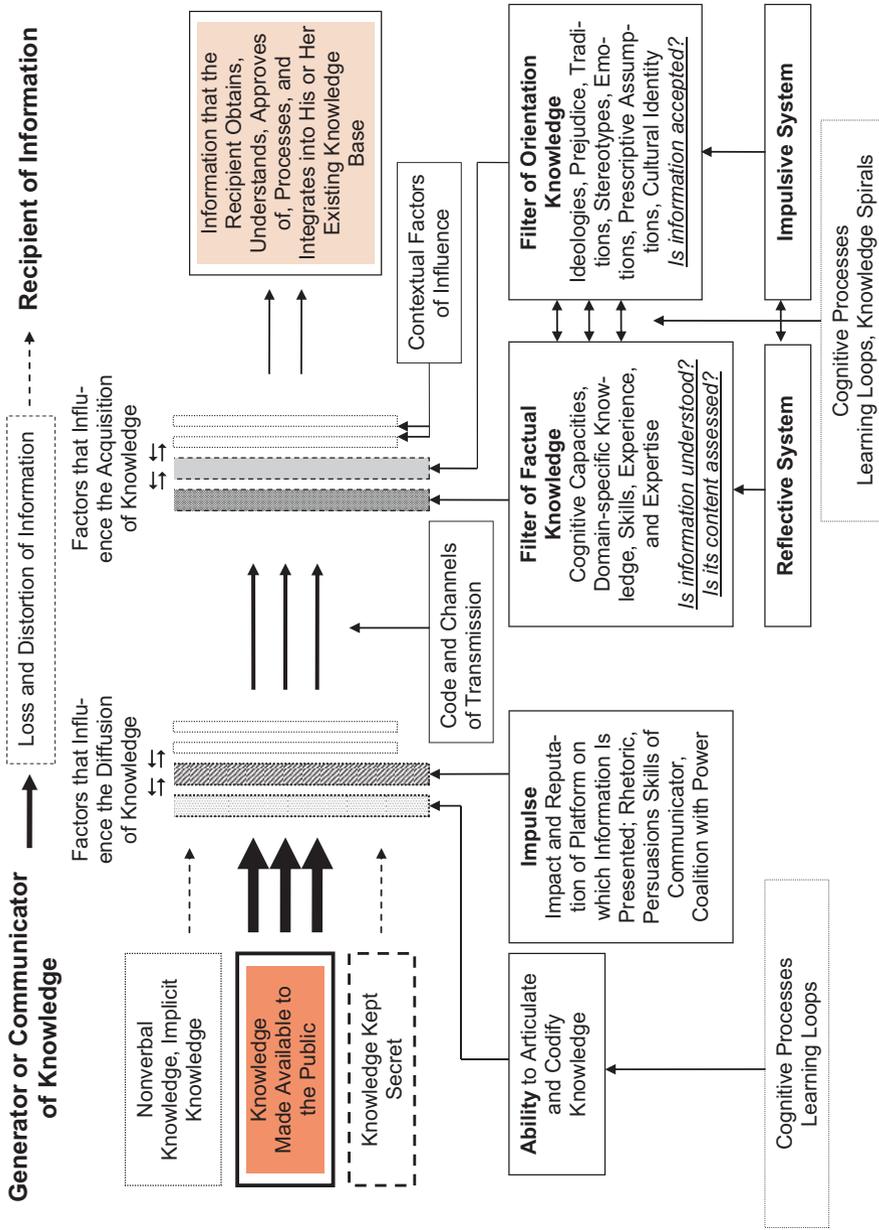


Fig. 2.3 Factors influencing the communication process between communicator and recipient (Design by author)

society, billions of dollars are spent to conduct or prevent industrial or military espionage.

The second question affecting the communication process is whether and to what extent a producer of new knowledge is able to articulate that knowledge in language, signs, and gestures; to codify it; to transform it into physical objects (e.g., scientific instruments, machines); or to demonstrate and teach his or her superior competence in other ways. It is common knowledge that a person knows more than he or she is able to articulate to someone else.

No matter how a given case may be described, the description is always a simplification permeated with apodictic and graphic elements. *Every communication and, indeed, all nomenclature tends to make any item of knowledge more exoteric and popular.* Otherwise each word would require a footnote to assign limitations and provide explanations. Each word of the footnote would need in turn a second word pyramid. (Fleck, 1935/1979, p. 114)

The third issue concerns the code in which new information is transformed. Different producers of knowledge are proficient in or prefer different codes. Some codes are understood by a large number of people; others, by only a few. A manuscript published in Estonian has fewer potential readers than a publication in English. The learning of a code may be costly and time consuming. Knowing a code “will discriminate between those who can grasp the meaning of the messages, and those who cannot (or at least have to sink in very high costs to learn...the code-book)” (Breschi & Lissoni, 2001b, p. 262).

The fourth factor that can enhance or confine dispersion of knowledge concerns the platforms on which (new) knowledge is presented. Experts, scientists, professionals, and other sources of knowledge require a platform of attention that effectively puts them in the spotlight and promotes their results and ideas in the relevant media. Different platforms achieve impulses of varying strength; they have dissimilar reputations, credibility, visibility, and audibility and therefore attract unequal attention. Because people’s memory and information-processing capacities are limited, their attention is selective and a scarce resource (Franck, 1998). Selectivity in perception determines what is learned and kept in memory and what is excluded. Judgment of significance is neither impartial nor spatially invariant. Considering today’s flood of information, the contents of a message or its usefulness for society are often less important for its wide diffusion than the platform on which it is presented. Manipulating the access to platforms of varying importance is an effective instrument of executing power.

The fifth factor concerns the channel or medium (TV news, scientific journal, book, lecture at university, Internet) through which new information is made public. Different media of transmission reach different audiences and have unequal ranges of coverage. In authoritarian states most of the media channels are controlled by institutions of political power; therefore, specific messages will not be distributed.

The next three steps of the communication process concern the potential recipients of information. Most studies on knowledge transfer overemphasize the provider and codifier of knowledge and assume that potential recipients will understand, accept, and use the knowledge available to them. In reality, the sources and trans-

mitters of knowledge have limited influence on the extent to which their knowledge is accepted and processed or on the way it is interpreted elsewhere.

The first question is whether a recipient has the resources or technical devices to receive the new information in time and to communicate with others. Millions of people have no access to the Internet, and even more will never have a chance to use a university library or access e-journals. If the resources to receive a message are available, the next question is whether the recipient is able to read the code in which it is written. At the beginning of the twenty-first century some 900 million people were illiterate. Most western scholars are not proficient in Chinese, Arabic, or Hebrew letters. Some are quite helpless when it comes to mathematical or chemical formula. In science and the humanities, language barriers are among the most severe impediments for the exchange of knowledge (for details see Paasi, 2015).²⁴

A recipient may indeed be able to read incoming knowledge, but it nonetheless has to pass at least three more filters before it has been successfully processed and incorporated into that person's existing knowledge base. The first is the recipient's level of factual knowledge, the second his or her decision about the usefulness or relevance of the new information, and the third his or her orientation knowledge.

Even after a recipient has received knowledge from an external source, he must still figure out how to use it. The recipient must appraise, adapt, and ultimately "transform" whatever he has learned from the source in order for it to be useful in his work context. (Tortoriello et al., 2012, p. 1026)

The filter of factual knowledge decides whether a person is able to understand the semantic meaning of the incoming information, to evaluate its importance and shortcomings, to recognize its usefulness and far-reaching implications for his or her needs and goals, to integrate it into his or her knowledge base, and to transform the knowledge into action. The evaluation of the usefulness of knowledge is a function of prior knowledge, but is also influenced by context- and discipline-specific factors (for details see Froese & Mevissen, 2016). Experts in different domains, with different levels of expertise and different strategic interests, may evaluate new incoming information disparately. Persons who have not completed years of study and research in molecular biology or theoretical physics have little or no use for the scientific publications available in those fields. Most agents are searching for domain-specific knowledge, with knowledge of other domains being regarded irrelevant and useless. Knowledge acquired in order to survive in polar regions is not expedient for nomads in a desert.

Even between scholars in the same discipline, communication can falter when individuals adhere to different thought styles or thought communities or do not have the discursive openness necessary to accept colleagues' new methods or theories.²⁵

²⁴International journals of the humanities and social sciences are full of monolingual lists of references, in spite of the fact that some of the most important publications of the relevant research field have been published in other languages.

²⁵"[O]nly in [discursive] openness are new truths able to emerge, truths that are not simply a yielding of one position to another, but a genuine preservation of the insight contained in either" (Ramberg & Gjesdal, 2014, sec. 9, para. 6).

“The greater the difference between two thought styles, the more inhibited will be the communication of ideas” (Fleck, 1935/1979, p. 109). In extreme cases, the thought style “constrains the individual by determining ‘what can be thought in no other way.’ Whole eras will then be ruled by this thought constraint” (p. 99).

The organic exclusiveness of every thought commune goes hand in hand with a stylized limitation upon the problems admitted. It is always necessary to ignore or reject many problems as trifling or meaningless. Modern science also distinguishes “real problems” from useless “bogus problems.” This creates specialized valuation and characteristic intolerance, which are features shared by all exclusive communities. (p. 104)

A thought style can influence the perception and interpretation of information and in extreme cases it can constrain, inhibit, and determine the way of thinking.

Under the influence of a thought style one cannot think in any other way. It also excludes alternative modes of perception. Accordingly, no proper communication can arise between different thought styles. A thought style functions at such a fundamental level that the individual seems generally unaware of it. It exerts a compulsive force upon his thinking, so that he normally remains unconscious both of the thought style as such and of its constraining character. Yet such a style can be revealed in practice by an examination of how it is applied. The existence of stable thought collectives suggests the presence of a rather permanent thought style. (Trenn & Merton, 1979, p. 159)

The third filter for incoming information concerns orientation knowledge and spontaneous impulses. Orientation knowledge normally is equated with religious, cultural, and ideological knowledge. However, some theoretical concepts and paradigms used in scientific disciplines also prove to be based on prejudice, preconception, and jaundice. The obstinate adherence to a specific scientific paradigm or school of thought can entail the same detrimental effects as ideological prejudice.²⁶ Orientation knowledge has a bearing on whether new information is emotionally or ideologically rejected, whether it is compatible with the recipient’s self-perception, emotions, and identity. Information may be rejected because it questions the recipient’s own research or thought style, because it shatters the reputation of a thought community, a scientific school, or scientific approach a person is associated with. Decisions to accept or repudiate new information may occur mindlessly or automatically; that is, “without directing much attention to the utility of an outcome, a person may act the way he or she has acted many times before” (Strack & Deutsch, 2004, p. 220).

The dichotomy between factual knowledge and orientation knowledge can be enhanced by the dichotomy of reflexive and impulsive thought. In recent years, psychologists proposed that social behavior is the effect of two interacting systems of information processing or two modes of judgment—the reflective system and the impulsive system—that follow different operating principles (for an overview of the

²⁶ Followers of traditional neoclassical theory argued for decades that the *homo oeconomicus* acts in a more or less homogeneous space and has access to the information needed for rational decision-making. In the last 20 or 30 years, most of these ideas were largely discredited, not only in science studies, geography of knowledge, or actor-network theory, but also in evolutionary economics, behavioral economics, the concepts of bounded rationality, new theories of the firm, or the strategic management approach.

literature see Krishna & Strack, 2016; Smith & DeCoster, 2000; Strack & Deutsch, 2004, 2007). The *reflective* system is determined by deliberate thought and generates decisions that are based on knowledge about facts and values. It operates according to propositional principles; it is flexible, effortful, slow, requires motivation, and its operation is typically conscious. It is driven by working memory resources, which sets limits for its capacity for information processing. The *impulsive* system operates according to associative principles; it is inflexible, effortless, always active, and may operate unconsciously. The impulsive system can be seen as long-term memory and therefore has functionally unlimited capacity (Strack & Deutsch, 2004, pp. 220–223; Krishna & Strack, 2016).

The reflective system requires a high amount of cognitive capacity.... In contrast, the impulsive system requires little cognitive capacity and may control behavior under suboptimal conditions. As a consequence, processes of the reflective system are disturbed more easily than those of the impulsive system (Strack & Deutsch, 2004, p. 223)

Conclusion

An in-depth model of the communication process between a source of knowledge and recipient of information is the foundation of any research about the mobility of different categories of knowledge. The spatial diffusion of knowledge depends both on the willingness of the producer to share his or her knowledge and the skills, experiences, and cognitive processes of the potential recipients of information. Research on knowledge-spillovers, knowledge-sharing, or territorial knowledge dynamics has focused more or less on successful cases of learning and knowledge exchange. It seldom asked the question why the diffusion of knowledge within clusters or networks failed.

This paper shows that the category, grade, and content of knowledge; the code and channels of transmission; the prior knowledge of potential recipients; and some other factors decide about the speed and target locations of the spatial diffusion of knowledge. It explains why large proportions of high-grade knowledge (certain scientific results) can only be spread to a small number of target locations. Only very simple, everyday low-grade knowledge can be communicated in a way that it reaches large parts of the world in a short period of time and at no or little cost. Even some types of low-grade knowledge can get lost at one of the steps of the communication model or not run unchanged through the communication process.

The communication model presented in this chapter can be extended by including the role and impact of institutional, cultural, and political contexts. Possible recipients of information are embedded in and influenced by different institutions, cultural contexts (Chen, Sun, & McQueen, 2010; Lucas, 2006), knowledge environments (Meusburger, 2015b), KnowledgeScapes (Matthiesen, 2009, 2013), business ecologies (Grabher et al., 2008), networks (Glückler, 2007, 2013; Grabher & Ibert, 2006), institutional logics (Battilana, 2006; Suddaby, Elsbach, Greenwood, Meyer, & Zilber, 2010), citation cartels (Paasi, 2015), and, not to forget, world views and

ideologies. Such institutions, contexts, or milieus may screen out certain information, show preferences for particular results, dispose taboos, exert censorship, and apply pressure on their members.

The model can be further amended by issues of how knowledge is legitimated; how individual knowledge becomes collective knowledge of an organization; how knowledge is transformed into organizational routines and structures; how the processing of information is modified by the presence of others; how the communication process is influenced by an organization's size and hierarchic structure; and to what extent *knowledge governance* "can influence the processes of using, sharing, integrating, and creating knowledge in preferred directions and towards preferred levels" (Foss et al., 2010, p. 456; see also Spender, 2005).

Acknowledgement I am grateful to David Antal for his elegant translation and editing of this chapter.

References

- Abel, G. (2004). *Zeichen der Wirklichkeit* [Signs of reality]. Frankfurt am Main: Suhrkamp.
- Amin, A., & Cohendet, P. (2004). *Architectures of knowledge: Firms, capabilities, and communities*. Oxford: Oxford University Press.
- Ancori, B., Bureth, A., & Cohendet, P. (2000). The economics of knowledge: The debate about codification and tacit knowledge. *Industrial and Corporate Change*, 9, 255–287. doi:10.1093/icc/9.2.255
- Andrews, K. M., & Delahaye, B. L. (2000). Influences on knowledge processes in organizational learning: The psychosocial filter. *Journal of Management Studies*, 37, 797–810. doi:10.1111/1467-6486.00204
- Antweiler, C. (2016). Local knowledge as a universal social product: A general model and a case from Southeast Asia. In P. Meusburger, T. Freytag, & L. Suarsana (Eds.), *Ethnic and cultural dimensions of knowledge* (pp. 165–190). Knowledge and Space: Vol. 8. Dordrecht: Springer. doi:10.1007/978-3-319-21900-4_8
- Asheim, B. (2007). Differentiated knowledge bases and varieties of regional innovation systems. *Innovation: European Journal of Social Science Research*, 20, 223–241. doi:10.1080/13511610701722846
- Batilana, J. (2006). Agency and institutions: The enabling role of individuals' social position. *Organization*, 13, 653–676. doi:10.1177/1350508406067008
- Baumard, P. (1999). *Tacit knowledge in organizations*. London: Sage.
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28, 31–56. doi:10.1191/0309132504ph469oa
- Bathelt, H., & Glückler, J. (2011). *The relational economy: Geographies of knowing and learning*. Oxford: Oxford University Press.
- Blackler, F. (2002). Knowledge, knowledge work, and organizations: An overview and interpretation. In C. W. Choo & N. Bontis (Eds.), *The strategic management of intellectual capital and organizational knowledge* (pp. 47–62). Oxford: Oxford University Press.
- Breschi, S., & Lissoni, F. (2001a). Knowledge spillovers and local innovation systems: A critical survey. *Industrial and Corporate Change*, 10, 975–1005. doi:10.1093/icc/10.4.975

- Breschi, S., & Lissoni, F. (2001b). Localised knowledge spillovers vs. innovative milieu: Knowledge ‘tacitness’ reconsidered. *Papers in Regional Science*, 80, 255–273. doi:[10.1111/j.1435-5597.2001.tb01799.x](https://doi.org/10.1111/j.1435-5597.2001.tb01799.x)
- Breschi, S., & Malerba, F. (2001). The geography of innovation and economic clustering: Some introductory notes. *Industrial and Corporate Change*, 10, 817–833. doi:[10.1093/icc/10.4.817](https://doi.org/10.1093/icc/10.4.817)
- Butzin, A., & Widmaier, B. (2016). Exploring territorial knowledge dynamics through innovation biographies. *Regional Studies*, 50, 220–232. doi:[10.1080/00343404.2014.1001353](https://doi.org/10.1080/00343404.2014.1001353)
- Cabrera, Á., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing. *International Journal of Human Resource Management*, 17, 245–264. doi:[10.1080/09585190500404614](https://doi.org/10.1080/09585190500404614)
- Cairncross, F. (1997). *The death of distance: How the communications revolution will change our lives*. Boston: Harvard Business School Press.
- Callon, M., Cohendet, P., Curien, N., Dalle, J. M., Eymard-Duvernay, F., Foray, D., & Schenk, E. (1999). *Réseau et coordination* [Network and coordination]. Paris: Economica.
- Chen, J., Sun, P.Y.T., & McQueen, R. J. (2010). The impact of national cultures on structured knowledge transfer. *Journal of Knowledge Management*, 14, 228–242. doi:[10.1108/13673271011032373](https://doi.org/10.1108/13673271011032373)
- Cialdini, R. B. (2008). Turning persuasion from an art into a science. In P. Meusburger, M. Welker, & E. Wunder (Eds.), *Clashes of Knowledge. Orthodoxies and heterodoxies in science and religion* (pp. 199–209). Knowledge and Space: Vol. 1. Dordrecht: Springer. doi:[10.1007/978-1-4020-5555-3_12](https://doi.org/10.1007/978-1-4020-5555-3_12)
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152. doi:[10.2307/2393553](https://doi.org/10.2307/2393553)
- Cohendet, P., & Steinmüller, W. E. (2001). The codification of knowledge: A conceptual and empirical exploration. *Industrial and Corporate Change*, 9, 195–209. doi:[10.1093/icc/9.2.195](https://doi.org/10.1093/icc/9.2.195)
- Collins, H. M. (1983). The sociology of scientific knowledge: Studies of contemporary science. *Annual Review of Sociology*, 9, 265–285. doi:[10.1146/annurev.so.09.080183.001405](https://doi.org/10.1146/annurev.so.09.080183.001405)
- Collins, H. M. (2001). What is tacit knowledge? In T. R. Schatzki, K. Knorr Cetina, & E. von Savigny (Eds.), *The practice turn in contemporary theory* (pp. 107–119). London: Routledge.
- Cowan, R., David, P. A., & Foray, D. (2000). The explicit economics of knowledge codification and tacitness. *Industrial and Corporate Change*, 9, 211–253. doi:[10.1093/icc/9.2.211](https://doi.org/10.1093/icc/9.2.211)
- Crevoisier, O. (2016). The economic value of knowledge: Embodied in goods or embedded in cultures? *Regional Studies*, 50, 189–201. doi:[10.1080/00343404.2015.1070234](https://doi.org/10.1080/00343404.2015.1070234)
- Crevoisier, O., & Jeannerat, H. (2009). Territorial knowledge dynamics: From the proximity paradigm to multi-location milieu. *European Planning Studies*, 17, 1223–1241. doi:[10.1080/09654310902978231](https://doi.org/10.1080/09654310902978231)
- Fershtman, C., & Gandal, N. (2011). Direct and indirect knowledge spillovers: The “social network” of open-source projects. *RAND Journal of Economics*, 42, 70–91. doi:[10.1111/j.1756-2171.2010.00126.x](https://doi.org/10.1111/j.1756-2171.2010.00126.x)
- Fiedler, K., & Wänke, M. (2009). The cognitive-ecological approach to rationality in social psychology. *Social Cognition*, 27, 699–732.
- Fischer, M. M. (2001). Innovation, knowledge creation and systems of innovation. *The Annals of Regional Science*, 35, 199–216. doi:[10.1007/s001680000034](https://doi.org/10.1007/s001680000034)
- Fischer, M. M., Scherngell, T., & Jansenberger, E. (2006). The geography of knowledge spillovers between high technology firms in Europe: Evidence from a spatial interaction modelling perspective. *Geographical Analysis*, 38, 288–309. doi:[10.1111/j.1538-4632.2006.00687.x](https://doi.org/10.1111/j.1538-4632.2006.00687.x)
- Fleck, L. (1979). *Genesis and development of a scientific fact* (F. Bradley & T. J. Trenn, Trans.). Chicago: Chicago University Press. (Original work published in 1935). Retrieved from <http://www.evolocus.com/Textbooks/Fleck1979.pdf>
- Foss, N. J., Husted, K., & Michailova, S. (2010). Governing knowledge sharing in organizations: Levels of analysis, governance mechanisms, and research directions. *Journal of Management Studies*, 47, 455–482. doi:[10.1111/j.1467-6486.2009.00870.x](https://doi.org/10.1111/j.1467-6486.2009.00870.x)

- Franck, G. (1998). *Ökonomie der Aufmerksamkeit. Ein Entwurf* [The economy of attention: A draft]. Munich: Hanser.
- Froese, A., & Mevissen, N. (2016). Fragmentierter Wissenstransfer der Sozialwissenschaften: Zur Relevanz disziplinspezifischer Kontextfaktoren [Fragmented knowledge transfer of social sciences: The relevance of discipline-specific context factors]. In A. Froese, D. Simon, & J. Böttcher (Eds.), *Sozialwissenschaften und Gesellschaft. Neue Verortungen von Wissenstransfer* (pp. 31–63). Bielefeld: transkript.
- Fujita, M., Krugman, P. R., & Venables, A. J. (1999). *The spatial economy: Cities, regions, and international trade*. Cambridge, MA: MIT Press.
- Gadamer, H.-G. (1999). *Truth and method*. 2nd, revised edition (J. Weinsheimer & D. G. Marshall, Trans.). New York: Continuum (Original work published in 1960).
- Gertler, M. S. (2003). Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *Journal of Economic Geography*, 3, 75–99. doi:10.1093/jeg/3.1.75
- Glückler, J. (2007). Economic geography and the evolution of networks. *Journal of Economic Geography*, 7, 619–634. doi:10.1093/jeg/lbm023
- Glückler, J. (2013). Knowledge, networks and space: Connectivity and the problem of non-interactive learning. *Regional Studies*, 47, 880–894. doi:10.1080/00343404.2013.779659
- Goddard, J. B. (1971). Office communications and office location: A review of current research. *Regional Studies*, 5, 263–280. doi:10.1080/09595237100185311
- Goddard, J. B., & Morris, D. (1976). The communications factor in office decentralization. *Progress in Planning*, 6, 1–80. doi:10.1016/0305-9006(76)90007-6
- Goddard, J. B., & Pye, R. (1977). Telecommunications and office location. *Regional Studies*, 11, 19–30. doi:10.1080/09595237700185031
- Gottmann, J. (1980). Confronting centre and periphery. In J. Gottmann (Ed.), *Centre and periphery: Spatial variation in politics* (pp. 11–25). London: Sage.
- Grabher, G., & Ibert, O. (2006). Bad company? The ambiguity of personal knowledge networks. *Journal of Economic Geography*, 6, 251–271. doi:10.1093/jeg/lbi014
- Grabher, G., Ibert, O., & Flohr, S. (2008). The neglected king: The customer in the new knowledge ecology of innovation. *Economic Geography*, 84, 253–280. doi:10.1111/j.1944-8287.2008.tb00365.x
- Gregory, D. (2000). Cultures of travel and spatial formations of knowledge. *Erkunde*, 54, 297–319. <http://www.jstor.org/stable/25647315>
- Henderson, J. V. (2007). Understanding knowledge spillovers. *Regional Science and Urban Economics*, 37, 497–508. doi:10.1016/j.regsciurbeco.2006.11.010
- Huber, F. (2012). Do clusters really matter for innovation practices in Information Technology? Questioning the significance of technological knowledge spillovers. *Journal of Economic Geography*, 12, 107–126. doi:10.1093/jeg/lbq058
- Jaffe, A. B., Trajtenberg, M., & Henderson, R. (1993). Geographic localizations of knowledge spillovers as evidenced by patent citations. *Quarterly Journal of Economics*, 108, 577–598. Retrieved from <http://www.jstor.org/stable/2118401>
- James, L., Vissers, G., Larsson, A., & Dahlström, M. (2016). Territorial knowledge dynamics and knowledge anchoring through localized networks: The automotive sector in Västra Götaland. *Regional Studies*, 50, 233–244. doi:10.1080/00343404.2015.1007934
- Jeannerat, H., & Crevoisier, O. (2016). [Editorial] From ‘territorial innovation models’ to ‘territorial knowledge dynamics’: On the learning value of a new concept in regional studies. *Regional Studies*, 50, 185–188. doi:10.1080/00343404.2015.1105653
- Karlsson, C., & Manduchi, A. (2001). Knowledge spillovers in a spatial context. A critical review and assessment. In M. M. Fischer & J. Fröhlich (Eds.), *Knowledge, complexity and innovation systems* (pp. 101–123). Advances in Spatial Science: Vol. 28. Heidelberg: Springer.
- Krishna, A., & Strack, F. (2017). Reflection and impulse as determinants of human behavior. In P. Meusburger, B. Werlen, & L. Suarsana (Eds.), *Knowledge and action* (pp. 145–167). Knowledge and Space: Vol. 9. Dordrecht: Springer. doi:10.1007/978-3-319-44588-5_9
- Knoke, K. (1996). *Bold New World: The essential road map to the twenty-first century*. New York: Kodansha.

- Lam, A. (2000). Tacit knowledge, organizational learning and societal institutions: An integrated framework. *Organizational Studies*, 21, 487–513. doi:[10.1177/0170840600213001](https://doi.org/10.1177/0170840600213001)
- Liebeskind, J. P. (1996). Knowledge, strategy, and the theory of the firm. [Special Issue] *Strategic Management Journal*, 17(S2), 93–107. doi:[10.1002/smj.4250171109](https://doi.org/10.1002/smj.4250171109)
- Livingstone, D. N. (1995). The spaces of knowledge: Contributions towards a historical geography of science. *Environment and Planning D: Society and Space*, 13, 5–34. doi:[10.1068/d130005](https://doi.org/10.1068/d130005)
- Livingstone, D. N. (2000). Making space for science. *Erdkunde*, 54, 285–296. doi:[10.3112/erdkunde.2000.04.01](https://doi.org/10.3112/erdkunde.2000.04.01)
- Livingstone, D. (2002). Knowledge, space and the geographies of science. In D. N. Livingstone, *Science, space and hermeneutics* (pp. 7–40). Hettner-Lecture: Vol. 5. Heidelberg: Department of Geography.
- Livingstone, D. N. (2003). *Putting science in its place: Geographies of scientific knowledge*. Chicago: University of Chicago Press.
- Lucas, L. M. (2006). The role of culture on knowledge transfer: The case of the multinational corporation. *The Learning Organization*, 13, 257–275.
- Mager, C. (2012). Heidelberg Nobel Prize winners. In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University. Spatio-temporal relations of academic knowledge production* (pp. 250–253). Knittlingen: Bibliotheca Palatina.
- Malmberg, A., & Maskell, P. (2002). The elusive concept of localization economies: Towards a knowledge-based theory of spatial clustering. *Environment and Planning A*, 34, 429–449. doi:[10.1068/a3457](https://doi.org/10.1068/a3457)
- Martin, R., & Sunley, P. (2003) Deconstructing clusters: Chaotic concept or policy panacea? *Journal of Economic Geography*, 3, 5–35. doi:[10.1093/jeg/3.1.5](https://doi.org/10.1093/jeg/3.1.5)
- Maskell, P., & Malmberg, A. (1999). Localized learning and industrial competitiveness. *Cambridge Journal of Economics*, 23, 167–185. doi:[10.1093/cje/23.2.167](https://doi.org/10.1093/cje/23.2.167)
- Matthiesen, U. (2009). KnowledgeScapes: A new conceptual approach and selected empirical findings from recent research on knowledge milieus and knowledge networks. *disP—The Planning Review*, 177, 10–28. doi:[10.1080/02513625.2009.10557032](https://doi.org/10.1080/02513625.2009.10557032)
- Matthiesen, U. (2013). A new conceptual approach and selected empirical findings from research on knowledge milieus and knowledge networks. In P. Meusburger, J. Glückler, & M. El Meskioui (Eds.), *Knowledge and the economy* (pp. 173–203). Knowledge and Space: Vol. 5. Dordrecht: Springer. doi:[10.1007/978-94-007-6131-5_10](https://doi.org/10.1007/978-94-007-6131-5_10)
- Meusburger, C. (2009). Cosmological measurements, time and observables in (2+1)-dimensional gravity. *Classical and Quantum Gravity*, 26, 055006, 1–32. doi:[10.1088/0264-9381/26/5/055006](https://doi.org/10.1088/0264-9381/26/5/055006)
- Meusburger, P. (1980). *Beiträge zur Geographie des Bildungs- und Qualifikationswesens. Regionale und soziale Unterschiede des Ausbildungsniveaus der österreichischen Bevölkerung* [Contributions to the geography of education and qualification: Regional and social disparities of the educational achievement of the Austrian population]. Innsbrucker Geographische Studien: Vol. 7. Innsbruck: Innsbruck University, Department of Geography.
- Meusburger, P. (1998). *Bildungsgeographie. Wissen und Ausbildung in der räumlichen Dimension* [Geography of education: Knowledge and education in the spatial dimension]. Heidelberg: Spektrum Akademischer Verlag.
- Meusburger, P. (2000). The spatial concentration of knowledge: Some theoretical considerations. *Erdkunde*, 54, 352–364. doi:[10.3112/erdkunde.2000.04.05](https://doi.org/10.3112/erdkunde.2000.04.05)
- Meusburger, P. (2008). The nexus between knowledge and space. In P. Meusburger, M. Welker, & E. Wunder (Eds.), *Clashes of Knowledge. Orthodoxies and heterodoxies in science and religion* (pp. 35–90). Knowledge and Space: Vol. 1, Dordrecht: Springer. doi:[10.1007/978-1-4020-5555-3_2](https://doi.org/10.1007/978-1-4020-5555-3_2)
- Meusburger, P. (2009a). Milieus of creativity. The role of places, environments, and spatial contexts. In P. Meusburger, J. Funke, & E. Wunder (Eds.), *Milieus of creativity. An interdisciplinary approach to spatiality of creativity* (pp. 97–153). Knowledge and Space: Vol. 2. Dordrecht: Springer. doi:[10.1007/978-1-4020-9877-2_7](https://doi.org/10.1007/978-1-4020-9877-2_7)

- Meusburger, P. (2009b). Spatial mobility of knowledge: A proposal for a more realistic communication model. *disP—The Planning Review* 177/2, 29–39. doi:10.1080/02513625.2009.10557033
- Meusburger, P. (2013). Relations between knowledge and economic development: Some methodological considerations. In P. Meusburger, J. Glückler, & M. El Meskioui (Eds.), *Knowledge and the economy* (pp. 15–42). Knowledge and Space: Vol. 5. Dordrecht: Springer. doi:10.1007/978-94-007-6131-5_2
- Meusburger, P. (2015a). Relations between knowledge and power: An overview of research questions and concepts. In P. Meusburger, D. Gregory, & L. Suarsana (Eds.), *Geographies of knowledge and power* (pp. 19–74). Knowledge and Space: Vol. 7. Dordrecht: Springer. doi:10.1007/978-94-017-9960-7_1
- Meusburger, P. (2015b). Knowledge environments in universities. *Hungarian Geographical Bulletin*, 64, 265–279. doi:10.15201/hungeobull.64.4.1
- Meusburger, P., Koch, G., & Christmann, G. B. (2011). Nähe- und Distanz-Praktiken in der Wissenserzeugung. Zur Notwendigkeit einer kontextbezogenen Analyse [Proximity and distance practices in the generation of knowledge: The necessity of a context related analysis]. In O. Ibert & H. J. Kujath (Eds.), *Räume der Wissensarbeit. Zur Funktion von Nähe und Distanz in der Wissensökonomie* (pp. 221–249). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Mintzberg, H. (1979). *The structuring of organizations. A synthesis of the research*. Englewood Cliffs: Prentice Hall.
- Naisbitt, R. (1982). *Megatrends: Ten new directions transforming our lives*. New York: Warner Books.
- Negroponte, N. (1995). *Being digital*. New York: Knopf.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company. How Japanese companies create the dynamics of innovation*. Oxford: Oxford University Press.
- Nüsser, M., & Baghel, R. (2016). Local knowledge and global concerns: Artificial glaciers as a focus of environmental knowledge and development interventions. In P. Meusburger, T. Freytag, & L. Suarsana (Eds.), *Ethnic and cultural dimensions of knowledge* (pp. 191–209). Knowledge and Space: Vol. 8. Dordrecht: Springer. doi:10.1007/978-3-319-21900-4_9
- Oinas, P., & Malecki, E. (2002). The evolution of technology in time and space: From national and regional innovation systems to spatial innovation systems. *International Regional Science Review*, 25, 102–131. doi:10.1177/016001702762039402
- Osterloh, M., & Frey, B. (2000). Motivation, knowledge transfer, and organizational form. *Organization Science*, 11, 538–550. doi:10.1287/orsc.11.5.538.15204
- Paasi, A. (2015). “Hot spots, dark-side dots, tin pots”: The uneven internationalism of the global academic market. In P. Meusburger, D. Gregory, & L. Suarsana (Eds.), *Geographies of knowledge and power* (pp. 247–262). Knowledge and Space: Vol. 7. Dordrecht: Springer. doi:10.1007/978-94-017-9960-7_12
- Polanyi, M. (1967). *The tacit dimension*. Garden City: Doubleday.
- Raditsch, L. (2012). European Molecular Biology Laboratory (EMBL). In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University. Spatio-temporal relations of academic knowledge production* (pp. 288–289). Knittlingen: Bibliotheca Palatina.
- Ramberg, B., & Gjesdal, K. (2014). Hermeneutics. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Retrieved from <http://plato.stanford.edu/archives/win2014/entries/hermeneutics/> (Original work published 2005)
- Reber, A. S. (1993). *Implicit learning and tacit knowledge: An essay on the cognitive unconscious*. Oxford Psychology Series: Vol. 19. New York: Clarendon Press.
- Relph, E. (1976). *Place and placelessness*. London: Pion.
- Schafmeier, T., Franke-Schaub, M., Schirmer, H., & Brunner, M. (2012). Heidelberg University Biochemistry Center (BZH). In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University. Spatio-temporal relations of academic knowledge production* (pp. 222–224). Knittlingen: Bibliotheca Palatina.

- Scherngell, T. (2007). *Interregionale Wissensspillovers in der europäischen High-Tech Industrie. Eine empirische Analyse* [Inter-regional knowledge spillovers in the European high-tech industry]. Wiesbaden: Deutscher Universitäts-Verlag.
- Seltmann, S. (2012). The German Cancer Research Center (DKFZ). In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University. Spatio-temporal relations of academic knowledge production* (pp. 284–285). Knittlingen: Bibliotheca Palatina.
- Senft, G. (2016). “*Masawa—bogeokwa si tuta!*”: Cultural and cognitive implications of the Trobriand Islanders’ gradual loss of their knowledge of how to make a *Masawa* canoe. In P. Meusburger, T. Freytag, & L. Suarsana (Eds.), *Ethnic and cultural dimensions of knowledge* (pp. 229–256). Knowledge and Space: Vol. 8. Dordrecht: Springer. doi:[10.1007/978-3-319-21900-4_11](https://doi.org/10.1007/978-3-319-21900-4_11)
- Shera, J. H. (1970). *Sociological foundations of librarianship*. Mumbai: Asia Publishing House.
- Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunication*. London: Wiley.
- Sillitoe, P. (2016). The knowing in indigenous knowledge: Alternative ways to view development, largely from a New Guinea Highlands’ perspective. In P. Meusburger, T. Freytag, & L. Suarsana (Eds.), *Ethnic and cultural dimensions of knowledge* (pp. 129–163). Knowledge and Space: Vol. 8. Dordrecht: Springer. doi:[10.1007/978-3-319-21900-4_7](https://doi.org/10.1007/978-3-319-21900-4_7)
- Smith, E. R., & DeCoster, J. (2000). Dual process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review*, 4, 108–131. doi:[10.1207/S15327957PSPR0402_01](https://doi.org/10.1207/S15327957PSPR0402_01)
- Spender, J. C. (2005). Review article: An essay of the state of knowledge management. *Prometheus*, 23, 101–116. doi:[10.1080/0810902042000335732](https://doi.org/10.1080/0810902042000335732)
- Spinner, H. F. (1994). *Die Wissensordnung: Ein Leitkonzept für die dritte Grundordnung des Informationszeitalters* [Studies on the knowledge order: A concept to guide the third fundamental order of the information age]. Studien zur Wissensordnung: Vol. 1. Opladen: Leske & Budrich.
- Storper, M., & Venables, A. J. (2004). Buzz: Face-to-face contact and the urban economy. *Journal of Economic Geography*, 4, 351–370. doi:[10.1093/jnlecg/lbh027](https://doi.org/10.1093/jnlecg/lbh027)
- Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review*, 8, 220–247. doi:[10.1207/s15327957pspr0803_1](https://doi.org/10.1207/s15327957pspr0803_1)
- Strack, F., & Deutsch, R. (2007). The role of impulse in social behavior. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (revised and expanded 2nd ed., pp. 408–431). New York: Guilford Press.
- Strassoldo, R. (1980). Centre-periphery and system boundary: Cultural perspectives. In J. Gottmann (Ed.), *Centre and periphery: Spatial variation in politics* (pp. 27–61). London: Sage.
- Suddaby, R., Elsbach, K. D., Greenwood, R., Meyer, J. W., & Zilber, T. B. (2010). Organizations and their institutional environments. Bringing meaning, values, and culture back in: Introduction to the special research forum. *Academy of Management Journal*, 53, 1234–1240. <http://www.jstor.org/stable/29780257>
- Tichenor, P. J., Donohue, G. A., & Olien, C. N. (1970). Mass media flow and differential growth in knowledge. *The public opinion quarterly*, 34, 159–170. Retrieved from <http://www.jstor.org/stable/2747414>
- Toffler, A. (1980). *The third wave*. New York: Bantam Books.
- Tortoriello, M., Reagans, R., & McEvily, B. (2012). Bridging the knowledge gap: The influence of strong ties, network cohesion, and network range on the transfer of knowledge between organizational units. *Organization Science*, 23, 1024–1039. doi:[10.1287/orsc.1110.0688](https://doi.org/10.1287/orsc.1110.0688)
- Trenn, T. J., & Merton, R. K. (1979). Descriptive analysis. In L. Fleck, *Genesis and development of a scientific fact* (pp. 154–165). Chicago: Chicago University Press.
- Tsai, W. (2001). Knowledge transfer in intra-organizational networks. *Academy of Management Journal*, 44, 996–1004. doi:[10.2307/3069443](https://doi.org/10.2307/3069443)

- Vissers, G., & Dankbaar, B. (2016). Spatial aspects of interfirm collaboration: An exploration of firm-level knowledge dynamics. *Regional Studies*, *50*, 260–273. doi:[10.1080/00343404.2014.1001352](https://doi.org/10.1080/00343404.2014.1001352)
- Wagner, R. K., & Sternberg, R. J. (1987). Tacit knowledge in managerial success. *Journal of Business and Psychology*, *1*, 301–312. doi:[10.1007/BF01018140](https://doi.org/10.1007/BF01018140)
- Whitley, R. (1984a). The development of management studies as a fragmented adhocracy. *Social Science Information*, *23*, 775–818. doi:[10.1177/053901884023004007](https://doi.org/10.1177/053901884023004007)
- Whitley, R. (1984b). *The intellectual and social organization of the sciences*. Oxford: Clarendon Press.
- Willke, H. (1998). Organisierte Wissensarbeit [Organized knowledge work]. *Zeitschrift für Soziologie*, *27*, 161–177. Retrieved from <http://www.zfs-online.org/index.php/zfs/article/viewFile/2971/2508>

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Chapter 3

Papermaking: The Historical Diffusion of an Ancient Technique

Jonathan M. Bloom

Paper was invented in China in the centuries before Christ and carried by Buddhist monks throughout East and Central Asia (Tsien, 1985), where Muslim Arabs encountered it in the eighth century CE. Muslims carried paper and papermaking to the Mediterranean region, and European Christians there learned how to make it by the twelfth century. Europeans not only forgot their debt to Muslim papermakers but also remained ignorant of paper's origins in China, so that when they first encountered Chinese paper in the sixteenth century, they thought that the Chinese must have learned the art of papermaking from the ancient Egyptians! Europeans then carried paper and papermaking, along with printing, throughout the globe. While the history of paper has traditionally been overshadowed by the history of printing, the spread of paper and papermaking is arguably equally important, for this relatively permanent, cheap, and flexible material not only encouraged the spread of written culture across the globe but also transformed many other human activities.

This paper studies mobilities of knowledge from the perspective of paper making by examining how and when this technique diffused from China across Eurasia to the Mediterranean region and from there to the rest of Europe in the period between 600 and 1500. The main factors that enhanced and impeded this spatial diffusion of knowledge were the availability of raw materials and the adoption of differing technologies, but the roles of mediating aspects such as religion, trade, emigration, imports, and exports will also be discussed.

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H. Jöns et al. (eds.), *Mobilities of Knowledge*, Knowledge and Space 10,
DOI 10.1007/978-3-319-44654-7_3

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The Early Diffusion of Papermaking

Paper is a mat of cellulose fibers that have been beaten in the presence of water, collected on a screen, and dried. The manufacture of paper requires only cellulose, which can be extracted from various types of plants or textile waste, and fresh water for processing the fibers, as well as a screen on which to collect them. In principle paper can be made virtually anywhere, and the relative simplicity of the technique allowed cultures and individuals wide variation in the actual materials and specific processes used to make paper, depending on what was locally available and what was known. That said, making good paper is an art. Warmer and drier conditions are preferable for papermaking, as the fibers must be beaten wet, the papermaker has to put his hands in the vat, and the water has to drip and evaporate from the formed sheets, but paper can be made successfully even in often cold and damp climates, such as Holland, where it began to be made in the late sixteenth century.

In the warm and humid regions of China where paper was invented, papermakers made their product principally from bast fibers collected directly from semi-tropical plants and shrubs, but it could equally be made from the cellulose in linen and cotton rags, old ropes, and other textile waste, a process that was adopted in the harsher and drier climates of Central Asia (Hoernle, 1903), where it was used not only by the Buddhists who had introduced paper to the region but also by local merchants and bureaucrats. After Muslims conquered Central Asia in the late seventh century, their burgeoning bureaucracy quickly began to use paper for record-keeping because it was relatively cheap, plentiful, and writing on it could not be erased without detection.

The Replacement of Papyrus and Parchment

By the late eighth century paper was being manufactured in Baghdad, the capital of the Abbasid caliphate in central Iraq, and its use and manufacture was soon disseminated throughout the empire. Paper was introduced to Syria ca. 800, and it quickly spread throughout the Arab Mediterranean lands replacing papyrus and parchment, the two portable and flexible writing supports that had been used in the region for millennia.

Papyrus was made from the stalks of a reed that grew primarily along the banks of the Nile River in Egypt. The fresh stalks were cut into lengths, sliced into strips, laid in two overlapping layers at right angles to each other, pressed together, and dried. Individual sheets could be glued together to form rolls and scrolls, the form in which papyrus was normally used. Papyrus rolls had been made from ca. 3000 BCE and exported from Egypt to Greece and other Mediterranean lands. While the papyrus reed could grow in other warm riparian environments, only in Egypt did the plant grow thick enough to make the production of writing materials practical, so its production remained an Egyptian monopoly for about four millennia.

The other flexible writing support used in antiquity was parchment, from the Latin *pergamena*, referring to the city of Pergamon in western Anatolia. It is a taut, stiff and relatively inelastic material made from skins, primarily from sheep and goats, that have been soaked in water and lime, scraped of their hair and fat, and dried under tension. The Roman author Pliny claimed that parchment had been invented in the second century BCE when Eumenes II Soter, ruler of Pergamon, had to invent a new writing material because the Ptolemies of Egypt, jealous of Pergamon's growing library, had embargoed shipments of papyrus. Other Classical sources, however, indicate that parchment and leather had been the principal writing media in the lands east of the Mediterranean. The Jews, of course, have since ancient times used parchment rolls for copies of the Torah, and parchment is known to have been used in western Central Asia in early Islamic times (Khan, 2007). The eastward spread of this material was limited, however, by the westward spread of Buddhism, which abhorred using the skins of dead animals for writing.

The Romans initially regarded parchment as inferior to papyrus, a writing material sanctioned by some 3000 years of use throughout the Mediterranean basin, and they deemed it suitable only for use in notebooks, not rolls. Although parchment was much more expensive than papyrus—primarily because the animal had to be killed to make a sheet—it did have the great advantage that it could be made anywhere if appropriate animals were available, or effectively everywhere. It also did not fray or split when folded, a distinct advantage as the codex form of book, previously used only for wooden tablets coated with wax and used for temporary note-taking, became more popular with the coming of Christianity (Roberts & Skeat, 1983). Parchment also survived better in a wider range of climatic conditions, particularly humidity, although direct contact with water would cause a parchment sheet to cockle and be irreparably damaged.

Medieval European and Byzantine chanceries continued to use papyrus for as long as it remained available. The great Belgian historian Henri Pirenne (1954/2001) thought that papyrus disappeared from Gaul as a result of the Arab conquests of North Africa, which supposedly interrupted Mediterranean trade (pp. 169–170), but the papal chancery in Rome continued to use papyrus until the eleventh century (McCormick, 2001, pp. 704–708), indicating that the trade in papyrus continued despite the Arab conquests. By the middle of the ninth century, however, the papal writing office began stockpiling supplies, because Egyptians began to produce more paper than papyrus. Archaeology confirms the shift from writing on papyrus to paper in the Islamic lands, and by the thirteenth century a traveler to Egypt explicitly declared that the manufacture of papyrus was quite forgotten.

Cultural Geographies of Papermaking

The widespread availability of paper encouraged an extraordinary culture of book-learning throughout the Muslim lands that was unparalleled in contemporary Christendom, which continued to rely on relatively expensive parchment, thereby restricting the number of writers and readers (Bloom, 2001). Nevertheless, cultural

factors affected the diffusion of its manufacture over space and time. For example, Chinese Buddhist monks and missionaries carried paper and papermaking at an early date to Korea, Japan, and Vietnam, and they must also have simultaneously brought that knowledge to India, for they went there to collect and copy original Buddhist texts. Yet paper does not seem to have been used or manufactured in India until well after the region was conquered by Muslims in the late twelfth century, presumably because Indian writers were perfectly happy with using palm leaves, the traditional support for writing on the subcontinent (Soteriou, 1999) (Fig. 3.1).

Similarly, the Byzantines surely knew of paper by the ninth century, for Christians in Damascus were using paper as soon as Muslims (Perria, 1983–1984), but they did not really start using it in earnest until centuries later (Oikonomidès, 1977). They must have felt that parchment was more durable than paper, for a document written in 1118 states that the original copy of a convent’s charter was to be preserved on parchment in the church of Hagia Sophia, while paper copies were to be kept in the convent itself. From the late twelfth century, however, paper manuscripts became increasingly common in Byzantium, although there is little evidence that paper was ever made there before the Ottomans took the city in 1453 (Kâğıtçı, 1963, p. 37). Finally, Muslim merchants from North Africa crossed the Sahara to West Africa, introducing Islam to the region by the year 1000. As elsewhere, Muslims surely introduced books and book learning along with their religion, but despite the abundance of the necessary materials no paper was made in the region until the twentieth century, suggesting that the nature of the Muslim community in the region was fundamentally different from that found elsewhere (Bloom, 2008).

Spatial Adaptations in the Technology of Papermaking

The transformation of raw plants or textile waste into a pulp of cellulose fibers suitable for papermaking requires not only the raw materials but also a considerable amount of physical effort and time. The fibers are first washed to clean them and then soaked, fermented, and/or cooked to soften them; they are then beaten in water until they break down into a uniform pulp (*stuff*) that can be suspended in water for the actual formation of the sheet. Papermaking therefore requires an adequate and steady supply of pure water for manufacture. As the only way of bleaching fibers before the discovery of chlorine in the eighteenth century was to expose them to the sun, the preparation of white paper required either clean white fibers or a sunny climate. Many early Arab papers are decidedly tan or even brown.

Zhi, the Chinese word for paper, was defined in a Chinese dictionary compiled around the first century CE as “a mat of refuse fibers.” The Chinese character for *zhi* [紙] bears the silk radical at its left and the right part indicates the pronunciation. Since such processes as the treatment of refuse silk, the reuse of old fibers in quilted clothes, and the washing of hemp and linen rags are attested in China as early as the sixth or fifth century BCE, it is possible that someone accidentally left wet refuse fibers on a mat and let them dry, from which somebody got the idea of deliberately

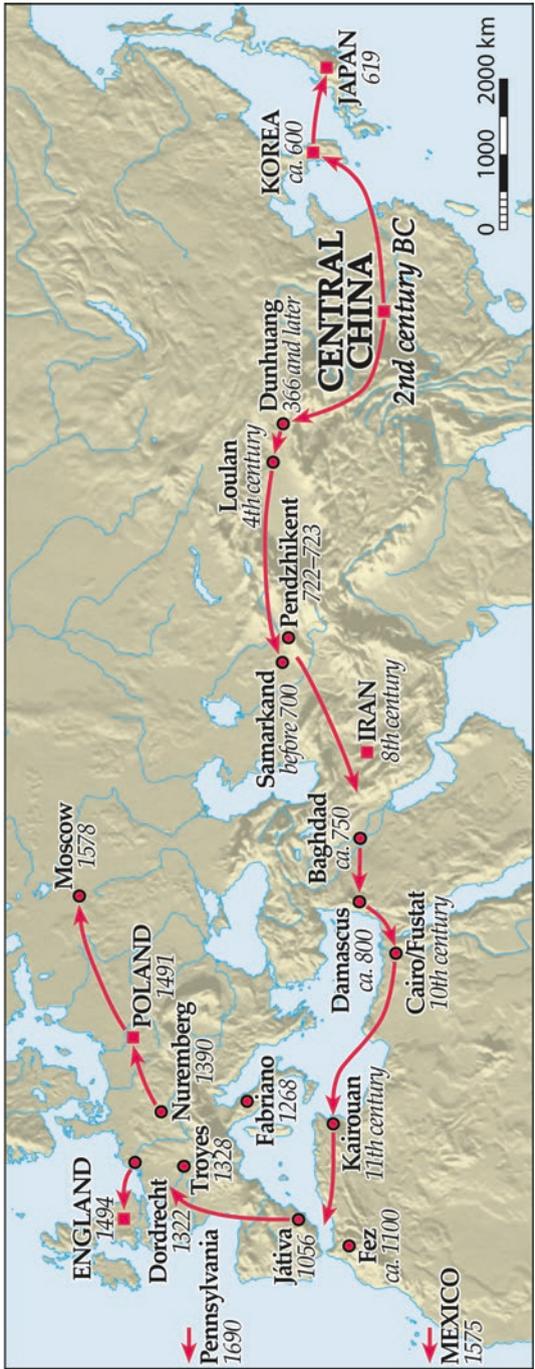


Fig. 3.1 The diffusion of paper making across Eurasia (Design by author; cartography by V. Schmiepp)

forming them into a thin sheet. As silk fibers, however, have neither the physical nor chemical properties of cellulose that are essential to papermaking, true paper could not have been made from silk refuse.

Paper Mills

After the fibers had been collected, sorted, washed, and fermented, the physical breakdown of the cellulose fibers into a pulp was initially accomplished using a heavy wooden pestle in a stone mortar. From an early date, however, this time-consuming and arduous process was mechanized, whether by using human-powered trip mills, water-powered hammer mills, or perhaps animal-powered edge mills, particularly as papermakers made increasing quantities of paper. Pulp for paper was normally produced by pounding the raw material rather than grinding it between stones, although some authors have speculated that Muslim papermakers reduced rags to pulp by grinding them in an edge mill, in which the edge of a circular millstone rolls around a central pivot in a stone trough. An edge mill, however, would not have allowed the papermaker to sufficiently control the beating process upon which the quality of the finished paper depended. The cellulose fibers had to be broken down sufficiently to become hydrated, meaning that the outer layers of the fibers partially detach as microfibrils, causing water molecules to attach themselves to the exposed hydrogen atoms of the cellulose microfibrils. As the paper sheet is formed, the cellulose fibers combine physically and chemically to give the material its characteristic strength (Bloom, 2001, pp. 3–4).

Pounding mills could, in principle, be powered by human energy (a man could lift the pestle with his arms or step on and off a pivoted beam attached to the end of a pestle), but in practice they were usually powered by water. The Chinese had used water power for industrial purposes by the first century CE and used vertical under-shot wheels to pound raw materials as early as the third century, whether as stamp mills (in which a rotating axle lifts cams) or hammer mills (in which cams depress the pivoted lever-arms of trip hammers). This type of mill was used in China to husk rice and is attested in Western Europe in the Middle Ages before ca. 1000, where it was used to full, or felt, woolen cloth. Such mills are also attested in eleventh-century Iran, where they were used to crush ores and flax for paper (Hill, 1993, p. 112), suggesting that the technology diffused across Eurasia.

Water-powered mills with both horizontal and vertical wheels had been used throughout the Roman Empire, and these technologies were not lost with the coming of Islam (Lucas, 2006; Wilson, 1995). As by the tenth century Islam also carried the cultivation of rice, as well as the need to husk it, from Iraq, where it had been cultivated in pre-Islamic times, to the Iberian peninsula, it seems logical to conclude that the milling technology traveled with the cultivation of rice (*The Encyclopaedia of*

Islam, 1960–, s.v. “Ruzz” by D. Waines). Although there is no hard evidence that the water-powered paper mills that are noted in twelfth-century Spain were of Islamic origin, there is no reason to believe that they were not (Hill, 1993, p. 113). This varied evidence suggests, therefore, that water-powered hammer mills spread around the Mediterranean along with Islam and the manufacture of paper, if not also the cultivation of rice. The need for waterpower to power mills also explains why paper mills in the Islamic lands were invariably found alongside rivers and streams, not just lakes and ponds that could provide fresh water for papermaking itself. For example, from the ninth-century geographers note the existence of paper mills outside the walls of Damascus on a branch of the Barada river. Other paper mills existed in the cities of Hama and Tripoli, but there were none at Aleppo because no stream was strong enough to power the mills (Elisséeff, 1967, pp. 868–869). An Andalusian geographer who visited Egypt in the 1240s remarked that paper mills were confined to Fustat along the Nile and not found in Cairo itself, which was built on higher—and drier—ground (Al-Maqrizī, 1853, p. 1:366; Goitein, 1967–1994, p. 1:81 & fn. 2).

Although the great rivers of the Islamic heartlands such as the Nile, the Tigris, and the Euphrates were able to provide sufficient waterpower for milling, they flow relatively slowly, carrying water from distant mountains across great expanses of relatively flat and arid land. Elsewhere in the region, smaller rivers and streams might flow only intermittently after seasonal rains. In contrast, European rivers and streams, although smaller, flowed faster and stronger over more rugged terrain. Europeans were able to harness the greater and more constant potential energy in their waterpower more efficiently than Near Easterners and North Africans, principally because they used overshot (rather than undershot) water-wheels to power their mills and they were also technological innovators. Italian papermakers arranged their stampers in batteries, so that the rags were transformed into a finely and evenly beaten pulp by passing successively from one stamper to another, and they furnished the ends of their stampers with spikes to reduce rags to pulp more efficiently (Barrett, 2012).

In the Netherlands the absence of the fast-flowing streams characteristic of other papermaking centers led to the invention of the Hollander beater in the seventeenth century. Powered by wind, the Hollander beater reduced rags to fibers by beating them between a ridged cylinder and a bedplate set within an oval tub or tank. The rags circulated continuously through the beater, reducing to a pulp in a mere fraction of the time it would have taken in a stamper mill (Bloom, 2001, pp. 217–218). Although a Hollander beater could be used carefully to produce a paper equal in quality to that produced by stampers, in the hands of an incompetent papermaker it was much easier to spoil an otherwise good fiber by overbeating. Because of its efficiency, the machine was widely adopted, although it did not entirely replace stampers. Its introduction accompanied a tremendous upsurge in demand for paper and the results were not always of the highest quality (Barrett, 2012).

Raw Material Used for Papermaking

Although the Chinese character for paper suggests that its discovery was related to textile waste, for centuries the Chinese had used bast fibers extracted from such semi-tropical plants as paper-mulberry (*Broussonetia papyrifera*), hemp, jute, rattan, and bamboo for papermaking, and papermakers in East Asia followed suit. For example Japanese papermakers typically used kozo, mitsumata, gampi, and other plants that provided long fibers, which when seen under a microscope resemble “battered spaghetti” (Barrett, 1983/1992, p. 21.) and give the paper its characteristic strength and feel. Such plants did not grow in the arid climate of Central Asia, however, and papermakers there apparently discovered (or rediscovered) not only that paper could be made from rags and waste from textiles made from such plants as cotton, flax, and hemp, but that it was easier to make paper out of fibers that had already been processed and bleached in the sun. Muslim Arab papermakers consequently learned to make paper from both bast fibers and rags.

Cotton, whose fibers are almost pure cellulose, was much less commonly grown in medieval Islamic times than was linen or hemp, as it flourished in only a few regions, including Central Asia, Iran, Palestine, and Yemen (Amar, 2002; Bulliet, 2009; Lamm, 1937). Cotton therefore played a relatively insignificant role in papermaking until the eighteenth century, when great quantities of Indian cottons were imported into Europe and cotton rags made into paper. Egypt, for example, only began to grow cotton in the nineteenth century when the American Civil War disrupted supplies to British mills. But the myth of cotton paper has persisted because Byzantine sources termed Arab paper *bambuxinon*, *bombuxinon*, and *bambaxeron*, and sometimes in late texts as *Bambaxeros kartis*. Nineteenth-century scholars thought the terms referred to *bombax* (which can mean *cotton* or *silk* in Greek), and supposed that these *bombycin* papers had been made from cotton or silk fibers. The term *bambuxinon* in fact refers to the Syrian city of Manbij (known in Greek as Bambyke), located northwest of Raqqa on the Sajur river, whose abundant supply of water encouraged the manufacture of paper there at least from the tenth century (*The Encyclopaedia of Islam*, 1960-, s.v. “Manbidj” by N. Eliséeff).

One of the few medieval accounts of Arab papermaking anywhere survives in the treatise on making books by the Zirid prince al-Mu‘izz ibn Badis (r. 1016–1062) (Levey, 1962, pp. 39–40). Ibn Badis’s text, however, is remarkably inaccurate, for he says paper is made only from *qinnab* (or *qunnab*, hemp, although Levey curiously translates it as “white flax” or *hibiscus cannabinus*, a shrub known in English as kenaf) that is prepared by soaking in quicklime and water. Ibn Badis neglects to mention the use of rags, which we know papermakers actually used, and he describes a one-piece floating mold that most papermakers had long abandoned. A thirteenth-century Yemeni recipe for making *local* paper (*al-kaghād al-baladī*) also ignores rags and states that it was made from the white fibers of the inner bark (*liḥā’*) of the fig tree (*mudakh*). The outer layers are peeled off and discarded, the remaining fibers soaked for several days in fresh water, fermented, dried in the sun, soaked, cleaned, pounded, dried, soaked again, drained and squeezed into balls. The moist

balls are then beaten for 5 days with a mallet until they are like wheat dough, then the mass is sprinkled with water and kneaded before being mixed in a vat of water for the actual papermaking. A one-piece mold is dipped in the vat and the sheets are released immediately after they are made (Gacek, 2002). In short, it would appear that papermakers in the Islamic lands were ready to use a wide variety of fibers and techniques to prepare them.

Microscopic examination of medieval Arab papers occasionally reveals unprocessed threads and bits of cloth indicating that the pulp was made with rags, although other bits of unprocessed plant stalk may show that bast fibers were used as well. Archaeologists' discoveries of piles of rags in the ruins of Fustat (Old Cairo) may have been left by ragmen who had collected them for papermakers to recycle. The 1980 excavations at Fustat, for example, yielded approximately 3000 textile fragments, most found in refuse heaps from the eleventh century. Roughly 70% of the textiles found were relatively coarse undyed linen; about 12% were linen dyed blue with indigo and 8% were heavy fabrics woven with undyed linen, possibly hemp or reed. Another 5% were blue-and-white striped, checked, or plaid linens. The remaining 5% included textiles of wool, silk, cotton, hemp, and reed (Kubiak & Scanlon, 1989). While this mix may represent the ratio of fibers used by the population at large, virtually all but the wool and silk—and the percentage of them was so small it would hardly have mattered—would have been appropriate raw material for Fustat's paper mills.

Egyptian papermaking depended on a ready supply of linen rags, and Egypt had produced great quantities of flax from ancient times, but at the beginning of the fifteenth century, Egyptian habits of dress changed. The Egyptian textile industry went into a serious decline, largely as a result of depopulation after the Black Death, technological stagnation, and the mismanagement of the economy by the ruling Mamluk elite. Native Egyptian linen became increasingly expensive and for the first time upper-class Muslims began to wear garments made from European woolen broadcloth, rather than from domestic linen (Mayerson, 1997). The increased availability of European woolens and declining Egyptian production of linen meant that fewer raw materials were available for Egyptian papermakers, and Italian papermakers were more than happy to flood the market, particularly since increased quantities of linen (and consequently rags) had become available in Europe due to several late-medieval technical innovations including the flax-breaker and the spinning-wheel (Bloom, 2001, p. 83; Strayer, 1982–1989, s.v. "Linen").

In addition to the evidence of the paper itself, texts tell us that rags were used in the Iberian Peninsula for papermaking by the twelfth century. Peter the Venerable (d. 1156), abbot of the French monastery at Cluny, complained about Spanish monks using a material made from "scraps of old rags, or, perhaps, from even viler stuff" (Valls i Subirà, 1970, pp. 5–6). The catalogue of the Silos monastery library in the thirteenth century refers to a Toledan missal on "rag parchment [*pergamino de trapos*]," presumably because the author did not think his readers would understand a specific word for paper. By 1274 the manufacture of paper in Valencia, which was known for its cultivation of flax (and rice), had become so important that King James (Jaume) I of Aragon (reigned 1213–1276) prohibited the sale of rags to

merchants from Perpignan, suggesting that the French were already making paper as well. In 1306 an embargo was placed on exports to France including paper (Valls i Subirà, 1970, p. 16). English paper production, which had begun fitfully two centuries later around 1500, ceased temporarily in the early 1640s during the Civil War because of a decline in linen production. To encourage the use of wool and save linen and cotton for papermakers, the English Parliament decreed in 1666 that the dead could be buried only in woolen clothing or shrouds (Hunter, 1943/1957, p. 482).

Paper was also recycled into other products, including paper. Pages from discarded books, such as the *Thousand Nights* fragment in Chicago, were used as scratch paper, and many of the other scraps found in the Fustat dumps were repeatedly reinscribed. Even after paper began to be manufactured in Egypt, it was still saved for reuse and recycling (Goitein, 1967–1994, p. 1:7, 334). Old paper might be used for stuffing and stiffening garments such as caps, and sheets of old paper (and parchment and papyrus) were pasted together to make pasteboard for book bindings. Several texts of the thirteenth and fourteenth centuries insist that papermakers be careful to keep their paper pure by not recycling papers on which sacred texts or names were written (Le Léannec-Bavavéas, 1998, p. 75), a concern that may serve to explain the initial hesitation for using paper for copying the Koran.

Molds and Papermarks

From whatever it was made, the beaten and hydrated pulp was collected in a shallow mold consisting of a wooden framework on which a screen rested or was strung. In the Far East, molds are typically made of wood with a loose screen made of very thin splints of bamboo that have been laid parallel and bound together with silk thread (Barrett, 1983/1992, p. 78), but in the Islamic lands where bamboo was not available the screen appears to have been made from materials such as plant fibers stiffened with oil and horsehair. No matter what they are made from, these parallel supports leave faint series of “laid lines” on the finished sheet, often complemented by faint “chain lines” where the supports have been joined by threads or hairs. No medieval molds have survived in the Islamic lands, but the wavy laid lines sometimes visible on medieval papers indicate that the screens were made from organic materials that had sagged rather than from brass wire, which became the norm for the stronger molds eventually developed in Europe. From the thirteenth century, artisans in Germany, especially Nuremberg, perfected the art of drawing brass wire through increasingly narrow dies, allowing the creation of a mold that was less liable to warp or sag from repeated immersion in the vat (Bloom, 2001, p. 208).

The oldest type of mold, a simple rectangular frame with an integral screen, often of cloth, is still used for simple papermaking. The mold can be floated in a shallow pool of water and the liquid pulp is poured into the mold. The mold is then lifted, drained, and set to dry, after which the sheet is released from the screen. The same mold can also be dipped into a vat of pulp, lifted, shaken, and drained. The

advantage of this simple mold is that, as the *stuff* is not suspended in a large tank, it requires less pulp and water to make the sheet, and the water supply is not polluted with the excess pulp. The disadvantage is that a separate mold is required until each sheet dries and the two sides of the resulting paper differ in texture, making it inappropriate when one wants to write on both surfaces.

The two-piece mold, with a separate deckle (frame) and screen, however, allowed faster production of more even sheets because the just-formed sheet could be released from the screen, stacked with other sheets, and the mold reused immediately. This more efficient technique was used with variations throughout Eurasia, although a floating mold might occasionally be used for special production, particularly of enormous sheets for special purposes (Blair & Bloom, 2006).

All papermakers know that the screen leaves impressions on the finished paper, and even a few drops of water dripped on the sheet after it is formed can leave unwanted blemishes (“papermaker’s tears”) on the finished paper. Spanish papermakers had already used this knowledge to put zig-zags, a series of diagonal marks, onto the sheet when it was still damp. They are the most distinctive feature of Iberian paper before the mid-fourteenth century, but their purpose is unclear: they may have been a precursor of watermarks or an indication of the paper’s grain; the traditional explanation is that they were intended to imitate the tanners’ marks that are sometimes seen on parchment (Le Léanec-Bavavéas, 1998, p. 71; Valls i Subirà, 1970, pp. 8–9) but more recent research suggests that they were introduced to slightly thin the sheet where it was to be folded when making a book so that the swelling of the spine would be reduced (Estève, 2001).

The introduction of molds made from brass wire made possible the introduction of watermarks, the most significant invention of Italian papermakers at Fabriano, a town in the Marche of Ancona where paper was made from the middle of the thirteenth century. Although Arab papermakers as early as the tenth century had used trademarks pasted to their bundles (Arab. *rizma*, the origin of the English word *ream*) (Goitein, 1967–1994, p. 1:81), the earliest example of a Fabriano watermark dates from 1282. Watermarks, more properly called *papermarks* since they have little to do with water, are made by bending a design in brass wire and attaching it to the mold, so that it leaves a faint impression on the finished sheet. These designs indicated who had made the paper and thereby served as signs of quality. Fabriano paper was whiter and finer than its competitors, the result of a well-beaten high quality pulp; its thinner and more closely spaced laid lines were the product of a better mold (Irigoin, 1968).

The earliest watermarks were simple designs, as the relatively coarse wire would not allow much twisting into fancy shapes, but as finer wires became available the designs got more intricate. Although few if any early watermarks were dated, the careful correlation of specific watermarks and dated documents written on watermarked paper has allowed scholars since the nineteenth century to date the watermarks and consequently assign *post quem* dates to undated documents written on watermarked papers as well as to determine where particular stocks of paper originated (Briquet, 1907).

Further Processing of Paper

After formation, the wet sheet was placed or *couched* (pronounced *cooched*) in a stack and pressed to expel surplus water. European papermakers interleaved the sheets with woolen felts to keep them separate and absorb water during pressing, but there is no way of knowing when and where this practice was introduced. Japanese and Indian papermakers, for example, do not use felts but add a formation aid to the pulp to help keep the sheets separate after they are formed and pressed (Barrett, 1983/1992; Soteriou, 1999). As felt-making (a technique of textile fabrication not all that different from papermaking) was widely practiced throughout the Islamic lands from pre-Islamic times, it is possible that papermakers there also used felts and introduced the practice into Europe, although the subsequent coating of all Islamic papers with a size that was then heavily burnished has probably removed all evidence (such as stray hairs) of any felts that once might have been used.

After pressing the damp sheets are spread or hung out to dry. In warm climates the sheets can be spread on clean rocks or attached to smooth walls or boards; in cooler and damper northern climates, paper was spread on heated walls or hung on lines in special drying sheds (Barrett, 1983/1992; Harris & Wilcox, 2006). In East Asia papers were not sized and could be used at this stage, for the ink used for writing was applied with a soft brush and soaked into the paper. In the Islamic lands, however, writing was invariably done with a red pen (*qalam*), which would have caught on the rough surface of an unsized sheet of paper and the ink would have soaked in, so papers were invariably subjected to further treatment that consisted of coating with size and burnishing the surface.

Papermakers, stationers, or writers and artists in the Muslim world regularly sized their paper with starch, sometimes boiled with the addition of pure white chalk (Levey, 1962, p. 39) or of glue (Qāḍī Aḥmad, 1959, p. 114). The starch was often made from rice in the Mediterranean lands or from sorghum in Yemen (Gacek, 2002, p. 90). Wheat starch was difficult to extract and apparently had a disagreeable odor. Later Ottoman calligraphers sized their paper with a mixture of alum dissolved in egg white. The size was either brushed or daubed on; after it had dried, the sheet was burnished on both sides by placing it on a hard, smooth surface and rubbing it with a smooth stone or glass burnisher until the surface was perfectly smooth and even shiny.

In the presence of sufficient humidity starch supports the growth of molds and other microorganisms that eventually can destroy the paper itself, but this was not normally a problem in many of the hot and arid Islamic lands, although it did become a problem in cooler and more humid regions of Europe (Irigoin, 1960, p. 31). Gelatin, which Italian papermakers made from the hoofs, hides, and horns of animals, not only inhibited the growth of microorganisms on paper, but also gave the sheet a harder finish, more resistant to the quill pens which Europeans used to write on parchment. The first dated paper sized with gelatin is a document of 1264, although many paper mills still continued to size with starch after 1300 (Le Léanec-Bavavéas, 1998, p. 66). Recent research has shown that European papers made

before ca. 1500 were specifically made to imitate parchment, being generally thicker and with higher concentrations of gelatin and calcium than those made later, probably because earlier papers were primarily made to meet the needs of writers rather than printers (Barrett, 2012).

Trade Relations and the Decline of Arab Papermaking

The efficiency with which European papermakers made their product allowed them to dominate the market, not only in Italy but also throughout the Mediterranean, and led to the rapid decline of Arab papermaking. For example, as early as 1350, a letter from the sultan of Tunis to the king of Aragon-Catalonia bears a griffin watermark, indicating that the paper had been made in Italy (Valls i Subirà, 1970, p. 11). Another paper document from 10 years later bears both a watermark and a zigzag, suggesting that the Italian sheet had been made specifically for the North African or Catalan markets (p. 12).

A manuscript of the Koran was copied presumably at Baghdad on European watermarked paper as early as ca. 1340 (James, 1992, QUR 561), but European paper was not universally admired in the Arab lands. Some Muslims found watermarks to be offensive, particularly since the designs often contained a cross or an image of some living being. In Tlemcen, now in western Algeria, the noted jurist Abu 'Abdallah ibn Marzuq (d. 1439) delivered a long *fatwa*, or legal decision, on 21 August 1409 entitled "A Decision . . . concerning the permissibility of writing on paper made by Christians." According to the document, paper had once been made in Tlemcen as well as in Fez and in al-Andalus, but it was no longer. Pious Muslims were therefore forced to write on European paper with watermarks that they found offensive. According to Ibn Marzuq's decision, which saw the problem in terms of ritual purity, writing in Arabic rendered the idolatrous designs invisible. Writing God's name (and message) on such papers replaced falsehood with truth, much in the way Muslims used Christian churches as mosques (Halevi, 2008; Lagardère, 1995, p. 42).

Furthermore, Italian merchants mostly exported cheap paper to those Muslim countries that continued to produce paper; elsewhere, they also exported the better kinds. The once-vibrant Syrian papermaking industry seems to have collapsed as European papermakers began to export their own product to the Middle East in earnest. The Egyptian writer al-Qalqashandi (d. 1418) claimed that the European paper was "of the worst kind" (Ashtor, 1977, p. 270). Although Egyptians continued to manufacture some paper until the seventeenth century, from the sixteenth century French and Italian papers were dominant in Egypt. The few dated documents in the Cairo Geniza, a trove of medieval documents from the Jewish merchant community, from the second quarter of the sixteenth century, for example, are on European not local paper. By the sixteenth century, according to the historian Ibn Iyas, the paper market building was being used by textile merchants, a trenchant comment on the decline of the industry in the face of European competition

(Raymond, 1973–1974). By the eighteenth century Cairo had become only a redistribution point for the export of European paper to Arabia and Nubia (Bloom, 2008; Raymond, 1973–1974, p. 130; Walz, 1988).

Conclusion

In conclusion, the historical geography of paper and papermaking concerns far more than the mere history of a material and the technology to make it, for as it spread and was adopted by different societies in different regions, paper provided several *affordances* that encouraged a shift from oral to written culture and the development of various systems of notation, whether of language, mathematics, commercial transactions, music, or drawing and architectural drafting, quite apart from the invention and dissemination of printed books and images (Bloom, 2001; Bloom, forthcoming). In short, paper “started a new era of civilisation. The one we live in now” (Kremer, 1875–1877 as quoted by Karabacek, 1991, p. 72). An investigation of this subject, however, must be left for another study.

References

- al-Maqrizī, Taqī al-Dīn ‘Alī. (1853). *Al-Mawā‘iz wa’l-i’tibār bi-dhikr al-khīṭaṭ wa’l-athār* [Exhortations and instructions on the districts and antiquities]. Cairo, Egypt.
- Amar, Z. (2002). The history of the paper industry in Al Sham in the Middle Ages. In Y. Lev (Ed.), *Towns and material culture in the Medieval Age in Middle East* (pp. 135–158). Leiden: Brill.
- Ashtor, E. (1977). Levantine sugar industry in the Later Middle Ages—An Example of technological decline. *Israel Oriental Studies, Tel Aviv University*, 7, 226–280.
- Barrett, T. (1992). *Japanese papermaking: Traditions, tools, and techniques* (2nd ed.). New York: Weatherhill. (Original work published 1983)
- Barrett, T. (2012). *Paper through time: Nondestructive analysis of 14th- through 19th-century papers*. Retrieved from the University of Iowa, Institute of Museum and Library Services: <http://paper.lib.uiowa.edu/index.php>
- Blair, S., & Bloom, J. M. (2006). Timur’s Qur’an: A reappraisal. In P. L. Baker & B. Brend (Eds.), *Sifting sands, reading signs: Studies in honour of Professor Géza Fehérvári* (pp. 5–14). London: Furnace.
- Bloom, J. M. (2001). *Paper before print: The history and impact of paper in the Islamic world*. New Haven: Yale University Press.
- Bloom, J. M. (2008). Paper in Sudanic Africa. In S. Jeppie & S. B. Diagne (Eds.), *The meanings of Timbuktu* (pp. 45–57). Cape Town: HSRC Press.
- Bloom, J. M. (forthcoming). Mediterranean technologies and thought: Paper production. In A. Law (Ed.), *Mapping the medieval Mediterranean*. Leiden: Brill.
- Briquet, C.-M. (1907). *Les Filigranes, dictionnaire historique des marques du papier dès leur apparition vers 1282 jusque’en 1600* [Watermarks, historical dictionary of marks on paper from their appearance around 1282 until 1600]. Amsterdam: Paper Publishing Society.
- Bulliet, R. W. (2009). *Cotton, climate, and camels in early Islamic Iran: A moment in world history*. New York: Columbia University Press.

- Elisséeff, N. (1967). *Nur ad-Din, un grand prince musulman de Syrie au temps des croisades (511–569 H./1118–1174)* [Nur ad-Din, a great Muslim prince of Syria during the time of the crusades]. Damascus: Institut français de Damas.
- The Encyclopaedia of Islam: New Edition* (1960–). Leiden: E. J. Brill.
- Estève, J.-L. (2001). Le zigzag dans les papiers arabes [The zigzag in Arabic papers]. *Gazette du livre médiévale*, 38, 40–49.
- Gacek, A. (2002). On the making of local paper: A thirteenth-century Yemeni recipe. *Revue des mondes musulmans et de la Méditerranée*, 99–100, 79–93. Retrieved from <http://remmm.revues.org/1175>
- Goitein, S. D. (1967–1994). *A Mediterranean society: The Jewish communities of the Arab world as portrayed in the documents of the Cairo Geniza*. Berkeley: University of California Press.
- Halevi, L. (2008). Christian impurity versus economic necessity: A fifteenth-century fatwa on European paper. *Speculum*, 83, 917–945. doi:10.1017/S0038713400017073
- Harris, T. F., & Wilcox, S. (2006). *Papermaking and the art of watercolor in eighteenth-century Britain: Paul Sandby and the Whatman paper mill*. New Haven: Yale Center for British Art in association with Yale University Press.
- Hill, D. R. (1993). *Islamic science and engineering*. The New Edinburgh Islamic Surveys. Edinburgh: Edinburgh University Press.
- Hoernle, A. F. R. (1903). Who was the inventor of rag-paper? *Journal of the Royal Asiatic Society*, 43, 663–684. doi:10.1017/S0035869X00031075
- Hunter, D. (1957). *Papermaking: The history and technique of an ancient craft (2nd ed.)*. New York: Alfred A. Knopf. (Original work published 1943)
- Irigoin, J. (1960). L'introduction du papier italien en Espagne [The introduction of Italian paper to Spain]. *Papiergeschichte*, 10, 29–32.
- Irigoin, J. (1968). La Datation des papiers italiens des XIIIe et XIVe siècles [Dating of Italian paper from the 13th and 14th centuries]. *Papiergeschichte*, 18, 18–21.
- James, D. (1992). The master scribes: Qur'ans of the 10th to the 14th centuries AD. In J. Raby (Ed.), *The Nasser D. Khalili Collection of Islamic Art: Vol. 2*. London: The Nour Foundation in association with Azimuth Editions and Oxford University Press.
- Karabacek, J. v. (1991). *Arab paper 1887* (D. Baker & S. Dittmar, Trans.). London: Islington Books.
- Kâğıtçı, M. A. (1963). Beitrag zur türkischen Papiergeschichte [Contribution to the history of paper in Turkey]. *Papiergeschichte*, 13, 37–44.
- Khan, G. (2007). *Arabic documents from early Islamic Khurasan*. Studies in the Khalili Collection: Vol 5. London: Nour Foundation.
- Kubiak, W. B., & Scanlon, G. T. (1989). *Fuṣṭāṭ expedition final report, Vol. 2: Fuṣṭāṭ-C*. American Research Center in Egypt: Vol. 11. Winona Lake: Eisenbrauns.
- Lagardère, V. (1995). *Histoire et société en occident musulmane au Moyen-Âge: Analyse du Mi'yār d'al-Wanṣarīsī* [History and society in the Muslim West during the Middle Ages: Analysis of the Mi'yār of al-Wanṣarīsī]. Collection de la Casa de Velázquez: Vol. 53. Madrid: Casa de Velázquez.
- Lamm, C. J. (1937). *Cotton in medieval textiles of the Near East*. Paris: Librairie Orientaliste Paul Geuthner.
- Le Léannec-Bavavéas, M.-T. (1998). *Les papiers non filigranés médiévaux de la Perse à l'Espagne: Bibliographie 1950–1995* [Medieval non-watermarked papers from Persia to Spain: Bibliography 1950–1995]. Paris: CNRS Editions.
- Levey, M. (1962). Medieval Arabic bookmaking and its relation to early chemistry and pharmacology. *Transactions of the American Philosophical Society*, 52, 1–79. Retrieved from <http://www.jstor.org/stable/1005932>
- Lucas, A. (2006). *Wind, water, work: Ancient and medieval milling technology: Technology and change in history*. Leiden: Brill.
- Mayerson, P. (1997). The Role of Flax in Roman and Fatimid Egypt. *Journal of Near Eastern Studies*, 56, 201–207.

- McCormick, M. (2001). *Origins of the European economy: Communications and commerce, A.D. 300–900*. Cambridge, UK: Cambridge University Press.
- Oikonomidès, N. (1977). Le support matériel des documents Byzantins [The material support of Byzantine documents]. In J. Bompain & J. Irigoin (Eds.), *La paléographie grecque et byzantine* (pp. 385–416). Paris: Éditions du CNRS.
- Perria, L. (1983–1984). Il Vat. Gr. 2200. Note codicologiche e paleografiche [Vatican Gr. 2200: Codicological and paleographic notes]. *Revista di Studi Bizantini e neellenici*, 20/21, 25–68.
- Pirenne, H. (2001). *Mohammed and Charlemagne*. London: George Allen & Unwin. (Original work published 1954)
- Qāḍī Aḥmad (1959). *Calligraphers and painters: A treatise by Qāḍī Aḥmad, son of Mīr-Munshī circa A.H. 1015/A.D. 1606* (V. Minorsky, Trans.). Freer Gallery of Art: Occasional Papers: Vol. 3(2). Washington, DC: Smithsonian Institution.
- Raymond, A. (1973–1974). *Artisans et commerçants au Caire au XVIIIe siècle* [Artisans and tradespeople in Cairo in the 18th century]. Damascus: Institut français de Damas.
- Roberts, C. H., & Skeat, T. C. (1983). *The birth of the codex*. London: Oxford University Press for the British Academy.
- Soteriou, A. (1999). *Gift of conquerors: Hand papermaking in India*. Middletown: Grantha.
- Strayer, J. R. (Ed.). (1982–1989). *Dictionary of the Middle Ages*. New York: Charles Scribner's Sons.
- Tsien, T.-H. (1985). Paper and printing. In J. Needham (Ed.), *Science and civilisation in China: Vol. 5(1)*. Cambridge, UK: Cambridge University Press.
- Valls i Subirà, O. (1970). *Paper and watermarks in Catalonia*. Monumenta Chartae Papyracea Historiam Illustrantia: Vol. 12 (2 vols.) Amsterdam: Paper Publications Society (Labarre Foundation).
- Walz, T. (1988). The paper trade of Egypt and the Sudan in the eighteenth and nineteenth centuries. In M. W. Daly (Ed.), *Modernization in the Sudan* (pp. 29–48). New York: Lilian Berber Press.
- Wilson, A. (1995). Water-power in North Africa and the development of the horizontal water-wheel. *Journal of Roman Archaeology*, 8, 499–510.

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Chapter 4

Circulating Seditious Knowledge: The “Daring Absurdities, Studied Misrepresentations, and Abominable Falsehoods” of William Macintosh

Innes M. Keighren

The spatial mobility of knowledge—its circulation variously as text, speech, and object—has been subject to scrutiny in, among other fields, the history of science, book history, and historical geography (Secord, 2004). Much of this work has been informed by Latour’s concept of “immutable and combinable mobiles” (1987, p. 227)—fixed and abstracted representations of the world (whether printed texts, maps, or specimens) that permit the distribution and assembly of knowledge. Nuanced revisions to this model—most particularly the categorization of so-called “fluid objects” (Law, 2002, p. 100), malleable in both literal and epistemic senses—have demonstrated that the exchange of knowledge has often depended upon the plasticity of its mobile representatives, rather than their assumed fixity. Attention to the movement of knowledge in print has shown, for example, how the vagaries of authorship, editing, and translation alter form, content, and meaning (Keighren, Withers, & Bell, 2015; MacLaren, 2003; Withers & Keighren, 2011). Rather than hinder the movement of knowledge, however, such textual variability is often facilitative of its flow. That an object or text can “shift and adapt to local circumstances” (Powell, 2007, p. 318), and thus be repositioned for a new audience, indicates that mobility often necessitates mutability.

The material and hermeneutic instability of print—and its effect on the circulation and reception of knowledge—has been examined in relation to questions of authorship, translation, and editorial intervention (Amrein & Nickelsen, 2008;

The quotation in the chapter title is taken from Price (1782, p. 63). For assistance in the translation of French and German texts, I thank Joanna Cagney, Dean Bond, Luise Fischer, and Elizabeth Haines. For insights into the eighteenth-century Paris book trade, I am grateful to Marie-Claude Felton and Erik Geleijns. For information relating to the first Dublin edition of Macintosh’s book, my thanks go to Jeffrey Makala.

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Iliffe, 1995; Kutzinski, 2009; Martin, 2011). In his account of the complicated publication history of Bernhard Varenius's *Geographia generalis* (1750), Mayhew (2010) has shown, for example, quite how uncertain the notion of authorship was for a text that—in its linguistic transformation from Latin to English—passed through the hands of multiple editors and translators. Efforts made by the book's intermediaries to improve the text positioned it in ways that altered its meaning either subtly or profoundly. Rupke's (2000) examination of the translation of *Vestiges of the Natural History of Creation* (1844)—an anonymously issued treatise on transmutation—has told a similar story: each translator of that book appropriated the text and, by means of additional prefaces, footnote commentary, illustrations, and omissions, conveyed “a different message from the one the author had in mind” (p. 210). Kontler (2001) shows much the same to be true of the German translations of the work of the Scottish historian William Robertson and thus demonstrates how the vagaries of linguistic reinterpretation reveal “the potential and the limits of the transmission of ideas across cultural and geographical boundaries” (p. 67). Hofmeyr (2003), in a peerless study of the transnational circulation of John Bunyan's *The Pilgrim's Progress* (1678), shows how global networks, both social and technological, permitted the international diffusion and repurposing of an important allegorical text.

Translation can, in this regard, be seen both as a liberating and an injurious intervention—a purposive act that permits a text to cross geographical and epistemic space, even as it alters its meaning as a consequence. Viewed pejoratively, such linguistic intercession might be dismissed merely as an impediment to the circulation of knowledge in print, mutability being symptomatic of textual, intellectual, and epistemic corruption. However damaging the intervention of editors, translators, and publishers is perceived to be to a text's meaning, these engagements are precisely what is required for knowledge to circulate, and must be taken seriously as a consequence. Although it is not necessary to recast such interventions as being necessarily benevolent or charitable, they are nevertheless inseparable from the ways in which knowledge as text has circulated within and beyond linguistic communities. To understand the spatial mobility of knowledge in print thus demands an attention to such interventions—to the decisions made by authors, editors, publishers, translators, and booksellers as to the appropriate staging of texts and their content.

As Martin and Pickford (2012) have noted, knowledge does not simply travel by itself; its circulation depends upon “the interaction between agents who are themselves in specific networks which allow for knowledge to travel” (p. 3). In this chapter I take the role of these agents seriously in seeking to reveal the ways in which one anonymously issued and politically seditious account of exploration—*Travels in Europe, Asia, and Africa* (1782)—circulated within and beyond particular linguistic and geographical contexts. In specific terms, I examine the means by which one author's in-the-field writing became authoritative, printed text; how that text took shape through particular practices of authorship and editorial mediation; and how the resultant book moved spatially, and was changed materially, through acts of reprinting and translation. Through detailed attention to the making and movement of one book, I seek to reflect more broadly on the importance of mediation to the mobility of knowledge and ideas.

Travels in Europe, Asia, and Africa represented the first independent excursion into geographical publishing on the extra-European world for a firm that would later emerge as Britain's leading nineteenth-century maker of travel texts: John Murray. By the end of the 1830s, narratives of exploration, geographical gazetteers, topographical descriptions, and tourist guidebooks flowed from Murray's London presses in a heady profusion. Between the house's founding by John Murray I (1745–1793) in 1768 and its mid-nineteenth-century apotheosis under the direction of John Murray II (1778–1843), the firm issued approximately 400 books of travel, published the journal of the Royal Geographical Society, and served as official publisher to the Admiralty and the Board of Longitude. It was, simply put, *the* authority on geographical publishing in nineteenth-century Britain. The emergence of Murray as a corporate geographical authority was, however, neither rapid nor straightforward, but represented hard-won experience in a competitive marketplace, carefully acquired credibility among readers, and shrewdly wrought influence in Britain's scientific and geographical circles. The house's ability to determine the value of a work of travel depended upon an understanding of public taste and market demand. Judgments were daily made as to the ways in which texts of travel might most sensibly be selected for publication and shaped for consumption. Questions of format, price, and the suitability of illustrations sat alongside assessments made as to the necessary redaction or editing of texts in order to satisfy particular audience expectations—whether in terms of an author's trustworthiness, a narrative's adventure-some excitement, or its perceived scientific rigor.

The expertise upon which Murray's nineteenth-century success in geographical publishing depended emerged, in part, from experience wrought through trial and error. The publication history of *Travels in Europe, Asia, and Africa* offers an important insight into the evolution of the firm's judgments as to authorship, audience, and textual credibility—how decisions were made (often wrongly) as to the appropriate literary form for a work of travel and the ways in which its veracity and utility might most convincingly be demonstrated. More than simply an account of a journey undertaken, however, *Travels in Europe, Asia, and Africa* was a seditious and seemingly libelous attack on Britain's colonial administrators, one whose reach and influence was facilitated by reprinting and translation. Examining how the book made the journey from manuscript to print, and how its textual and intellectual content altered at the hands of translators and publishers in the years following its original printing, offers an insight into the circulation of its ideas. So, too, is it possible to understand why, on account of political and pragmatic imperatives, the book's contents and arguments were differently staged and negotiated in different places within the British Isles, and beyond.

William Macintosh: A Colonial Life

The author upon whom Murray staked his first truly independent excursion into travel literature was a Scottish merchant and political commentator, William Macintosh (ca. 1738–ca. 1816). Although there is no biography of Macintosh—save

for a short account written by his great-nephew (Macintosh, 1847), described by one critical contemporary variously as “rather rambling,” with little “savour of authenticity,” and “simply rubbish” (Busteed, 1888, p. 249)—it is possible to outline various details of his life with some certainty.

Born in Rosskeen, a parish of Ross and Cromarty in the Scottish highlands, Macintosh embarked (while still an adolescent) upon a commercial career in the Caribbean, overseeing plantations in Tobago, Dominica, and Grenada, before eventually becoming comptroller of His Majesty’s Customs for the Port of Grenville in Grenada (Macintosh, 1847; Rothschild, 2011). Following the ceding of Grenada from France to Britain at the end of the Seven Years’ War in 1763, Macintosh was witness to prolonged political machinations there concerning the incorporation of French Catholics into the British Empire (Hamilton, 2005; Lambert, 2013; Willis, 2014). Opinion was divided as to the extent to which political rights that applied to British Protestants should be extended to French Catholics. These divisions resulted in political stalemate on the island lasting through much of the late 1760s and early 1770s.

Macintosh was, as one contemporary periodical noted, “zealous in the cause of Roman Catholic French subjects at Grenada” (*Political Register*, 1770, p. 282), supporting the extension of political rights across the sectarian divide. Macintosh’s opinions as to the correct and just management of Grenada were communicated in an anonymously issued, coauthored pamphlet—*Audi Alteram Partem* (1770)—and in a series of letters sent to Lord Dartmouth, secretary of state for the colonies (*Manuscripts of the Earl of Dartmouth*, 1895). It was this desire to inform Britain’s colonial policy—and to “retrieve the glory of the British name” (Macintosh, 1782, p. vi)—that emerged subsequently as the central concern of Macintosh’s *Travels*.

Travels itself is—or purported to be—a series of “intimate and informal” letters sent from Macintosh to various correspondents in the period between 1777 and 1781 while he traveled to and from India by way of Europe and Africa (Wichmann, 1785, p. v). The purpose of Macintosh’s journey is nowhere explained in the text, but the impression is given that he was traveling for private and commercial reasons, rather than in an official or administrative capacity. Although the names of the recipients of Macintosh’s letters are thinly disguised in the text by means of dashes, it is clear that John Murray I was among Macintosh’s correspondents. The pair shared a largely critical view of Britain’s management of her colonies—particularly those in North America, which were then fast slipping from grip—and this fact was doubtless important in persuading Murray to take forward the book’s publication.

The focus of Macintosh’s “epistolary lucubrations” (Wichmann, 1785, p. vi) was not primarily upon the geographical features of the countries through which he traveled, but rather their political and economic conditions. As a consequence of his experiences in the Caribbean—as a merchant and concerned citizen of empire—Macintosh was both politically engaged and outspoken. These predilections were cemented to an extent when, upon reaching the Cape of Good Hope in April 1779, Macintosh came into possession of a copy of Adam Smith’s *An Inquiry Into the Nature and Causes of the Wealth of Nations*, published 3 years earlier (Smith, 1776). Macintosh read the text with interest, if not always agreement; he would later send

Smith a copy of his *Travels*, respectfully pointing out in a flyleaf dedication points where their opinions differed (Mizuta, 2000). Smith's principal ideas were, however, foremost in Macintosh's mind when he reached India, and he thus set about making a systematic assessment of the resources of that county, as well as the prevailing system of government under the East India Company. Although the precise nature of Macintosh's business in India is unclear, it is evident that a letter of introduction from the Scottish soldier-politician Hector Munro (1726–1805) facilitated Macintosh's contact with the ruling elite, including Warren Hastings (1732–1818), governor-general of Bengal, who was, as chance would have it, a regular customer of Murray's.

Macintosh was scandalized by what he saw as the inefficient, corrupt, and cruel administration of British India, and his letters roundly “condemned British colonial practices” (Tzoref-Ashkenazi, 2010, p. 21) and the administration of the East India Company. He criticized, particularly, the Company's “obsession with repression” (Wichmann, 1785, p. vi). Informed by the principles of humanism, Macintosh proposed in his letters an alternative system for the government and administration of British India—one based upon a formal and clearly defined alliance between the Mughal Emperor, Shah Alam II (1728–1806), and the British government. At its core, Macintosh's plan called for the more just treatment of India's population. Macintosh was of the opinion that for Britain's imperial ambitions in India to succeed, it would be necessary for the Company to “resolve to treat the Hindoos, not as slaves or inferior animals, but as fellow-men, entitled to protection, liberty, and justice” (Macintosh, 1782, p. 73). He saw the greatest threat to the colonial project as being the “tyranny and injustice” (p. 73) that characterized the activities of the Company under Hastings's governorship.

Macintosh's resulting book, a compilation of his acerbic and politically charged missives, was part of a wider critical discourse on the activities of the East India Company—and its corrupt, profit-seeking servants (the so-called “nabobs”)—a discussion that gained pace following the scandalous 1770 Bengal famine and would reach a particular apotheosis toward the end of the 1780s with the impeachment and trial, at the instigation of Edmund Burke (1729–1797), of Warren Hastings (Dirks, 2006; Edwardes, 1976; Nechtman, 2010). Against this background of widespread concern as to the activities of the East India Company, and Britain's increasingly perilous hold over its colonies, Murray judged that Macintosh's book was topical and important. At the same time, however, the text ran counter to Murray's own largely positive assessment of Hastings's personal qualities and Murray's private financial interest, as a proprietor of stocks, in the Company's commercial success (Zachs, 1998).

Murray was the London agent for (and secretary to) the Society of East India Commanders—a mutual organization founded in 1773 to represent the interests of the commanders of East India Company ships. The Society met from 1780 in the Jerusalem Coffee House, off Cornhill, east of St Paul's Cathedral—the center of the London book trade. The Jerusalem was the de facto hub of East India Company affairs—a meeting site for merchants, insurance brokers, and the managing owners of Company ships. There, and in his capacity as secretary to the Society, Murray

was able to promote his catalogue of useful literature—marketing everything from primers on Arabic and Asiatic languages to treatises on tropical and venereal disease (Zachs, 1998). Superficially, at least, Murray’s decision to publish a text so evidently critical of an organization in which he was both financially and socially embedded appears somewhat peculiar. One reading of the situation is that Murray was sufficiently convinced that (notwithstanding the troublesome content of Macintosh’s text) there was a clear business case for the book’s publication, particularly given the interest it might be expected to excite among members of the Society and patrons at the Jerusalem. A less charitable interpretation is that Murray sought publication without having fully considered the implications Macintosh’s book might have and the uses to which it might subsequently be put.

Polishing, Publication, and Reception of Macintosh’s *Travels*

Notwithstanding his experience as an inveterate letter writer and political pamphleteer in Grenada, Macintosh was, as Murray (1790) later recalled, “unpractised in literary composition” (p. 17). The decision was, therefore, taken (either by Macintosh alone, or in discussion with Murray) that the former’s “sundry papers” needed to be worked up into a form suitable for publication (p. 17). As such, Macintosh’s in-the-field writings were passed to the jobbing Grub-Street writer, William Thomson (1746–1817), who

did his best to give them circulation by throwing them ... into the form of letters to a friend in England, by mixing them with various entertainment, furnished, for the most part, though not entirely, by his employer [Macintosh], and clothing them in tolerable language. (p. 17)

Thomson was, in the view of one contemporary, an “ingenious, versatile, and multifarious writer” (Chambers, 1841, p. 351), and was frequently employed by London’s publishing booksellers in the capacity of author or editor. Less charitably, he was also described as a “brain-sucker” (Erdman, 1986, p. 2)—one who assumed credit for the intellectual labor of others. During his career, Thomson is assumed to have produced “a greater amount of literary work . . . than perhaps any English writer who preceded him,” working happily across “history, biography, voyages, travels and memoirs, novels and romances, pamphlets and periodicals” (Chambers, 1841, p. 353). For Murray and Macintosh both, Thomson represented an experienced and professional authority to whom the preparation of Macintosh’s volume could be entrusted. That it was felt necessary to employ an editor at all reflected a particular assessment, on the part of author and publisher, of the necessary literary characteristics of a work of travel. Many of the travel texts that followed Macintosh’s under Murray’s imprint were subject to some form of editorial mediation—sometimes subtle, sometimes savage—designed to shape them into the form deemed most suitable by Murray and the firm’s advisors.

In his prefatory remarks, Macintosh acknowledged to his readers the fact that he was “no candidate for literary fame” (Macintosh, 1782, p. iii)—an indication of authorial modesty that would emerge as typical of the Murray firm’s eighteenth- and

nineteenth-century travel writers. He elected, however, not to reveal Thomson's editorial influence. Furthermore, Macintosh had been "induced"—he claimed—"by the importunities of men distinguished for public and private virtue, to deliver to the public the contents of a genuine correspondence" (p. iii). Again, the claim to have pursued publication only at the insistence of learned friends is one that would become almost a default among Murray's travelers. Justification for publication was also seen to rest on a claim to public edification—Macintosh had been privy to "sources of intelligence, not often accessible to Europeans" (p. iii) and his text would consequently bring his readers insight and enlightenment. Prefatory declarations of modest ability and reluctant authorship, such as Macintosh's, are sufficiently commonplace in works of eighteenth- and nineteenth-century travel writing that they risk being dismissed simply as "highly conventionalized" defaults, rather than being acknowledged as deliberate and crafted elements of rhetorical strategy (Sherman, 1996, p. 180). Scholarly attention to the role and evolution of the textual preface has shown, however, that its conventions are part of a venerable rhetorical tradition whose origins lie in Classical understandings of appropriate and convincing oratory (Dunn, 1994; Sell, 2006).

The fact that Macintosh's account was epistolary in nature, rather than narrative, was designed to make a further claim to authenticity and candor in two related ways. First, letters carried a connotation of intimacy—bringing the reader into the shared confidence between writer and recipient. That these were letters sent to "men distinguished for public and private virtue" (Macintosh, 1782, p. iii) added further to their authority. Secondly, presenting his account as a series of letters, rather than a worked-up journal or political treatise, lent additional weight to Macintosh's claim to be a reluctant author. While the existence of an on-the-spot, in-the-field journal might suggest a specific authorial intention, letters were, more convincingly, the medium of the reluctant author—someone persuaded only to bring forth their publication as a consequence of the overwhelming public benefit that might spring from them. Macintosh was thus able to present his letters as having been "related with fidelity" and left "unadorned" (Macintosh, 1782, p. iv). The reality, of course, was rather different.

Although the role of Thomson as editor had deliberately been kept covert, at least one reviewer of Macintosh's text, writing in the *Critical Review* (1782a, p. 343), suspected that "the author may have received the assistance of a person practiced in composition"—a fact attested to by the quality of the prose, which was deemed to have been written "with a degree of elegance, . . . seldom attained by men who have chiefly devoted their attention to commercial activities" (p. 343). The *Critical Review* was not alone in this assessment. The *Westminster Magazine* (1782) reached a similar conclusion:

[t]he information it [the book] contains is evidently furnished by a traveller; but the execution of the work is in a style far superior to what could be expected from a person of this description. A man of letters, and improved by deep study and reflection, has here, doubtless, improved upon materials submitted to him. The value of the performance, accordingly, is to be imputed not to the author, but to the manufacturer. The former is a middling personage; the latter is a great master. (p. 484)

Despite the best efforts of Macintosh, Murray, and Thomson, the keen eyes of the periodical press were evidently not to be fooled.

The net effect of Thomson's editorial mediation was to undermine the credibility of the text: "we are afraid that the author has sometimes indulged himself in representations which are consistent neither with candour nor truth" (*Critical Review*, 1782b, p. 425). Furthermore, as the *Critical Review* (1782b, p. 425) noted, "there seems sufficient reason, from the testimony of others, to question, if not entirely to reject, the authority of different parts of the narrative." For the *Westminster Magazine* (1782, p. 485), the problem lay, most especially, with the fact that Thomson—the book's "manufacturer," in their terminology—had wasted his considerable talents on material that was clearly beneath him. As the reviewer noted, "It is a pain to think, that a man so cultivated should be induced to submit to give a value to the collections of other men" (*Westminster Magazine*, 1782, p. 485). Murray and Macintosh, evidently, had misjudged what the critical periodical press expected from a work of this kind, and in seeking to *add* to its credibility had, in fact, *diminished* it.

It was not just in the periodical press that Murray's author was attacked. Macintosh was also subject to a full-scale rebuttal by the East India Company captain Joseph Price (born ca. 1749) in a 167-page, venom-filled tract: *Some observations and remarks on the late publication, intitled, Travels in Europe, Asia, and Africa, in which the real author of this new and curious Asiatic Atalantis, his character and his abilities are fully made known to the publick* (1782). Price's purpose was to destroy Macintosh's anonymity and to "prove that his work is political, and calculated to serve the views and purposes of himself and friends" (Price, 1782, p. 9). It was to one friend in particular—Philip Francis (1740–1818), who, with Edmund Burke, was a principal antagonist of Warren Hastings—that Price's ire was specifically directed. This followed an earlier public squabble regarding supposedly negative aspersions cast on Price's character by Francis while he was in the service of the East India Company (Colley, 2010; Price, 1781). Believing Macintosh to be "an agent employed by Mr. Francis to traduce the character of Governor Hastings," (*Monthly Review*, 1782, p. 256) and thus to denigrate Price himself, Price's text offered an epistle-by-epistle refutation of Macintosh's "collection of daring absurdities, studied misrepresentations, and abominable falsehoods" (Price, 1782, p. 63).

The value of Price's text as a sober corrective to Macintosh's volume was, however, debatable. The *Monthly Review* (1782) noted, for example, that

[t]he indifferent reader, who only aims, if possible, to discover the truth, will not imbibe the warmth of the Author's resentments; he may attribute his anger to the weakness of his cause; if an enemy, he may derive great advantages from the Author's heat; or, if as a friend, he gives a more favourable interpretation to his asperity, it is an act of courtesy to which he can lay no claim. (p. 256)

In this respect, whilst the vociferousness of Price's "violent attack" limited its effectiveness, Macintosh's text was evidently controversial—either for those who saw it as part of the wider contemporary criticism of the East India Company, or for those who, as a consequence of its overwrought prose, considered its truth claims to be

potentially dubious (W. O. W., 1863, p. 67). Debate continued about the true authorship of Macintosh's anonymous book, with some attributing it to Francis himself—he having been Hastings's "greatest enemy" (Ogborn, 2007, p. 213) during their time together on the Bengal Council. There is evidence to suggest that Macintosh received a financial subsidy from Francis, and it seems probable, therefore, that Macintosh's text was intended at least partly to communicate Francis's own views as to the corruption and mismanagement of the East India Company (Weitzman, 1929).

The Reading and Afterlife of *Travels*

Despite the concerns expressed by the periodical press as to the book's trustworthiness, its popularity and currency seem not to have been affected—in no small part a consequence of the subsequent impeachment and trial of Warren Hastings, which had the effect of extending the book's topical relevance. When Thomas Jefferson (1743–1826), who had acquired a copy of *Travels* in 1786, attempted later the same year to procure one for a friend, he found that "McIntosh's [book] is not to be bought, the whole edition being exhausted" (Washington, 1853, p. 22). In 1785 and 1786, *Travels* was reprinted in Dublin to coincide with parliamentary efforts to further regulate the activities of the East India Company. The first Dublin edition (Macintosh, 1785), issued by Charles Lodge, was accompanied by a short advertisement that highlighted the text's purpose and significance to potential readers:

The intent of this Publication by its humane and patriotic Author, is to rescue Millions of Souls from groaning and bleeding under the iron Yoke of Tyranny and Oppression. He hath given in the Course of his Work, the most striking Proofs of Cruelty and Injustice, in the Mismanagement of the East-India Company's Servants. It hath been from this ample Source of Information, that both Mr. Pitt and Mr. Fox deduced their Knowledge, and founded all their Measures in their respective East-India Bills. In a Word, these interesting Volumes have caused greater Agitations in the English Cabinet, and greater Discussions in the English Senate, than, any Work published within the present Century. Whoever would form a just Idea of India Affairs, together with the modern State of Europe and Africa, may obtain it from a Perusal of this very ingenious and entertaining Publication.¹

Presented thus, the book's topicality and authoritativeness (as an important source of information for Charles Fox [1749–1806] and William Pitt the Younger [1759–1806] in the drafting, respectively, of the 1783 East India Bill and 1784 East India Company Act, the second of which sought to bring the Company's rule in India under governmental control) was made entirely clear to likely purchasers. For much the same reason, the title page of the second Dublin printing, issued by J. Jones (whose premises at 39 College Green sat between the Irish Houses of

¹ This advertisement is preserved on the flyleaf of a copy of the book owned by the American politician Charles Pinckney (1757–1824), housed in the Irvin Department of Rare Books and Special Collections at the University of South Carolina (G460.M3 1782).

Parliament and Trinity College), was altered to highlight the text's contemporary political significance (Macintosh, 1786). It informed its readers, many of whom would have been drawn from Dublin's scholarly and political communities, that

A Work of this Kind becomes particularly interesting to the Public, at a critical Moment, in which a late Governor of Bengal is called before the great Tribunal of the British Parliament, to answer various Charges of Misconduct, founded in great Measure on this authentic and instructive Narrative. (Macintosh, 1786, title page)

That it was not Murray who elected to reissue *Travels* to capitalize on the political maneuverings of Burke, Fox, and Pitt is explained by the fact that, from the mid-1780s, Murray had become a vocal advocate for Warren Hastings, publishing articles in the *English Review* (Murray's own periodical) in Hastings's defense (Zachs, 1998). Murray, moreover, secured Hastings's permission to issue an authorized version of his *Memoirs Relative to the State of India* in 1786, the same year that J. Jones reissued *Travels* in Dublin. Hastings, for his part, appears to have carried no ill will toward Murray for his involvement in the publication of Macintosh's book. Following the commencement of Hastings's trial—a 7-year *cause célèbre*, which ultimately resulted in Hastings's acquittal—Murray was active in “co-publishing Hastings' answers to the charges and reporting the case regularly in the *English Review*” (Carnall & Nicholson, 1989; Zachs, 1998, p. 235). That Murray had published the very text that served as evidence upon which certain of the charges against Hastings had been brought, would, one might imagine, have caused Murray no little chagrin.

Although Murray had longstanding agreements with the Dublin book trade over the distribution of his texts in Ireland, it is difficult to determine whether Lodge and Jones were authorized distributors of *Travels*, or whether they simply took advantage of Murray's awkward political position to issue pirated versions of the book. Although the latter interpretation appears superficially more probable, it is notable that Murray later pursued a complaint against an East India Company captain, Innes Munro (d. 1827), whom he accused of having plagiarized *Travels* in his own *A narrative of the military operations, on the Coromandel coast* (1789). That Murray was protective of his literary property is evident; quite how he regarded the Dublin editions of a somewhat embarrassing text is, however, less obvious.

Notwithstanding cosmetic changes to the book's title page, the textual content of *Travels* remained otherwise unaltered in its Dublin editions. This was not the case, however, when contemporaneous translations of the book appeared in Germany and France in 1785 and 1786. If we are interested in thinking about the ways in which Macintosh's geographical knowledge and seditious opinions circulated, geographically and linguistically, it is necessary to attend to these translations and specifically to the ways in which the book's content was altered and differently framed by its translators.

Macintosh in Leipzig

Although translation (most often *into* English from French and German) was an important element of the Murray firm's activities in the eighteenth century, and would become ever more so in the nineteenth, there is no evidence to indicate that Murray had any formal agreement with Friedrich Gotthold Jacobäer, the Leipzig publisher who issued a German translation of Macintosh's text in 1785 (Stark, 1999). The book's translator was Christian August Wichmann (1735–1807), a prolific interpreter whose translations ranged across “history and travelogues, philosophical essays, plays, short stories and novels” (Horlacher, 2004, p. 110). Having recently undertaken the German translation of Adam Smith's *An Inquiry Into the Nature and Causes of the Wealth of Nations* (1776–1778), Wichmann was well positioned to negotiate and appropriately stage Macintosh's political and economic reflections. Together, Wichmann and his publisher offered a full-scale translation of Macintosh's book—a work whose value was assumed by them to lie in the fact that “he instructs and converses with the reader more through political speculation than the depiction of natural scenes” (Wichmann, 1785, p. iv). That Macintosh's text departed, in this respect, from the assumed conventions of its genre meant that it neatly avoided the risk of “tiring the public's interest . . . [by] repetitive descriptions” (p. iv). Given that Macintosh's identity had, by this stage, been revealed by Joseph Price, his name was incorporated into the book's translated title (albeit with an additional “k”): *Des Herrn Mackintosh's Reisen durch Europa, Asia und Africa*.

Wichmann's role was not simply that of translator but also of commentator. The German edition of Macintosh's text was accompanied by Wichmann's own observations and remarks. These, he informed readers in his preface, “for the most part spring forth spontaneously,” originating from “principles, which we recognize, after careful and yearlong reflection, as correct, and conducive to the welfare of states and even humanity in general” (Wichmann, 1785, p. vi). Wichmann's paratextual commentary—informed by his humanist beliefs and concern for “moral, political and economic betterment” (Horlacher, 2004, p. 110)—was offered to readers “as an impetus to further reflection” (p. 110), albeit with the tacit acknowledgement that the reader might not always concur with Wichmann's view.

In the opinion of one contemporary reviewer of *Reisen*, Wichmann's commentary, although “often too extensive,” offered “some advantages” to German readers (*Allgemeine Literatur-Zeitung*, 1785, p. 65). For that critic, however, the decision to publish a translation of the entire book, rather than a “concise excerpt of the original version” (p. 65), was peculiar. A condensed version would “have certainly attracted more readers in Germany than this translation with the current format” (p. 65). Questions of size and arrangement aside, it is evident that Wichmann saw his role as being one of reflection and positioning—of offering an assessment to German readers of a text whose seditious content rendered it titillating, but whose wider importance could best be highlighted through appropriate commentary. The mobility of Macintosh's knowledge in a German context depended, in Wichmann's view,

on specific staging and presentation—a literal translation would be insufficient in isolation. Much the same reasoning was apparent in the production of the French edition, published in Paris the following year.

Although much work remains to be done to outline fully the reading and reception of *Reisen* in Germany, it is evident that Macintosh's perspective on the nature of society in India was important in informing contemporary German debate concerning happiness and virtue, savagery and civilization (Sikka, 2005). In this respect, Macintosh's book had a particular influence on the German philosopher Johann Gottfried Herder (1744–1803), who drew upon it in his description of Hindus—whom he called “the gentlest of the races of men” (Willson, 1955, p. 1051)—in his philosophical treatise on race, *Ideen zur Philosophie der Geschichte der Menschheit* (1784–1791). More generally, Macintosh's book was a source from which German travelers to (and writers about) India drew—their number including the naturalists Friedrich Ludwig Langstedt (1750–1804) and Georg Forster (1754–1794) (Tzoref-Ashkenazi, 2010).

Macintosh in Paris

The Paris edition of Macintosh's *Travels*—issued under the authority of *permissions tacites* by the Left Bank bookseller Louis-Emmanuel Regnault—had been translated by the pamphleteer and political agitator, Jacques Pierre Brissot (1754–1793) (Darnton, 1982). Brissot would later assume a central role in the French Revolution—giving his name to a loose affiliation of likeminded Jacobin revolutionaries: the Brissotines, or Girondins. In prerevolutionary France, Brissot was viewed with suspicion by the Ancien Régime, not least because of frequent visits to London. He spent 2 months of 1784 incarcerated in the Bastille “on suspicion of having produced some pamphlets satirizing French officials” (Darnton, 1968, p. 302). Financial difficulties, compounded by this incarceration, led Brissot to undertake a variety of publishing and translation activities upon his release—his aim being to “popularize knowledge, to attack abuses, and to further reform” (Ellery, 1915, p. 36). The radical and revolutionary content of Macintosh's volume (which Brissot is likely to have encountered first in London), as well as its humanist principles, appealed to Brissot. He proposed the volume—*Voyages en Europe, en Asie et en Afrique*—first to his Swiss publisher, Société typographique de Neuchâtel, in 1784, but for reasons that remain unrecorded they were not inclined to undertake the book's publication and it passed ultimately to Regnault.

Salacious allegations and political agitation notwithstanding, Brissot regarded the primary importance of Macintosh's text as being to counter ignorance in France as to the political and economic condition of India. As Brissot noted, Britain had “a thousand persons perfectly familiar with the Geography and Topography of India” (Brissot, 1786, p. xi)—each driven by a desire to “observe all, collect all, and print all,” whereas continental Europe “could gather scarcely fifty” (p. xi). Understanding the political administration of British India would, Brissot argued, offer an important

insight into Britain itself—something deemed crucial if “we wish to counter the universal influence of Great Britain” (p. xiii). Brissot was, in this respect, sizing up a future enemy: “we must study it [Britain], consult it, in Hindustan as with her own territory” (p. xi). Brissot’s later role in the Legislative Assembly in Paris saw him declare war on Britain in 1793.

Much like Wichmann, Brissot felt it valuable that Macintosh’s work—like that of other English-language texts—be presented more-or-less at its full length and not subject to radical extraction:

Whatever the French may say, I believe the English writers must be translated in full, translated as slanderously as written; firstly because these judgements help us to know ourselves, or at least see the manner in which we are perceived by foreigners; secondly our arguments reach them and correct their faults, because the English originals are frequently reprinted in England with notes made by French authors, their newspapers point out the corrections, & thus prejudices gradually dissipate. (Brissot, 1786, pp. xvi–xvii)

In his preface, Brissot outlined to his readers the practical and intellectual approach to translation he had taken:

I have enriched this translation, tasking myself to reject anything bearing too strongly the character of vengeance & partiality . . . Repetitions were trimmed back, lengthy passages were abridged, unclear ideas were clarified, falsehoods have been refuted in the notes; in total, I endeavoured to retain in this work all that could be informative, interesting, or amusing for the French. (Brissot, 1786, pp. xviii–xix)

In this respect, Brissot was repositioning and reshaping the text for its new, French readers. Like it was for Wichmann, the role of translator was not, for Brissot, one of simple linguistic relocation, but cultural appropriation. The mobility of Macintosh’s text depended, once again, upon its mutability.

By means of elision and addition, Brissot altered aspects of the text’s meaning (albeit, as he saw it, in the interests of improving its impartiality). The most radical change to the text came through the addition of extensive excerpts from a pair of related travel narratives—James Capper’s (1743–1825) *Observations on the Passage to India* (1783) and Anders Sparrman’s (1748–1820) *A Voyage to the Cape of Good Hope* (1785). By means of such additions, the purpose and relevance of Macintosh’s account was continually being remade in the decade following its initial publication. Any illusion the printed text offers of stability and fixity is thus gainsaid by the fluid and malleable character of Macintosh’s text. The idea of authorship—already confused by the editorial influence of Murray and Thomson—is further complicated by questions of translation and the inclusion of new prefaces and appendices. While the circulation of Macintosh’s ideas may have been motivated by their seditious qualities, they were not immutable in their mobility. At different times, and in different places, Macintosh’s letters were put to different purposes, by different actors, for different audiences.

As with the German edition of Macintosh’s book, the precise contours of the French reading and reception of *Voyages* remain to be charted. From the evidence contained in eighteenth- and nineteenth-century sales catalogues of private libraries, it is clear, however, that the book circulated widely among a diverse audience

of savants, politicians, and travelers: readers who included the encyclopedist and philosopher, Paul-Henri Thiry, Baron d'Holbach (1723–1789); the naval commander and circumnavigator, Louis-Antoine, Comte de Bougainville (1729–1811); the statesman and botanist Guillaume-Chrétien de Lamoignon de Malesherbes (1721–1794); and, later, the naturalist Georges Cuvier (1769–1832). Something of the popularity of *Voyages* in France in the early years of the Revolution is indicated to by the fact that its publisher, Regnault, reissued the text in 1788, 1792, and 1793 (the latter date coinciding with Brissot's execution). In this respect, Macintosh's book enjoyed an afterlife in France that neither he, nor Murray, could have predicted.

Conclusion: Text, Translation, and Truth

Macintosh's *Travels*, as a first independent outing into the publication of extra-European travel literature, was an instructive—if not always unproblematic—experience for Murray, but one whose lessons would be applied to the publication of subsequent works of travel. In showing the production of a travel text to be a form of manufacture, Macintosh's volume illustrated quite how complicated the relationship was between author, editor, and publisher (indeed, how ill-defined the category of *author* actually was). Editing and redaction remained important, if often covert, elements of production in the house of Murray, but perceptions of what constituted a correct literary style for travel texts changed. For many of Murray's subsequent authors, rough and unpolished writing was often the goal—unvarnished text serving as a proxy for unvarnished truth (Keighren & Withers, 2011). Simply put, Murray, his editors, and advisors became increasingly canny when it came to understanding the ways in which text could make truth and what was required of author and publisher for a work of travel to be seen as credible (Keighren & Withers, 2012). Taken together, the Murray firm's books of travel thus offer an important insight into the collaborative effort that underpinned the process of writing the world in the eighteenth and nineteenth centuries.

The translation and edition history of Macintosh's *Travels*—three editions or reprints in English, one in German, and four in French—raises a number of questions to do with the spatial mobility of knowledge, most especially regarding what gets lost, and what is retained, in the process of linguistic and cultural relocation. While the differently presented Dublin editions, and the German and French translations, are precisely what permitted the circulation of Macintosh's text, they are also what changed its meaning—placing emphasis on certain parts at the expense of others, offering new juxtapositions and contextualization. In material and epistemic terms, Macintosh's written words were almost always in flux as they passed through the hands of Murray, Thompson, Lodge, Jones, Wichmann, and Brissot. While it was the seditious character of Macintosh's writing that acted as the principal spur to the circulation of his book, what was emphasized by its reprinters and translators was the text's practical utility as a source of political and geographical information.

In that sense, there was a degree of commonality in the text's restaging that points to the preservation of essential elements of Macintosh's writing and the de-emphasizing of aspects judged to be peripheral or surplus. The spatial mobility of Macintosh's book between and beyond London, Dublin, Leipzig, and Paris thus reveals not simply a geography of reading and reception, but points to the complex mechanisms by which ideas are made mobile, knowledge is made to circulate, and value is attributed and constructed.

References

- Allgemeine Literatur-Zeitung*. (1785, October 20). 249, 65–67.
- Amrein, M., & Nickelsen, K. (2008). The gentleman and the rogue: The collaboration between Charles Darwin and Carl Vogt. *Journal of the History of Biology*, 41, 237–266. doi:10.1007/s10739-007-9144-6
- Audi alteram partem, or a counter-letter, to the Right Hon. the E—l of H—ll—gh*. (1770). London: W. Nicoll.
- Brissot, J.-P. (1786). Préface de l'éditeur [Editor's preface]. In W. Makintosh, *Voyages en Europe, en Asie et en Afrique, contenant la description des mœurs, coutumes, loix, productions, manufactures de ces contrées, & l'état actuel des possessions anglaises dans l'Inde; commencés en 1777, & finis en 1781* (Vol. 1, pp. ix–xxiv). Paris: Chez Regnault.
- Busteed, H. E. (1888). *Echoes from old Calcutta: Being chiefly reminiscences of the days of Warren Hastings, Francis and Impey* (2nd ed.). Calcutta: Thacker, Spink.
- Carnall, G., & Nicholson, C. (Eds.). (1989). *The impeachment and trial of Warren Hastings: Papers from a bicentenary commemoration*. Edinburgh: Edinburgh University Press.
- Chambers, R. (1841). *Lives of illustrious and distinguished Scotsmen, forming a complete Scottish biographical dictionary*. (Vol. 4). Glasgow: Blackie & Son.
- Colley, L. (2010). Gendering the globe: The political and imperial thought of Philip Francis. *Past and Present*, 209, 117–148. doi:10.1093/pastj/gtq034
- The Critical Review: or, Annals of Literature*. (1782a, May). 53, 337–343.
- The Critical Review: or, Annals of Literature*. (1782b, June). 53, 424–432.
- Darnton, R. (1968). The Grub Street style of revolution: J.-P. Brissot, police spy. *The Journal of Modern History*, 40, 301–327. doi:10.1086/240206
- Darnton, R. (1982). *The literary underground of the Old Regime*. Cambridge, MA: Harvard University Press.
- Dirks, N. B. (2006). *The scandal of empire: India and the creation of imperial Britain*. Cambridge, MA: Harvard University Press.
- Dunn, K. (1994). *Pretexts of authority: The rhetoric of authorship in the Renaissance preface*. Stanford: Stanford University Press.
- Edwardes, M. (1976). *Warren Hastings: King of the nabobs*. London: Hart-Davis, MacGibbon.
- Ellery, E. (1915). *Brissot de Warville: A study in the history of the French Revolution*. Boston: Houghton Mifflin.
- Erdman, D. V. (1986). *Commerce des lumières: John Oswald and the British in Paris, 1790–1793*. Columbia: University of Missouri Press.
- Hamilton, D. J. (2005). *Scotland, the Caribbean and the Atlantic world, 1750–1820*. Manchester: Manchester University Press.
- Hastings, W. (1786). *Memoirs relative to the state of India*. London: John Murray.
- Herder, J. G. (1784–1791). *Ideen zur Philosophie der Geschichte der Menschheit* [Outlines of a philosophy of the history of man]. (Vols. 1–4). Riga, Germany: Johann Friedrich Hartknoch.

- Hofmeyr, I. (2003). *The portable Bunyan: A transnational history of The Pilgrim's Progress*. Princeton: Princeton University Press.
- Horlacher, R. (2004). *Bildungstheorie vor der Bildungstheorie: Die Shaftesbury-Rezeption in Deutschland und der Schweiz im 18. Jahrhundert* [Theories of Education (*Bildung*) before Education Theory: The reception of Shaftesbury in Germany and Switzerland in the 18th century]. Würzburg: Königshausen & Neumann.
- Iliffe, R. (1995). Author-mongering: The “editor” between producer and consumer. In A. Bermingham & J. Brewer (Eds.), *The consumption culture, 1600–1800* (pp. 166–192). London: Routledge.
- Keighren, I. M., & Withers, C. W. J. (2011). Questions of inscription and epistemology in British travelers’ accounts of early nineteenth-century South America. *Annals of the Association of American Geographers*, 101, 1331–1346. doi:[10.1080/00045608.2011.577359](https://doi.org/10.1080/00045608.2011.577359)
- Keighren, I. M., & Withers, C. W. J. (2012). The spectacular and the sacred: Narrating landscape in works of travel. *cultural geographies*, 19, 11–30. doi:[10.1177/1474474010393661](https://doi.org/10.1177/1474474010393661)
- Keighren, I. M., Withers, C. W. J., & Bell, Bill. (2015). *Travels into print: exploration, writing, and publishing with John Murray, 1773–1859*. Chicago: University of Chicago Press.
- Kontler, L. (2001). William Robertson and his German audience on European and non-European civilisations. *The Scottish Historical Review*, 80, 63–89. doi:[10.3366/shr.2001.80.1.63](https://doi.org/10.3366/shr.2001.80.1.63)
- Kutzinski, V. M. (2009). Translations of Cuba: Fernando Ortiz, Alexander von Humboldt, and the curious case of John Sidney Thrasher. *Atlantic Studies*, 6, 303–326. doi:[10.1080/14788810903264779](https://doi.org/10.1080/14788810903264779)
- Lambert, D. (2013). *Mastering the Niger: James MacQueen’s African geography and the struggle over Atlantic slavery*. Chicago: University of Chicago Press.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Law, J. (2002). Objects and spaces. *Theory, Culture & Society*, 19, 91–105. doi:[10.1177/026327602761899165](https://doi.org/10.1177/026327602761899165)
- Macintosh, G. (1847). *Biographical memoir of the late Charles Macintosh*. Glasgow: W. G. Blackie.
- Macintosh, W. (1782). *Travels in Europe, Asia, and Africa; Describing characters, customs, manners, laws, and productions of nature and art: Containing various remarks on the political and commercial interests of Great Britain: And delineating, in particular, a new system for the government and improvement of British settlements in the East Indies: Begun in the year 1777, and finished in 1781*. (Vol. 1) London: John Murray.
- Macintosh, W. (1785). *Travels in Europe, Asia, and Africa; Describing characters, customs, manners, laws, and productions of nature and art: Containing various remarks on the political and commercial interests of Great Britain: And delineating, in particular, a new system for the government and improvement of British settlements in the East Indies*. (Vols. 1–2). Dublin, Ireland: Charles Lodge.
- Macintosh, W. (1786). *Remarks on a tour through the different countries of Europe, Asia, and Africa; Giving a particular description of the characters, customs, manners and laws of each, with their natural and mechanical productions*. (Vols. 1–2). Dublin: J. Jones.
- MacLaren, I. S. (2003). Explorers’ and travelers’ narratives: A peregrination through different editions. *History in Africa*, 30, 213–222. doi:[10.1017/S0361541300003223](https://doi.org/10.1017/S0361541300003223)
- The manuscripts of the Earl of Dartmouth* (1895). (Vol. 2). London: Her Majesty’s Stationery Office.
- Martin, A. E. (2011). “These changes and accessions of knowledge”: Translation, scientific travel writing and modernity—Alexander von Humboldt’s *Personal narrative*. *Studies in Travel Writing*, 15, 39–51. doi:[10.1080/13645145.2011.535375](https://doi.org/10.1080/13645145.2011.535375)
- Martin, A. E., & Pickford, S. (Eds.). (2012). *Travel narratives in translation, 1750–1830: Nationalism, ideology, gender*. Farnham: Ashgate.

- Mayhew, R. J. (2010). Printing posterity: Editing Varenus and the construction of geography's history. In M. Ogborn & C. W. J. Withers (Eds.), *Geographies of the book* (pp. 157–187). Farnham: Ashgate.
- Mizuta, H. (2000). *Adam Smith's library: A catalogue*. Oxford, UK: Oxford University Press.
- Munro, I. (1789). *A narrative of the military operations, on the Coromandel coast*. London: G. Nicol.
- Murray, J. (1790). *The defence of Innes Munro, Esq.* London: J. Ridgeway.
- The Monthly Review; or, Literary Journal*. (1782, October). 67, 256–258.
- Nechtman, T. W. (2010). *Nabobs: Empire and identity in eighteenth-century Britain*. Cambridge, UK: Cambridge University Press.
- Ogborn, M. (2007). *Indian ink: Script and print in the making of the English East India Company*. Chicago: University of Chicago Press.
- The Political Register*. (1770, May). 38, 277–282.
- Powell, R. C. (2007). Geographies of science: Histories, localities, practices, futures. *Progress in Human Geography*, 31, 309–329. doi:[10.1177/0309132507077081](https://doi.org/10.1177/0309132507077081)
- Price, J. (1781). *A letter from Captain Joseph Price, to Philip Francis, Esq; late a member of the Supreme Council at Bengal*. London: J. Stockdale; J. Sewell.
- Price, J. (1782). *Some observations and remarks on the late publication, intitled, Travels in Europe, Asia, and Africa, in which the real author of this new and curious Asiatic Atalantis, his character and his abilities are fully made known to the public*. London: J. Stockdale; Scatchard & Whitaker.
- Rothschild, E. (2011). *The inner life of empires: An eighteenth-century history*. Princeton: Princeton University Press.
- Rupke, N. A. (2000). Translation studies in the history of science: The example of *Vestiges*. *The British Journal for the History of Science*, 33, 209–222. doi:[10.1017/S0007087499003957](https://doi.org/10.1017/S0007087499003957)
- Secord, J. A. (2004). Knowledge in transit. *Isis*, 95, 654–672. doi:[10.1086/430657](https://doi.org/10.1086/430657)
- Sell, J. P. A. (2006). *Rhetoric and wonder in English travel writing, 1560–1613*. Aldershot: Ashgate.
- Sherman, S. (1996). *Telling time: Clocks, diaries, and English diurnal form, 1660–1785*. Chicago: University of Chicago Press.
- Sikka, S. (2005). Enlightened relativism: The case of Herder. *Philosophy & Social Criticism*, 31, 309–341. doi:[10.1177/0191453705051708](https://doi.org/10.1177/0191453705051708)
- Smith, A. (1776). *An inquiry into the nature and causes of the wealth of nations* (Vols 1–2). London: W. Strahan and T. Cadell.
- Smith, A. (1776–1778). *Untersuchung der Natur und Ursachen von Nationalreichthümern* [An inquiry into the nature and causes of the wealth of nations]. (J. F. Schiller & C. A. Wichmann, Trans.). (Vols. 1–2). Leipzig: Weidmanns Erben & Reich.
- Stark, S. (1999). “Behind inverted commas”: Translation and Anglo-German cultural relations in the nineteenth century. Clevedon: Multilingual Matters.
- Tzoref-Ashkenazi, C. (2010). The experienced traveller as a professional author: Friedrich Ludwig Langstedt, Georg Forster and colonialism discourse in eighteenth-century Germany. *History*, 95, 2–24. doi:[10.1111/j.1468-229X.2009.00471.x](https://doi.org/10.1111/j.1468-229X.2009.00471.x)
- Washington, H. A. (Ed.). (1853). *The writings of Thomas Jefferson*. (Vol. 2). New York: John C. Riker.
- Weitzman, S. (1929). *Warren Hastings and Philip Francis*. Manchester: Manchester University Press.
- The Westminster Magazine*. (1782, September). 10, 484–485
- Wichmann, C. A. (1785). Vorrede des uebersetzers [Translator's preface]. In W. Macintosh, *Des Herrn Mackintosh's Reisen durch Europa, Asia und Africa, worinnen die Charaktere, Gebräuche, Sitten und Gesetze der Bewohner dieser Länder, nebst den darinnen vorhandenen Natur- und Kunst-Producten beschrieben werden. Aus dem Englischen übersetzt, und mit Anmerkungen versehen* (C. A. Wichmann, Trans.). (Vol. 1, pp. iii–viii). Leipzig, Germany: Friedrich Gotthold Jacobäer.

- Willis, A. (2014). The standing of new subjects: Grenada and the Protestant constitution after the Treaty of Paris (1763). *The Journal of Imperial and Commonwealth History*, 42, 1–21. doi:10.1080/03086534.2013.826463
- Willson, A. L. (1955). Herder and India: The genesis of a mythical image. *PMLA*, 70, 1049–1058. doi:10.2307/459885
- Withers, C. W. J., & Keighren, I. M. (2011). Travels into print: Authoring, editing and narratives of travel and exploration, c. 1815–c. 1857. *Transactions of the Institute of British Geographers*, 36, 560–573. doi:10.1111/j.1475-5661.2011.00437.x
- W. O. W. (1863). Junius's letters: Could Francis have written them? *Notes and Queries*, 56, 67. doi:10.1093/nq/s3-III.56.67-a
- Zachs, W. (1998). *The first John Murray and the late eighteenth-century London book trade*. Oxford: Oxford University Press for the British Academy.

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Chapter 5

Exploration as Knowledge Transfer: Exhibiting Hidden Histories

Felix Driver

This paper is concerned with two things that depend, essentially, on the spatial mobility of knowledge.¹ First there is geographical exploration, a process of knowledge-making involving the translation of ideas, people, and things across space in a two-way movement between known and unknown territory. This is, as is clear from much historical and contemporary research, an uneven process in which certain things get translated more readily than others. There is, so to speak, a politics, as well as a physics, of knowledge transfer. The second is public exhibition, a project designed to disseminate knowledge (in the case I will discuss, knowledge of exploration) to a wider audience, a process sometimes described in higher education under the bureaucratic rubric of “knowledge transfer.” The idea linking these two things is simple enough, but deserving of further elaboration in many different ways, as the contributions to this volume attest. The thing transferred—the knowledge explorers brought home, the knowledge imparted through an exhibition—is transformed in the course of its translation. Space, like language, is not a neutral surface over which knowledge travels, or an empty container into which we can pour our learning; it enters into and shapes that knowledge in significant ways (Livingstone, 2003; Meusburger, Livingstone, & Jöns, 2010; Naylor, 2005).

The *Hidden Histories of Exploration* exhibition took place in London at the Royal Geographical Society with the Institute of British Geographers (RGS-IBG) in 2009, and its life extended well beyond that in electronic form.² The exhibition was part of a wider project designed to question—and to disturb—a dominant narrative in the history of exploration that privileges the actions of heroic individuals in

¹ A previous version of this paper has been published as Driver (2013). The research was supported by a research grant under the Arts & Humanities Research Council’s (AHRC) Museums, Galleries, Archives, & Libraries Scheme.

² The exhibition displays and other resources are available online at www.rgs.org/hiddenhistories

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extraordinary circumstances and presents exploration as an individual drama, with the explorer the principal character, usually the hero, occasionally the villain (Driver, 2005). Such has been the dominant view of explorers and exploration, and it has proved remarkably enduring. For all the weight of decades of research scholarship and postcolonial critique, much is still to be learned about the culture, practices, and institutions that made geographical exploration possible.³ The *Hidden Histories of Exploration* exhibition was designed in particular to portray the business of exploration as a collective experience of work involving many different people in many different kinds of relationship.⁴ It highlighted the contributions of a large number of people who were rarely center stage—including the carriers, cooks, soldiers, porters, guides, and interpreters recruited and paid off *en route*. The exhibition provided an opportunity to present some of the outcomes of research on the collections of the RGS-IBG (Driver & Jones, 2009; Jones, 2010). However, the relationship between research and display was by no means all one-way, as the language of “dissemination” tends to suggest. The process of bringing the exhibition into being—conceptually, discursively, and practically—also helped to reshape research questions and perspectives in ways that were productive of new insights about the subject of the research, and the process of public engagement.

I begin this paper by outlining the institutional setting of the exhibition, explaining its wider significance in the context of the history of the RGS-IBG and the methodological challenge of using the Society’s historical collections to tell new stories about exploration. The second section outlines the form and content of the exhibition, explaining how it highlighted the agency of indigenous peoples and intermediaries in the conduct of expeditions. By highlighting and, to an extent, celebrating the role of intermediaries such as guides, interpreters, porters, and pilots, the exhibition prompted questions about what was made visible and what was obscured in standard narratives of exploration, especially when seen from a British perspective; specifically, whose labors come to be recognized as indispensable to the process of exploration and whose are marginalized? In turn, these questions prompted further reflection on the biographical mode in which the work of recovery is often conceived within the heritage sector, suggesting in particular the possibility of a more explicitly spatial perspective on the networks and infrastructure of exploration. The third section considers the relationship between the ethos of the *Hidden Histories* exhibition and three design strategies involved in its realization, referred to here as “role reversal,” “juxtaposition,” and “rescaling,” respectively. The knowledge presented within this exhibition, as in any other, was significantly shaped by its spatial form and context (Hooper-Greenhill, 2000; Moser, 2010).

³For recent overviews, see Kennedy, 2007; Naylor & Ryan, 2010; and Thomas, 2015; more specialist studies include Cavell, 2008; Dritsas, 2010; and Safier, 2008.

⁴Studies of the expedition as an economic institution are surprisingly rare: see Thomas (2015).

Institutional Context

Questions about the role of indigenous people in the history of exploration may be approached in a variety of ways, via, for example, oral history, archival research, or anthropological fieldwork. The remit of the *Hidden Histories* exhibition project was specifically focused on the potential of archival investigation within major European or North American collections to yield evidence that might qualify or undermine the “heroic” view of exploration. In methodological terms, this was not an unfamiliar challenge, given the recent direction of research in the history of geography and imperial history concerned with the extent to which such archives, established during the colonial era, can be read “against the grain” (Burton, 2011; Pandey, 2000) or, in Ann Stoler’s formulation, “along the grain” (Stoler, 2009). In these terms, the RGS-IBG was a good site to conduct such research, not least because of the extraordinary depth and range of its collections. The idea of acquiring, storing, and circulating geographical information was itself one of the main rationales for the foundation of the Royal Geographical Society in 1830 (Driver, 2001; Jones, 2005). Today, the Society’s collections are said to contain more than two million individual items, including books, manuscripts, maps, photographs, artworks, artifacts, and film, reflecting the wide reach of geographical interest across the world but also extending well beyond the limits of the British Empire.

The idea of mounting an exhibition in a space traditionally associated with the heroic view of exploration evidently required the active support of the Society itself. The Society’s head of research and higher education, Dr. Catherine Souch, was the key point of contact in the planning for the exhibition, though many other members of the professional staff, notably those with responsibility for collections, education, outreach, and public relations, were also involved. In recent years, the RGS-IBG collections have played an important role in extensive outreach and educational initiatives, notably the *Crossing Continents* exhibitions program, led by Vandana Patel and Steve Brace, designed to reach new “publics” among Britain’s black and ethnic minority communities (RGS-IBG, 2009).⁵ This was part of a larger-scale initiative—the “Unlocking the archives” project supported by the United Kingdom’s Heritage Lottery Fund—involving the provision of new facilities for storage, cataloguing, preservation, and visitor access to the collections at the home of the RGS-IBG, including a new display space (the Pavilion) on Exhibition Road, opened in 2004. Although the idea of a research-oriented exhibition at the Society was new, the shift of emphasis in its collections strategy toward greater engagement with more diverse public audiences—as developed in recent years by Alasdair Macleod, head of enterprise and resources—provided an essential precondition for the project discussed in this chapter.

⁵The four *Crossing Continents* exhibitions were: *Bombay Africans, 1850–1910*; *From Kabul to Kandahar, 1833–1933*; *Seeing China: Community Reflections*; and *The Punjab: Moving Journeys*. See Royal Geographical Society (2009), and <http://hiddenhistories.rgs.org/index.php/research/geographical-exhibitions#4>

The origins and ethos of the *Hidden Histories* exhibition were reflected in its physical manifestation at the RGS-IBG, across two distinct spaces: the Society's Pavilion Gallery at street level (where most of the panels and copy prints were on public display, along with some video and audio material) and the Foyle Reading Room at basement level (where original materials including oil paintings, books, sketches, and artifacts were housed). Although this arrangement was to some extent dictated by pragmatic considerations, including conservation requirements, it also helped to embed the links between exhibition and research in the spatial organization of the display. In principle, visitors were encouraged to move from the story to the sources. In crossing the threshold of a formerly inaccessible research facility they were invited to become active participants in the making of new knowledge rather than simply its passive spectators. In this respect, the spatial arrangement of the exhibition was reinforced by a program of associated events, from "hands on" showcases to community engagement workshops, designed to promote the use of the collections.

Form and Content

The exhibition set out to encourage a more inclusive history of exploration, in which the contributions of a wide range of people were recognized and valued. European explorers in many different parts of the world relied heavily on the physical labor of porters, pilots, guides and translators, as well as various forms of indigenous knowledge, including but not confined to oral testimony (Burnett, 2002; Camerini, 1996; Chrétien, 2005; Fogel-Chance, 2002; Hansen, 1999; Raffles, 2002; Raj, 2006; Simpson, 1975; Wisnicki, 2008). Yet in writing for a metropolitan audience, explorers often failed to acknowledge the extent of their dependence on others in print, with indigenous agency all too often "lost in translation." By looking carefully at the various different forms of evidence across the collections, the aim was to recover some aspects of these hidden histories.

The exhibition was arranged into three thematic sections: "The Work of Exploration" (highlighting the dependence of European explorers on local support, local knowledge, and key intermediaries, including guides and interpreters); "Images of Exploration and Encounter" (presenting aspects of a diverse visual archive of exploration and the presence of indigenous peoples within it); and "Recognition and Responsibility" (reflecting on the extent to which the role of locals and intermediaries was recognized during the nineteenth century). Within each section, individual items were arranged to highlight the role of indigenous people and intermediaries in the history of exploration, using various different kinds of materials from the collections, including manuscript, print, artifact, map, photograph, artwork, and film. The idea of "bringing into visibility" was enriched, and complicated, by the prominent role of visual technologies—including, for example, the sketchbook, the atlas, the lantern slide, and the documentary film—in the history of exploration. The photographic collections of scholarly societies, for example,



Fig. 5.1 Captain Noel and kinematograph camera with large telephoto lens established on the Chang La [North Col] at 23,000 ft. Unknown photographer. 1922. Note the partially visible Sherpa keeping camera and tripod steady (© Royal Geographical Society [with IBG]. Reprinted with permission)

have themselves been the subject of significant attention in the histories of geography and anthropology (Edwards, 1994; Loiseaux, 2006; Ryan, 1997). The exhibition's large central section devoted to images of exploration was thus intended to encourage reflection on the particular history of the various modes of visualization evident in the Society's collections. Images of image-making were especially prominent, accompanied by contextual material emphasizing the specific conditions under which images were made (Driver & Jones, 2009, pp. 25–41). Mixing the spectacular with the mundane, the exhibition as a whole was intended to inspire curiosity, a desire not just to know more about the RGS-IBG collections, but to know more about the conditions under which some things in the collections were more visible than others.

This was partly a matter of looking at familiar material with fresh eyes. Perhaps the single most telling example used in the exhibition was provided by an iconic portrait of the cameraman John Noel, member of the 1922 and 1924 Everest expeditions, pictured in the act of filming on the Chang La (which the British then called the North Col) at a height of around 23,000 ft (Fig. 5.1). Noel occupies an important place in the historiography of mountaineering, partly for his achievements as a climber but mostly for his enthusiastic advocacy of the uses of film in the course of adventurous exploration. His photographs and films brought Everest expeditions to life, and continue to do so. The exhibition thus included footage from his 1922 film alongside documentary evidence concerning the role of Sherpas in Everest

expeditions (discussed further below). The focus of the image reproduced in Fig. 5.1 is Noel himself, the apparently nonchalant operator of a specially adapted Newman Sinclair camera, with telephoto lens, at what was then a record altitude. This photograph was widely reproduced, appearing, for example, in the program for the 1922 expedition film (Mount Everest Committee, 1922), in contemporary advertising for the camera, and also in a fundraising exhibition of Everest photographs and paintings held at the Alpine Club in the spring of 1923. The portrait continues to be produced as an iconic portrait and is often attributed to Noel himself (Davis, 2011; Noel, 2003). This aspect of the afterlife of the image is itself highly significant and a reminder that the visual archive, far from being simply an unmediated record of experience, is often a site for the accumulation of value.

In the context of the exhibition, however, the viewer was encouraged to look more closely at the picture itself. Behind the film camera, literally in the shadows, is a partially visible Sherpa steadying the tripod, one of no less than eight men who were deputed to carry all the equipment up and down the mountain. The idea of partial visibility was here used to tell a larger story and in this case could be amplified by asking the viewer to consider how Noel actually obtained the photograph of himself apparently in the act of filming. With no sign of any remotely activated device by which he himself could have taken the picture (a theoretical possibility), further research in the Everest archive at the RGS-IBG was required. Evidence was eventually found, in the form of the catalogue to the Alpine Club exhibition (Mount Everest Committee, 1923), to support the claim that the photograph was almost certainly taken by one of the Sherpas at Noel's behest. Of all the photographs detailed in the catalogue, this was the only one without an attribution to a named photographer: every one of the others is recorded as having been the work of Noel or his British colleagues. The absence speaks volumes. It seems highly likely that the camera was operated by an unnamed Sherpa.

Identifying a presence is an important step; going further than this and naming individuals depends to a large extent on the survival of evidence, which is often difficult to locate or is suggestive rather than definitive, as the above example shows. In the case of the early Everest expeditions, the names of individual Sherpas were almost invisible in the official records, except for rare receipt books showing payments to their families and including their wives' thumbprints as signatures (an example of which was included in the exhibition). Seven of the porters died on the 1922 expedition, killed by an avalanche while attempting to reach the summit led by George Mallory (who survived on this occasion). But they were not named or even mentioned in the film, though Noel reportedly photographed the climbing party half an hour before the accident and filmed the track of the avalanche. There are various accounts of the accident in the RGS-IBG collections, including two by Mallory, who blamed himself for an error of judgment (a conclusion he was not alone in reaching).⁶ But among the vast archive of paperwork there is nothing to tell us about the Sherpa community's view of the event, apart from a single document

⁶G. Mallory to G. Young, 11 June 1922, RGS-IBG Everest Expedition archives, EE/3/5/11. See also the typescript account in EE/3/5/13.

noting compensation to their families living in Darjeeling, Nepal, and Tibet. As far as I know, this is the only documentary evidence of their identities that survives. Here they are named as Thankay Sherpa, Sangay Sherpa, Temba Sherpa, Lhakpa Sherpa, Pasang Namgya Sherpa, Norbu Bhotia, and Pema Sherpa, with the report indicating that six were ethnic Sherpa and one “Bhotia” (a loose term that the British authorities used to cover a variety of ethnically Tibetan hill peoples).⁷ Although the achievements of the British climbers were widely celebrated after their return to England, the deaths of the Sherpas were soon forgotten as far as public memory in Britain was concerned, in striking contrast to the lasting popular obsession with Mallory following his death on the mountain in 1924. Mallory’s fate continues to inspire fascination within Britain and beyond, as witnessed in Geoffrey Archer’s pseudo-documentary novel, *Paths of Glory* (2009), and the spectacular film, *The Wildest Dream* (2010), both of which drew directly on materials in the Everest collections at the RGS-IBG. In this context, the possibility of telling other stories through these collections is yet to be widely recognized.⁸ An exhibition such as *Hidden Histories* swims against a powerful tide.

As the above example indicates, research for the exhibition involved the identification of individuals whose labors had been hidden or airbrushed from history, suggesting the possibility (cheerfully exploited in the exhibition publicity) of a kind of alternative “roll of honor” in the annals in exploration. But the task of naming and individualizing those I have referred to above as “partially visible” was itself by no means simple. The vast majority of those employed by such expeditions are unidentified in most published narratives or the archives that survive. Moreover, those that are named are often identified on the basis of convenience or misinterpretation by their employers, roles frequently mistaken for names or family names for first names. There are also many examples of the use of adopted or conferred names, as for example in the case of Sidi Mubarak Bombay, the celebrated leader of many nineteenth-century expeditions in East Africa, whose names reflected his experience as a child slave taken by his Arab captor to India (Simpson, 1975). Further consideration of these conventions and practices of naming is itself an important step in the process of unsettling conventional accounts of exploration, in which “locals” are so often merely means to an end. Attempting to do more by breathing biographical life into the often fragmentary surviving evidence is a real challenge. It requires painstaking research, often against the grain of the archive, to trace the barest pattern of a life.

A further example from the archives displayed in the exhibition for the first time may help to illustrate this point. This is a delicate watercolor sketch by Catherine Frere, daughter of British colonial governor Sir Henry Bartle Frere, made in South Africa in 1877 (Fig. 5.2). It depicts a group of the female members of Henry Morton

⁷The total compensation given was 1900 Rupees, about £130. See “Committee assembled to consider compensation to be given to the dependants of the men killed on the Everest Expedition,” dated 11 August 1922. RGS-IBG Everest Expedition archives, EE/18/1/98.

⁸Wade Davis has published a remarkable account of the Everest expeditions of the 1920s situating them in the aftermath of World War I (Davis, 2011).



Fig. 5.2 Catherine Frere. Some of the Zanzibar and other natives of Mr. H. M. Stanley's party. 1877. Watercolor. The women's names are recorded underneath (© Royal Geographical Society [with IBG]. Reprinted with permission)

Stanley's party, who had stopped at the Cape on their return voyage from Angola to Zanzibar after crossing Africa from east to west in a marathon 3-year expedition. The women were from Zanzibar and returning there to be paid off, like the men who traveled with them, as was customary at the conclusion of a major expedition. Interestingly, their images also appeared, in photolithograph form, in Stanley's published account (Stanley, 1878, p. 371). But in this unique sketch from the RGS-IBG archives, Catherine Frere records their Swahili names, individually, carefully numbering each of the sitters—and with a youthful flourish signs her own initials, rendered as notes on a musical stave. Her portrait is a remarkable document, which serves as a reminder that large numbers of women, as well as men, were employed by major expeditions of the sort led by Stanley or Speke across Africa (which themselves followed the pattern of existing long-distance economic networks within East Africa: Rockel, 2000). The watercolor sketch also brings out the pattern and color of their *kungus*, the printed cottons worn by women throughout East Africa, providing valuable historical evidence for African historians. For this reason, it was reproduced alongside contemporary designs in a 2013 British Museum exhibition, *Social Fabric: Africa Textiles Today*, curated by Chris Spring. The survival of the very personal sketch also suggests the possibility, at least, of a more sympathetic view of the women's individuality, imagined from the perspective of the daughter of a colonial administrator and philanthropist. With further research on such images—especially in combination with photographic, oral historical, textual, and other kinds of evidence—it may be possible to say more about the experience of these women.

Research of this kind clearly faces significant evidential challenges. But it also raises wider questions about the biographical mode in which much of this kind of “salvage” work—the uncovering of “hidden histories”—is done within the heritage sector. For in seeking to excavate and celebrate the lives and achievements of individuals in the name of an explicitly revisionist history, we risk replacing one kind of hero-myth with another. In the case of exploration, for example, the figure of the “heroic indigene” has a longer history than might be imagined. In some circumstances, certain kinds of local agency were celebrated during the age of empire, and indeed mythologized. The story of the “pandit” Nain Singh, the subject of new research in recent years, provides the most telling example (Jones, 2010, pp. 58–91; Raj, 2006). Nain Singh was famously awarded the Gold Medal of the Royal Geographical Society for his contributions to the mapping of Tibet, Ladakh, and Central Asia in 1877, and his name has loomed large in the Society’s recent efforts to promote a more inclusive history of geography (Driver & Jones, 2009, pp. 43–46). Yet a fully historical perspective on his celebrity requires close attention to the terms on which his exceptional contributions were recognized during the nineteenth century as well as in our own time. Almost literally a subaltern in the service of the British, Nain Singh was represented in the halls of metropolitan science—his portrait can still be seen on the walls of the RGS-IBG today—but essentially his recognition depended on his ascribed status as a faithful servant of his employers in the Survey of India.

The case of Nain Singh prompts further reflection on some of the key assumptions behind the idea of hidden histories itself. In the course of selecting suitable case studies for the exhibition, it became clear that certain kinds of non-European agency, such as those of the “pandits,” were recognized even in the nineteenth century and, moreover, that the knowledge of many of the identifiable guides, interpreters, and field assistants encountered in the RGS-IBG collections in many different contexts, from the Arctic to Amazonia, could hardly be characterized as “local” or “indigenous” in any straightforward sense. Nain Singh, for example, originated in the Kumaon Himalaya in Northern India and was clearly not “indigenous” to the vast territory in Tibet through which he traveled, often *incognito*, covertly collecting the geographical information so precious to the British authorities, and indeed relying heavily on local informants and intermediaries. And his experience in working for successive European travelers in the trans-Himalayan region, beginning with his employment by the Schlagintweit brothers on an expedition across the region sponsored by The East India Company and the king of Prussia in the mid-1850s (Finkelstein, 2000), suggests that his personal knowledge was far from merely “local.” Indeed, seen in the broader context of late-Victorian ideas about race and culture, the presentation of locally created knowledge as “indigenous” or “native” could be considered from a postcolonial perspective as a deeply colonial move. After all, at the same time as they were airbrushing the role of non-Europeans out of their narratives, colonial travelers were also constructing visions of indigeneity and of local knowledge designed, in a sense, to keep the others in their place.

In this context, the figure of the intermediary, or the “go-between,” as discussed in recent literature on the history of science and empire (Metcalf, 2005; Schaffer, Roberts, Delbourgo, & Raj, 2009; Jones, 2010; Kennedy, 2013), offers a way of approaching the role of non-European guides, pilots, interpreters, and proxy-explorers in the history of exploration that is not so obviously reliant on colonial or neo-colonial stereotypes. Such a perspective also prompts further questions about the role of these individuals within larger economic, social, and political networks. Indeed, it draws our attention to exploration as involving a process of exchange of resources—often an unequal exchange, to be sure, but still a set of relationships in which the agency was not all on one side. Portraying geographical exploration as a collective project of work also invites greater recognition of the spatial infrastructure and logistics of expedition-making—notably, the significance of ports of call and supply routes, sites of recruitment and pay-off. To highlight the significance of such networks and practices encourages a shift of perspective away from the most celebrated scenes in the history of exploration. The single most important site in the British exploration of East Africa after 1850, for example, was surely not the source of the Nile, but the town of Zanzibar, a key node in the Indian Ocean trading system and a recruiting station for men and women working as porters on the major African expeditions of Speke, Stanley, and others (Prestholdt, 2008; Simpson, 1975). A similar point could be made about the relationship between the Everest expeditions of the interwar period and the hill settlement of Darjeeling, where the British recruited their Sherpas (Ortner, 1999). At these sites were crystallized sets of historical and geographical relationships involving regional and interregional employment practices, trading networks, political histories, family structures, large-scale migrations, and religious change. It is by considering what was happening at these sites—the bases from which expeditions were planned—that a richer and more inclusive history of exploration can emerge.

Design Strategies

As with any large-scale exhibition project, the process of designing the *Hidden Histories* displays required an extended series of discussions involving many people, from the initial formulation of the brief, through the tendering stage to the process of drafting and redrafting based on feedback and commentary, both within the project team and in consultation with panels of community representatives and external experts from the heritage sector and the academy. In this context, the intellectual challenges posed by the research had to be translated into the language of design—format, scale, color, proportion, and arrangement. It is important in this context to emphasize the iterative nature of the design process, with successive drafts being subject to scrutiny and discussion over an extended period of time, and among a wider variety of constituencies than is conventional in the case of academic publication, for example. These included academic reviewers, heritage consultants, and consultative groups convened by a specialist consultant, Cliff Pereira,

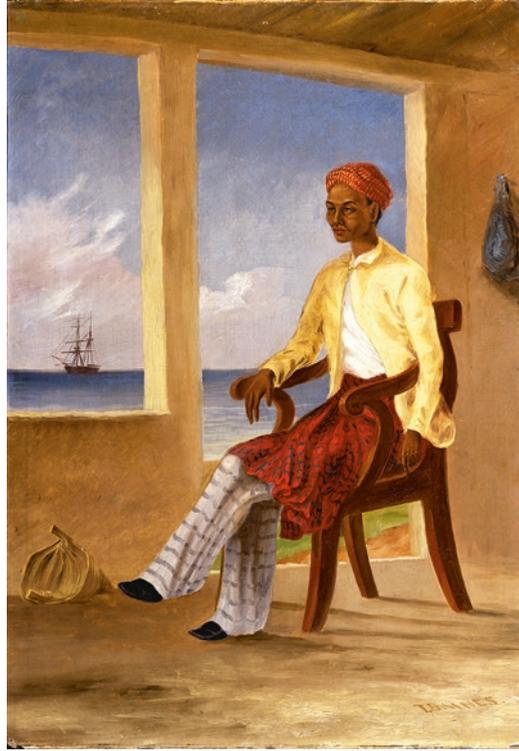
with members from a variety of ethnic communities, notably but not exclusively from within South Asia, whose perspectives were included by means of audio clips within the space of the exhibition and on the accompanying website.⁹ As well as practical questions such as the accessibility of font sizes, the height of the panels, or the location of the video screen, these discussions involved engagement, in various registers, with the core ideas of the project less as static “givens” dictating the form of the display than as dynamic ideas subject to revision in the course of discussion. The various parties—including the designers, the exhibition team at the RGS-IBG, the head of research, the researchers, heritage experts, and community consultants—all brought particular skills and experience to this process, and the eventual result reflected inputs from them all. In what follows, I shall identify three core principles discernible in the final format of the exhibition. It is important to emphasize that these were not articulated in these terms at the outset. Rather, they emerged as the exhibition planning process developed, and indeed their full significance only became clear once the exhibition was open to public view.

The first serious discussion of design principles took place at the tendering stage, when four professional design teams responded to the brief (a summary of the project based on the initial proposal) with ideas, images, and models. The team eventually awarded the brief—Sally Stiff and Joe Madeira of the Old Sweetshop design consultancy—presented a series of visually appealing designs for exhibition panels, publicity, and publications based on a single image from the RGS-IBG collections—Thomas Baines’s oil painting entitled *A Malay native from Batavia at Coepang*—exploiting the colors in the painting to create an attractive palette for the design (Fig. 5.3). In describing his approach, designer Joe Madeira referred to this portrait as the “hero image,” a term taken from the branding and marketing literature to refer to the focal point of a design, especially in the web environment, usually a strong image reinforcing the brand message. In the context of the *Hidden Histories* exhibition, the term had added resonance. Its purpose was now to celebrate the achievements of individuals whose labors had been hidden from history. Ironically, at this point, the identity of the “Malay native” was not actually known. It was only later, in the course of research on the Baines diaries, that researcher Lowri Jones was able to identify the sitter for Baines’s portrait in Coepang (modern-day Kupang) as Mohammed Jen Jamain, a former *djakse* or local magistrate. The crucial link was made by triangulating between the diary, the portrait, and a watercolor sketch of the same individual, held in the RGS-IBG collections (Driver & Jones, 2009, p. 33; Jones, 2010, pp. 126–128).

In seeking to present a sympathetic and in some respects “heroic” view of local informants, guides, interpreters, and other go-betweens, the design teams were encouraged to deploy a strategy of *role reversal*. The initial brief thus put the emphasis on the vulnerability of European explorers, reliant upon local knowledge and guidance for their survival in unfamiliar environments. Seen in this perspective, the exhibition suggested that the true heroes of exploration—those to whom the real credit should be given—had for too long remained in the shadows. The familiar roll

⁹ See <http://hiddenhistories.rgs.org/index.php/about/community-consultation>

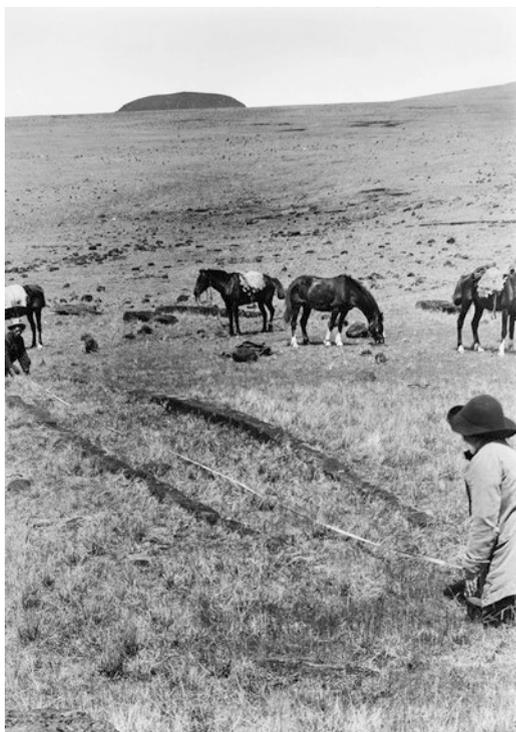
Fig. 5.3 Thomas Baines.
*A Malay native from
 Batavia at Coepang.*
 (1856). Oil on canvas
 (© Royal Geographical
 Society [with IBG].
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call of heroic British explorers—Cook and Burton, Livingstone and Scott—would now give way to an alternative pantheon including figures such as Sidi Mubarak Bombay and Nain Singh, whose contributions to exploration are increasingly recognized even in popular histories (Hanbury-Tenison, 2010, pp. 87–92; Hugon, 1993, pp. 122–123), and less well-known figures, such as the Amerindian guide Pedro Caripoco, who traveled in Amazonia with Jean Chaffanjon in 1886 and again with Alexander Hamilton Rice in 1919–1920 (Martins, 2012), or the Tibetan interpreter Karma Paul, who worked for every British expedition to Everest between 1922 and 1938 (Driver & Jones, 2009, p. 41). The acts of naming and picturing these remarkable individuals and to some extent celebrating their achievements were strategic decisions in this context. In this show, it was the agency of the headman, the indigenous surveyor, the guide, and the interpreter that took center stage.

Although there was undeniably an element of celebration at work in this exhibition, willfully accentuated by the designers' use of attractive colors and banners, it was also important to move beyond the heroic mode. In the first section of the exhibition, headed "The Work of Exploration," a panel on the dependence of European explorers was thus followed by another entitled "Uneasy Partnerships," a portmanteau phrase intended to capture the fraught relationships between European explorers and those knowledgeable intermediaries on whom the co-production of

Fig. 5.4 Stone foundations of canoe-shaped house. Katherine Routledge with field assistant. Unknown photographer. 1915. Rapa Nui (Easter Island) (© Royal Geographical Society [with IBG]. Reprinted with permission)



knowledge depended. Some of these individuals—especially collectors, translators, and guides—acquired far more experience of exploration than even the most experienced European explorers could attain. A very few, such as Nain Singh, as we have seen, were celebrities in their own lifetime. Many others were virtually air-brushed from the accounts subsequently published in journals and books by the leaders of the expeditions. In order to present such relationships as “partnerships,” the exhibition therefore relied on a second strategy of *juxtaposition*, the designer creating panels in which pairs of images were placed alongside one another. Here, for example, there were twinned portraits of Alfred Russel Wallace and Ali, his field assistant, whom Wallace recalled serving as his “eyes, ears and hands” during his extended field researches in the Malay archipelago (Camerini, 1996, p. 56); or Katherine Routledge with her field assistant on the Pacific island of Rapa Nui in 1914, each on either end of a measuring tape (Fig. 5.4). And, turning to a very different moment, the exhibition also presented an iconic image of Edmund Hillary and Tenzing Norgay sharing a cup of tea on the slopes of Mount Everest in 1953. By this time, colonial attitudes were being increasingly challenged, both by the Sherpas themselves and by some European climbers. From being coolies or porters, Sherpas were increasingly claiming the right to be treated as climbing partners on an equal basis (Hansen, 2000). In the space of the exhibition, superimposed on the portrait of Tenzing on the summit, was an extract from his famous account of the final moments

of the 1953 ascent, in which he gently disputed common assumptions about Hillary's precedence: "All the way up and down we helped, and were helped, by each other—and that was the way it should be. But we were not leader and led. We were partners" (Norgay & Ullman, 1955, pp. 265–266).

The Everest collection at the RGS-IBG, which includes materials from expeditions from the 1920s up to the 1950s, is a substantial and precious archival resource. In seeking to project a different version of the Everest story, making visible the vital contributions of interpreters, climbers and porters, a third design strategy—that of *re-scaling*—proved particularly effective. The wall of the RGS-IBG pavilion, immediately above the Everest section of the exhibition, was covered with a greatly enlarged image of a sheet of passport-style photographs from the archives of the 1936 Everest expedition, so that each individual portrait was approximately life-size. At first sight, in their archival box, these photographic portraits had appeared to belong to a genre of administrative and anthropometric photography deployed by the British in India since the 1860s (Falconer, 1984), the numbering and arrangement of each print suggesting, to my eyes at least, principles of surveillance and regimentation (Fig. 5.5). But this was certainly not the whole story. Alongside the Sherpa portraits, taken at the moment of their recruitment at the Planters' Club in Darjeeling, were those of some of the British members of the expedition, as well as images of the recruitment scene itself. Furthermore, the projection of these portraits onto the wall transformed an archival fragment into something far more personal and indeed more ambivalent (Fig. 5.6). The young Sherpa recruits wore identity tags around their necks, issued at the point of recruitment. At an enlarged scale, however, these badges appeared less as mechanisms of surveillance and more as marks of worth, almost like the medals these Sherpas were never awarded.¹⁰ At this scale too, the individuality of the portraits became much more evident. Here visitors to the exhibition could spot the stylish though now middle-aged interpreter Karma Paul, who had by 1936 become something of a celebrity on Everest expeditions, resplendent in Tibetan costume, as if to confirm his elevated status. Karma Paul—or Palden, to use his Tibetan name—appears directly alongside expedition leader Hugh Ruttledge. Neither has an identity tag. Also among the Sherpas identified in the exhibition display was the young Tenzing Norgay, an enthusiastic member of the 1936 climbing team, 17 years before his successful ascent with Hillary. At this scale, then, the personal and social histories of labor usually hidden from view in conventional histories of exploration and mountaineering came more clearly into view.

At a meeting in the autumn of 1936 held to celebrate the achievements of the Everest expedition earlier that year, the president of the Royal Geographical Society, Henry Balfour, concluded the evening with a tribute to the porters, whom he

¹⁰The British climbers on Everest in 1922 were awarded medals in Alpinism at the 1924 Winter Olympics; subsequently, the names of two Indian members of the team were added to the list of medal-winners, though these did not include the Sherpas who died on the mountain (Correspondence with the International Olympic Committee concerning the award of medals, RGS-IBG Everest Expedition Archives, EE 30/3).



Fig. 5.5 J. M. L. Gavin, Everest album. 1936 (© Royal Geographical Society [with IBG]. Reprinted with permission)



Fig. 5.6 Everest album on display, *Hidden Histories of Exploration* exhibition, Royal Geographical Society (with the Institute of British Geographers), October–December 2009. The young Tensing Norgay is the portrait in the *top left* (Photographer: Philip Hatfield. Reprinted with permission of the RGS-IBG)

described almost in passing as “absent heroes” (Balfour et al., 1936, p. 523). The re-scaling of their portraits in the 2009 *Hidden Histories* exhibition effectively brought these men into presence in a way that many visitors to our exhibition found particularly powerful, perhaps because it enabled them to recognize these self-conscious, half-smiling young men as historical agents in all the senses of the term.

Conclusion

In the context of academic funding, exhibitions are an increasingly common means of presenting geographical research, a more or less accessible form of public output. In this paper, I have reflected on the experience of producing an exhibition in order to consider the ways in which the format of display can in some circumstances extend, illuminate, clarify, or problematize aspects of the research process itself. In retrospect, it became clear that the exhibition team had been juggling two rather different approaches to the uses of historical materials in the display space. The first approach gave priority to principles of archival authenticity, the need to display materials in or near their original form, either as objects or as faithful reproductions. The second sought to align the spatial form of display with the intended message, or ethos, of the exhibition. On the one hand, we wanted as researchers to be as true as

possible to the materiality of the collections. Rather than airbrushing the imperfections or downplaying the contingency of the archives, we sought to highlight their material qualities as objects. After all, these pieces of paper, books, pictures, and artifacts—these raw materials—were not in themselves stories or even fragments of stories. They were part of an institutionally embedded archive with its own history and geography. On the other hand, we worked with exhibition specialists who used their expertise in design and education to transform the material so that it could serve a strong and accessible narrative, in the interests of effective communication.

However well-meaning its claims to archival authenticity, any exhibition is inevitably a work of transformation. The *Hidden Histories of Exploration* exhibition was no exception to this rule. In particular, the process of design helped to shape, and indeed transform, the meanings of the archive as they were presented in the spaces of the exhibition. In this process, the designers themselves performed the role of intermediaries, though their work was itself modified in a process of discussion, revision, and reformulation that reflected a number of different interests. Furthermore, as I have emphasized, the need for understanding the significance of image-making in the context of exploration and its history was itself a major theme running throughout the exhibition. Here too, the emphasis was on artists, engravers, photographers, or filmmakers as intermediaries, engaged in a collective work of knowledge production. The story conveyed about their role was not one of agency in any simple sense. These image-makers were not doing their work in a vacuum. They were, precisely, the bearers of larger traditions. Their sketches, maps, engravings, photographs, and films were not treated simply as transparent records of individual authorship or experience. In a sense, these artifacts too had their own biographies and larger family histories. Here is another reason to think of “knowledge transfer” as always and inevitably a mediated process.

As with many contemporary exhibitions designed with multiple audiences in mind, the work presented by the *Hidden Histories of Exploration* project was re-presented in several different sites: the physical spaces of the gallery and the reading room, the diverse locations in which a traveling version of the displays have circulated (including, for example, the Royal Botanic Gardens at Kew and the Royal Engineers Museum in Gillingham, Kent), the various institutional and educational spaces where talks and lectures have been given (from academic conferences to prison education programs), the physical pages of the companion book, and the virtual spaces of an online exhibit, accompanied by online research and teaching resources. Through these various channels, the exhibition was encountered by a significantly greater number of people than the few thousands who originally saw it in South Kensington in 2009. Since its launch the online exhibition, for example, has had well over 100,000 page views from 133 countries. In each of these venues, whether physical or virtual, the exhibition narrative was reordered, the images redisplayed—on more portable display boards, in lesson plans for teachers, or within PowerPoint presentations for researchers. In each case, the exhibition was not merely reproduced, it was given a new form, its contents freshly curated within a new setting. Here perhaps is an echo of the idea of the museum as a “distributive institution” discussed by Clare Harris in the context of her digital *Tibet Album*, a

website devoted to the photographic collections of the Pitt Rivers Museum (Harris, 2013).¹¹ In the process, however, meanings do not merely “transfer” or diffuse outwards, as if they were little parcels of data disseminated from the hub of knowledge-generating machines like the Pitt Rivers Museum or the Royal Geographical Society; rather, they multiply and diversify, being reworked in new contexts. This is another way of saying that making an exhibition is a process, not an event; and especially in the context of the mobility of knowledge through the web, there is little that is immutable (Srinivasan et al., 2013).

References

- Balfour, H., Smythe, F. S., Smith-Windham, W. R., Humphreys, N., Warren, C. B., & Cox, P. (1936). The Mount Everest expedition of 1936: Discussion. *Geographical Journal*, 88, 519–523.
- Burnett, D. G. (2002). “It is impossible to make a step without the Indians”: Nineteenth-century geographical exploration and the Amerindians of British Guiana. *Ethnohistory*, 49, 3–40. doi:10.1215/00141801-49-1-3
- Burton, A. (2011). *Empire in question: Reading, writing and teaching British imperialism*. Durham: Duke University Press.
- Camerini, J. (1996). Wallace in the field. In H. Kuklick & R. Kohler (Eds.), *Science in the field* (pp. 44–65). Chicago: University of Chicago Press.
- Cavell, J. (2008). *Tracing the connected narrative: Arctic exploration in British print culture, 1818–1860*. Toronto: University of Toronto Press.
- Chrétien, J.-P. (2005). Les premiers voyageurs étrangers au Burundi et au Rwanda: Les “compagnons obscurs” des “explorateurs” [The first foreign travelers to Burundi and Rwanda: The explorers’ “dark companions”]. *Afrique et histoire*, 4, 37–72.
- Davis, W. (2011). *Into the silence: The Great War, Mallory, and the conquest of Everest*. New York: Vintage Books.
- Dritsas, L. (2010). *Zambesi: David Livingstone and expeditionary science in Africa*. London: I. B. Tauris.
- Driver, F. (2001). *Geography militant: Cultures of exploration and empire*. Oxford: Blackwell.
- Driver, F. (2005). The active life: The explorer as biographical subject. Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/94053>
- Driver, F. (2013). Hidden histories made visible? Reflections on a geographical exhibition. *Transactions, Institute of British Geographers*, 38, 420–435.
- Driver, F., & Jones, L. (2009). *Hidden histories of exploration: Researching the RGS-IBG collections*. London: RGS-IBG/Royal Holloway.
- Edwards, E. (Ed.). (1994). *Anthropology and Photography, 1860–1920* (2nd ed.). New Haven: Yale University Press.
- Falconer, J. (1984). Ethnographical photography in India 1850–1900. *The Photographic Collector*, 5, 16–46.
- Finkelstein, G. (2000). “Conquerors of the Kunlun”? The Schlagintweit mission to High Asia, 1854–57. *History of Science*, 38, 179–219. doi:10.1177/007327530003800203
- Fogel-Chance, N. (2002). Fixing history: A contemporary examination of an Arctic journal from the 1850s. *Ethnohistory*, 49, 789–820. doi:10.1215/00141801-49-4-789
- Hanbury-Tenison, R. (Ed.). (2010). *The great explorers*. London: Thames & Hudson.

¹¹ *The Tibet Album: British Photography in Central Tibet, 1920–1950*, <http://tibet.prm.ox.ac.uk>

- Hansen, P. H. (1999). Partners: Guides and Sherpas in the Alps and Himalayas, 1850s–1950s. In J. Elsner & J. P. Rubi  (Eds.), *Voyages and visions: Towards a cultural history of travel* (pp. 210–231). London: Reaktion Books.
- Hansen, P. H. (2000). Confetti of empire: The conquest of Everest in Nepal, India, Britain, and New Zealand. *Comparative Studies in Society and History*, 42, 307–332.
- Harris, C. (2013). Digital dilemmas: The ethnographic museum as distributive institution, *Journal of the Anthropological Society of Oxford*, 5, 125–136.
- Hooper-Greenhill, E. (2000). *Museums and the interpretation of visual culture*. London: Routledge.
- Hugon, A. (1993). *The exploration of Africa: From Cairo to the Cape*. London: Thames & Hudson.
- Jones, L. (2010). *Local knowledge and indigenous agency in the history of exploration: Studies from the RGS-IBG collections*. PhD thesis, Royal Holloway, University of London.
- Jones, M. (2005). Measuring the world: Exploration, empire and the reform of the Royal Geographic Society, ca. 1874–1893. In M. Daunton (Ed.), *The organization of knowledge in Victorian Britain* (pp. 313–336). Oxford: Oxford University Press.
- Kennedy, D. (2007). British exploration in the nineteenth century: A historiographical survey. *History Compass*, 5, 1879–1900. doi:10.1111/j.1478-0542.2007.00480
- Kennedy, D. (2013). *The last blank spaces: Exploring Africa and Australia*. Cambridge, MA: Harvard University Press.
- Livingstone, D. (2003). *Putting science in its place: Geographies of scientific knowledge*. Chicago: University of Chicago Press.
- Loiseaux, O. (Ed.). (2006). *Tr sors photographiques de la Soci t  de G ographie* [Photographical treasures of the Geographical Society]. Paris: Biblioth que nationale de France.
- Martins, L. (2012). Geographical exploration and the elusive mapping of the Amazon. *Geographical Review*, 102, 225–244.
- Metcalf, A. C. (2005). *Go-betweens and the colonization of Brazil, 1500–1600*. Houston: University of Texas Press.
- Meusburger, P., Livingstone, D., & J ns, H. (Eds.). (2010). *Geographies of science*. Knowledge and Space: Vol. 3. Dordrecht: Springer. doi:10.1007/978-90-481-8611-2
- Moser, S. (2010). The devil is in the detail: Museum displays and the creation of knowledge. *Museum Anthropology*, 33, 22–32. doi:10.1111/j.1548-1379.2010.01072.x
- Mount Everest Committee (1922). *Climbing Mount Everest: The cinematograph record of the Mount Everest Expedition of 1922*. Mount Everest Committee (EE/6/5/60). RGS-IBG Everest Expedition Archives, London
- Mount Everest Committee (1923). *Catalogue of the exhibition of photographs and paintings from the Mount Everest expedition, January 21 to February 6, 1923*. Mount Everest Committee (EE/6/6/3). RGS-IBG Everest Expedition Archives, London.
- Naylor, S. (2005). Introduction: Historical geographies of science: Places, contexts, cartographies. *British Journal for the History of Science*, 38, 1–12. doi:10.1017/S0007087404006430
- Naylor, S., & Ryan, J. R. (Eds.). (2010). *New spaces of exploration: Geographies of discovery in the twentieth century*. London: I. B. Tauris.
- Noel, S. (2003). *Everest pioneer: The photographs of Captain John Noel*. Stroud: Sutton Publishing.
- Norgay, T., & Ullman, J. R. (1955). *Man of Everest: The autobiography of Tenzing told to James Ramsey Ullman*. London: George Harrap.
- Ortner, S. B. (1999). *Life and death on Mount Everest: Sherpas and Himalayan mountaineering*. Princeton: Princeton University Press.
- Pandey, G. (2000). Voices from the edge: The struggle to write subaltern histories. In V. Chaturvedi (Ed.), *Mapping subaltern studies and the postcolonial* (pp. 281–299). London: Verso.
- Prestholdt, J. (2008). *Domesticating the world: African consumerism and the genealogies of globalization*. Berkeley: University of California Press.
- Raffles, H. (2002). *In Amazonia: A natural history*. Princeton: Princeton University Press.
- Raj, K. (2006). *Relocating modern science: Circulation and the construction of scientific knowledge in South Asia and Europe*. Delhi: Permanent Black.

- Rockel, S. J. (2000). Enterprising partners: Caravan women in nineteenth-century Tanzania. *Canadian Journal of African Studies*, 34, 748–778.
- Royal Geographical Society (2009). *Crossing continents: Connecting communities*. London: RGS-IBG. Retrieved from <http://www.rgs.org/NR/rdonlyres/65F3A4C2-0495-4085-AE38-4B50B49BB1D5/0/CrossingContinentsWeb.pdf>
- Ryan, J. R. (1997). *Picturing empire: Photography and the visualization of the British Empire*. London: Reaktion Books.
- Safier, N. (2008). *Measuring the new world: Enlightenment science and South America*. Chicago: University of Chicago Press.
- Schaffer, S., Roberts, L., Delbourgo, J., & Raj, K. (Eds.). (2009). *The brokered world: Go-betweens and global intelligence, 1770–1820*. Sagamore Beach: Science History Publications.
- Simpson, D. H. (1975). *Dark companions: The African contribution to the European exploration of East Africa*. London: Paul Elek.
- Srinivasan, R., Becvar, K. M., Boast, R., & Enoté, J. (2013). Diverse knowledges and contact zones within the digital museum. *Science, Technology & Human Values*, 35, 735–768.
- Stanley, H. M. (1878). *Through the dark continent: Or, the sources of the Nile around the great lakes of equatorial Africa, and down the Livingstone River to the Atlantic Ocean*. (Vol. 2). London: Sampson Low, Marston.
- Stoler, A. L. (2009). *Along the archival grain: Epistemic anxieties and colonial common sense*. Princeton: Princeton University Press.
- Thomas, M. (Ed.). (2015). *Expedition into empire: Exploratory journeys and the making of the modern world*. New York: Routledge.
- Wisnicki, A. S. (2008). Charting the frontier: Indigenous geography, Arab-Nyamwezi caravans, and the East African expedition of 1856–59. *Victorian Studies*, 51, 103–137.

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Chapter 6

The Imprecise Wanderings of a Precise Idea: The Travels of Spatial Analysis

Trevor Barnes and Carl Christian Abrahamsson

The text for our chapter is a schematic map based on one originally published in a geography undergraduate primer in quantitative methods (Fig. 6.1). By text we mean an object, here a diagram, which can be critically interpreted, or “read,” to then be used to shape the structure of an argument. “Quant Geog airlines flight plan” first appeared in the opening chapter of Peter Taylor’s (1977) introductory statistics textbook, *Quantitative Methods in Geography*. It was a brilliant piece of cartography because it was a map of a disciplinary idea: geography’s quantitative revolution. Maps of this kind have rarely existed in geography, in spite of a disciplinary obsession with cartography. The American geographer Carl Sauer, professor at the University of California in Berkeley, famously said: “Show me a geographer who does not need [maps] constantly and want them about him, and I shall have my doubts as to whether he has made the right choice of life” (Leighly, 1963, p. 391). The maps that interested Sauer were of tangible objects, often everyday ones, such as fence posts, grave markers, or barn types. For Sauer those objects, and the peculiar material form they took, bore the impress of a wider, shaping culture. By mapping the geography of those objects, one mapped also the geography of the larger culture that gave rise to them.

The map found in Fig. 6.1 is not of an ordinary tangible object, but of an extraordinary intangible idea: *spatial analysis*, or *spatial science*, or the *quantitative revolution*. These were all names given to the movement in Anglo-American geography during the second half of the 1950s to refashion geography in the likeness of physical science. As an intellectual movement, it was defined by the use of a formal mathematical vocabulary to reduce complex geographical patterns to simpler relations,

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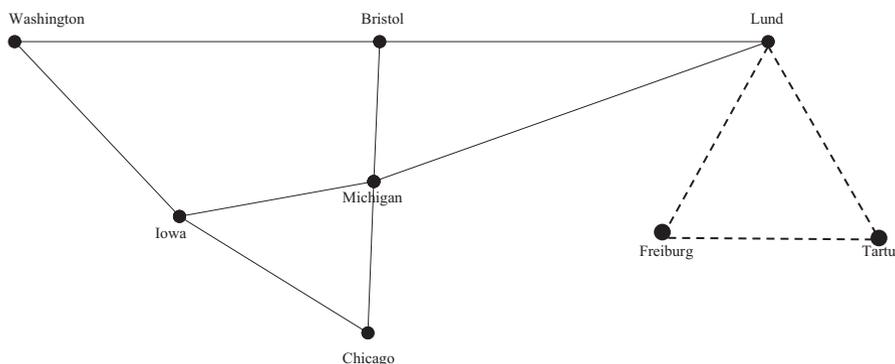


Fig. 6.1 Quantgeog airlines flight plan (Adapted from Taylor, 1977, p. 15)

permitting identification of an underlying (theoretically defined) causal structure. Taylor’s map shows the geography of that intellectual movement, depicting the specific places where it was formulated and practiced, as well as its travels, represented by the lines connecting the sites. Taylor’s figure, then, like the cartography of Sauer and his students, was a cultural map, in this case a map of geography’s intellectual culture.

Our paper is a series of footnotes to Peter Taylor’s map. We want to understand how the geography inscribed within Fig. 6.1 arose. Why were those places on his map and not others? And what did those places provide that was unavailable elsewhere? To answer these questions, we draw on science studies, especially on recent works within that field concerned with “putting science in its place” (Livingstone, 2003). Science studies has increasingly emphasized the geographical constitution of knowledge, the fact that knowledge is always from somewhere. In this standpoint, the field contradicts the orthodox, rationalist account of science that renders the place of inquiry irrelevant (Shapin, 1998). Rationalism is “the view from nowhere” (Nagel, 1986). It avers that emphasizing place undermines scientific inquiry’s credibility. For example, “[i]t was the end for cold fusion when people decided it only happened in Salt Lake City” (Kohler, 2002, quoted in Livingstone, 2003, p. 2), as one commentator noted.

In contrast, we argue that placing ideas should be the very first act in interpreting knowledge (Barnes, 2004). That is why Peter Taylor’s map is so important. His map, however, applies only to the post-World War II period. We suggest that spatial analysis existed long before World War II, accreting complex geographies and mobilities. These other geographies, and other maps, also need discussing.

The paper is divided into two main sections. The first draws on science studies to fashion some of the conceptual tools needed to make sense of the geography of ideas. In particular, we elaborate on Thomas F. Gieryn’s (2002) text on “truth spots” and Kevin Hetherington’s (1997) book on “heterotopias” to understand why certain places are sites for the development of big ideas. We also consider the writings of Bruno Latour (1987, 2005) on intellectual mobility to fathom the processes

necessary to move a big idea from one place to another. The second section provides a geographical genealogy of spatial analysis. The first part is concerned with spatial analysis's origins with the ancient Greeks, and its revival, after a significant lag, during the European Enlightenment by Bernhardus Varenius (1622–1650), who also inspired Isaac Newton's (1642–1727) interest. The second part is concerned with the institutionalization of spatial science after World War II, when some in the discipline claimed that spatial analysis was not just *a* big idea in geography, it was *the* big idea.

The View from Somewhere: Place and the Spatial Mobility of Knowledge

Our conceptual framework derives from science studies, the interdisciplinary body of work from the late 1960s that insisted the social went all the way down in shaping scientific knowledge. Science studies was a reaction to rationalism, which conceived of knowledge as the purified product of a disembodied mind, or a “brain in a vat” in Hilary Putnam's (1981, p. 7) arresting image. By dogged brain power alone *Truth* would be revealed, with rationality assumed to be universal and the source of Truth with a capital “T.” Consequently, *where* rationality was applied was irrelevant. It could be Heidelberg or Hong Kong. It did not matter because the same conclusion would be generated in both places. Adding geographical information might provide background color, but it would (and could) not change the rational outcome.

Also denied by rationalism was spatial process. There was no process, geographical or otherwise, involved in arriving at Truth under rationalism. Once premises were stated, and the correct logic was applied, Truth instantaneously followed, believed by everyone everywhere. Truth occurred *just like that*.

Opposing this rationalist view, science studies contends that place is utterly critical to the formation of ideas, as is their geographical mobility (Nye, 2011). Ideas are not titrated on to the page drop by drop from a distilled rationality, but are a consequence of grounded social practice embedded within place. In this understanding, geography is not mere background atmospherics, but provides for the very possibility and shape of new ideas. It is not the view from nowhere, but the view from somewhere. Likewise, there is a process to truthmaking that necessarily extends over space and time. Truth is not accepted instantly and everywhere because of an overarching rational proof. Rather, ideas take time to establish a hold, traveling and circulating at different speeds. Moreover, as they travel they change form, serendipitously interacting with other ideas, creating hybrids. There is no “just like that” acceptance of big ideas. It is more complex and muddled; processual, not instantaneous; and rooted in the stickiness, fallibleness, and frailty of human interaction at a distance.

This anti-rationalist position, in which geography figures large as an integral component of intellectual production, has been worked out theoretically in different ways, and often by non-geographers.¹ We elaborate here on two aspects: (a) place and knowledge and (b) the spatial mobility of knowledge.

Place and Knowledge

What makes a place suitable for generating new knowledge? And once knowledge is generated there, how does it gain the credibility necessary to be accepted in other places?

Hetherington's (1997) Foucault-inspired notion of heterotopia addresses the first question. He argues that for a place to generate ideas, it must be sufficiently open, flexible, and porous to permit new beliefs and concepts to emerge and germinate. Such qualities correspond to Hetherington's (1997) definition of a heterotopia as a place of "alternative ordering. Heterotopias organize a bit of the social world in a way different to that which surrounds them" (p. viii). A heterotopia must be constituted to accept difference, to allow elbowroom for alternative ideas, to provide opportunities for open discussion, and to offer the means for dissemination. Only when one or more of these conditions hold will alternative orderings have an opportunity to come to fruition and to remake the surrounding outside world in their likeness. Hetherington's (1997) example is the Palais Royale in eighteenth-century Paris. It was a heterotopia because of its alternative internal ordering. There were no rigid rules about what could be said, and no rules about who could speak to whom. It was a place that made possible novelty and creativity. As a result, it was able to contest the established order of the (surrounding) *Ancien Régime*, "becoming the focus for other interests and hopes for social change" (p. 51) in a revolutionary France.

The second question of what makes knowledge stick to a place is taken up by Gieryn (2002), who addressed it in his notion of a "truth spot." A truth spot is a place that gains sufficient credibility that those professing knowledge from there are able to assert that their claims "are authentic all over" (p. 118). Accordingly, such places "escape place ...; place achieves placelessness" (p. 113). One of Gieryn's (2002) examples is the Princeton Plasma Physics Laboratory, which "pursues cred-

¹The anti-rationalist position, at least within science studies, is seen in two distinct bodies of work—social constructionism and actor-network theory. The social constructionist version suggests that scientific knowledge is constructed on the basis of the social interests of the scientist. The actor-network version, however, casts doubt on whether "the social" exists as an independent sphere, suggesting that scientific knowledge is the result of many agents, several of which are non-human. In a debate between David Bloor (1999), the most well-known proponent of social constructionism, and Bruno Latour (1999), the leading proponent of actor-network theory, differences were sharply drawn. Subsequent commentaries, however, in emphasizing the shared history of the two approaches point to considerable overlap between the two camps (Nye, 2011; Rheinberger, 2010).

ibility for its claims without recourse to place” (p. 125). Gieryn argues against this assertion, however, showing exactly how the trick of making place disappear is achieved with the claim that the results at the Plasma Laboratory in Princeton are replicable anywhere else in the world. Not true says Gieryn. They can be replicated only if all other laboratories *are identical* to Princeton’s. As Nancy Cartwright (1999) puts it, replicability is achieved “primarily inside [various kinds of] walls . . . within which conditions can be arranged *just so*” (p. 2). Only when one place is arranged *just so*, that is, made to be identical to another, can results be replicated. But this is not the same as claiming that results are “authentic all over” (Gieryn, 2002, p. 118) and certainly does not prove placelessness. In fact, it suggests the reverse; that is, it takes considerable effort to undo geographical difference. It is realisable only artificially, by constructing one place as the mirror image of another (see Latour, 1987, pp. 248–253).

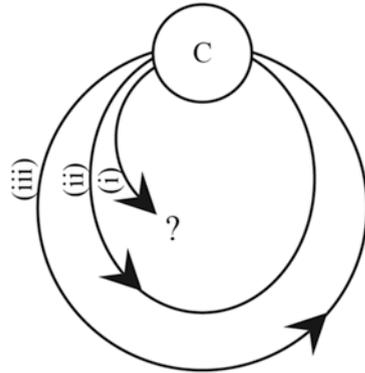
The larger point is that place is a critical component in the construction of knowledge. While certain rhetorical strategies may be deployed to disguise and diminish that role (and uphold rationalism’s view from nowhere), it is done by a sleight of hand. A stubbornly enduring somewhere remains crucially important.

Spatial Mobility of Knowledge

Ideas, however, do not remain fixed in place, but instead are constantly circulating, dependent on people and material constraints (Latour, 1987, p.137). Furthermore, that very movement changes ideas, reshaping them and forging new entities. This has multiple causes: ideas come into contact with other ideas on route, are interpreted differently at different points along their circulation, and are put to diverse uses at the various sites to which they travel. Spatial mobility not only transfers knowledge, it transforms it.

A useful and well-known scheme for tracking the movement and transformations of knowledge is Bruno Latour’s idea of “centers of calculation” (Latour, 1987, chapter 5). He emphasizes in all his works the processual character of knowledge acquisition involving the ceaseless travel and circulation of people, books, instruments, material bits of the world, and social artifacts such as institutions and strategies of governance. Knowledge is never instantly true, but becomes true through the enormous amount of work involved in establishing and maintaining networks of circulation. In Latour’s vocabulary, Gieryn’s truth spots are centers of calculation. They are key nodes in extensive geographical networks enabling them both to receive knowledge and to distribute it, producing action at a distance. Figure 6.2, taken from Latour’s (1987) book *Science in Action*, portrays the process as cumulative, with more and more information and things brought back to the center as a result of increasingly expansionary geographical crossings and re-crossings.

Fig. 6.2 Centers of calculation (Adapted from Bruno Latour, 1987, p. 220)



A History and Geography of Spatial Analysis

Like all ideas, spatial analysis did not just drop from the heavens, but was grounded in a rich, earthly geography. It was always the view from somewhere, traveling between one place and another.

The Early Years

The beginnings of spatial science were with the ancient Greeks, and in particular the work of the first- and second-century Hellenized Egyptian (and Roman citizen), Claudius Ptolemy, based in Alexandria. Classical Greek geography identified three components of study: *topos*, *choros*, and *geos*. *Topos* was the study of place; *choros* the study of the region; and *geos* the study of geography, that is, of the entire face of the earth (Curry, 2005; Lukermann, 1961). Lukermann (1961) and Curry (2005) persuasively argue that the critical difference among the three terms is their “mode of geographical knowing” (Curry, 2005, p. 681). *Topos* and *choros* emerged from an oral culture, with place and region told in a narrative of words. *Geos*, in contrast, arose later and was associated not with words, but with numbers.

Geos and its connection to numbers were elaborated especially by Ptolemy in his eight-volume *Geographia*. He believed that the task of *geos* was to “secure a likeness” of the earth’s configuration, which required that space first be translated into “a surface divisible by a mathematical grid” (Curry, 2005, p. 685). As Ptolemy wrote:

Geography ... is concerned with the quantitative rather than with qualitative matters, since it has regard in every case for the correct proportion of distances, but only in the case of the more general features does it concern itself with securing a likeness, and then only with respect to configuration. ... Geography by using mere lines and annotations shows positions and general outlines. For this reason, while *topos* and *choros* does not require the mathematical method, in *geos* this method plays the chief part. (as quoted in Lukermann, 1961, p. 208)

Although Ptolemy did not use the term spatial analysis, he clearly was gesturing toward it in his account of geography (*geos*). Implied in his work were mathematical transformations; the identification of more basic elements such as “lines” and “position”; and the recognition of an explainable spatial order—the world’s “configuration.” More specifically, one of Ptolemy’s aims in *Geographia* was to improve cartographic projections so as to depict more accurately the earth’s surface. The first volume of the *Geographia* contained the methods that Ptolemy developed and volumes 2–5 consisted of an atlas of the known world (Berggren & Jones, 2000).

It was from the starting point of Alexandria that spatial analysis began its travels. Over the next thousand years or so, Ptolemy’s *Geographia* was lost and found several times. Finally translated into Latin in 1406, *Geographia* was published in Bologna in 1477 using engraved illustrations and maps. Bernhardus Varenius studied this Latin edition while living in Amsterdam during the late 1640s, in preparation for publishing his own geography text, *Geographia generalis*, in 1650. The adjective in the title is critical, linking the work to Ptolemy’s *geos* and his implied spatial analysis (Lukermann, n.d., p. 10). Varenius defined general geography as “that part of mixed mathematics where one explains the state of the earth and its parts, which concerns quantities; its configuration, its position, its magnitude and its movement with the celestial appearances, etc.” (Varenius quoted in Lukermann, n.d., p. 10). So, like Ptolemy’s geography, Varenius’s general geography required mathematizing space, finding universal spatial elements, and recognizing general principles of spatial order, which were “then appl[ie]d within special or regional Geography to their respective areas” (Varenius quoted in Lukermann, n.d., p. 16).

Isaac Newton (1643–1727), perhaps the all-time greatest analyzer of space, recognized the virtues of Varenius’s book. In 1669 Newton was appointed Lucasian Professor of Mathematics at Cambridge with the stipulation that the chairholder provide instruction in geography. Newton subsequently corrected and amended Varenius’s text for his students, arranging for its publication in 1672 (and in revised form in 1681; Warntz, 1989).

The elements that now compose the big idea of spatial analysis—mathematizing space; identifying universal spatial components, such as points and lines; and articulating general principles of spatial order—have thus existed not only for centuries but for millennia. Moreover, the idea did not just have temporal duration but also spatial location, being found in some places and not others. Details about Ptolemy’s life remain sketchy, but it is almost certain that his entire adult life was spent in the Egyptian capital of Alexandria, which was the seat of ancient learning and certainly one of the most significant truth spots in the ancient world. Associated with its celebrated library, which at its height contained a million volumes, was a research institute (likely the world’s first) that supported a who’s who of ancient scholars, including Euclid, Archimedes, and Ptolemy. To use Latour’s vocabulary, Alexandria was a “center of calculation” (Latour, 1987, p. 215) attracting people and wealth, as well as objects, texts, and ideas, which were collected, classified, and sometimes reconstituted—before being circulated, as was the case with Ptolemy’s papyrus scrolls, *Geographia*.

After having been lost for more than a millennium, *Geographia* was discovered in fifteenth-century Italy, translated into Latin, and published. Scholarship, although not completely moribund during the intervening Middle Ages, was at least severely controlled by church authorities. An intellectual revival came in the Italian Renaissance, which had its foundations in an earlier period with flourishing Arabic science and key centers of learning and translation such as the libraries in Toledo (Lindberg, 1992). Contemporary Italian scholars turned to forgotten ancient texts, including Ptolemy's, republishing them, and setting them on new travels. It also made sense that one of the travels of *Geographia* would be to Amsterdam, where it was put to use by Varenus in the first half of the seventeenth century. This period was the Dutch Golden Age, the zenith of the Dutch Empire, with Amsterdam the wealthiest city in the world. Just like ancient Alexandria, Amsterdam in the seventeenth-century became a global center of calculation, as well as the world's busiest port. If ever there was a place where a new geographical textbook should be written and have purchase, it was here. Ultimately, Isaac Newton would take up Varenus's text at the University of Cambridge in the second half of the seventeenth century, in part because of the conditions of his appointment, in part because of his own analytical disposition. He was less concerned with the book's "special geography," as Varenus called it, than its general geography, which as an intellectual project fitted perfectly with the Enlightenment's scientific revolution, to which he was a prime contributor: mathematical, reductionist, and nomothetic.

In sum, producing spatial analysis took an enormous amount of work and effort. It did not emerge simply because of its own rightness, shining by its own light. It was constructed in a process involving complex geographical travels centered around particular heterotopias, truth spots and centers of calculation. Furthermore, geography was just as crucial during the second half of the twentieth century, when the ideas of Ptolemy, Varenus, and Newton were joined with new concepts, techniques, and technologies to define the modern version of "spatial analysis."

The Later Years

Spatial analysis gained its contemporary prominence from the title of a book, *Spatial Analysis: A Reader in Statistical Geography*, edited by Brian Berry and Duane Marble (1968). The term had been first used in 1959 by William Garrison (1959), but only in passing, and was not systematically applied until the 1968 collection. The 37 essays in *Spatial Analysis* applied statistical and mathematical models to geographical problems; located key spatial axioms, elements, assumptions, and behaviors; and above all pursued explanations of spatial order.

How they got there was another story. Berry and Marble (1968) argued that the spatial analytical approach had been unaccountably omitted from the discipline when it was first institutionalized in European and North American universities during the late nineteenth century. But by the late 1950s, spatial analysis had been refound, its concomitant, universal rationalism impossible to ignore any longer.

Consequently, as Berry and Marble (1968) wrote, geography “move[d] back to the mainstream” in a “flush of revolutionary change” (p. 4).

We would like to suggest using Peter Taylor’s map that the return of spatial analysis to geography was less the result of the ineluctable power of rationality than a series of contingent historical factors in concert with the peculiarities and singularities of particular places and the mobility of knowledge between them. Because of the need for brevity, we illustrate our argument by focusing on only three of the places found in Taylor’s figure (Fig. 6.1): two in North America, Seattle and Iowa City; and one in Europe, Lund.

Seattle and Iowa City

That spatial analysis came to America after World War II and first found a footing in the two early truth spots of Seattle and Iowa City was largely a result of a wider reconfiguration of postwar social science as practiced in the United States. World War II had produced in the United States a new model of academic inquiry, “big science,” which involved: team-based research; high levels of investment; interinstitutional and interdisciplinary cooperation; specific instrumental goals; a predilection for mathematical models rather than high theory; and the use of the computer (Barnes, 2008). The big science model was originally pioneered during World War II in the physical sciences in truth spots such as Los Alamos National Laboratory or the Radiation Laboratory at the Massachusetts Institute of Technology. But the approach quickly jumped across disciplinary divides. By the second half of the 1940s it was found in some social sciences, such as economics and psychology.

When Berry and Marble (1968) said that geography was joining the mainstream, they meant the model of mainstream science. And geography was indeed a field for which spatial analysis seemed uncannily fitted. Up until that point, the mainstream was *topos* and especially *choros*, or as Varenius put it, a “tedious . . . Special Geography” (Lukermann, n.d., p. 7). In 1939, Richard Hartshorne even wrote a dense, closely argued, 400-page-plus book with the definitive title, *The Nature of Geography*, to make a philosophical case for tediousness. His argument was that geography could never be on par with physical science, because the stuff of geography’s study—places and regions—were unique assemblages found nowhere else. Any talk of general theories or principles, or even models, was therefore a disciplinary nonstarter. As Hartshorne (1939) wrote, geography “is essentially a descriptive science concerned with the description and interpretation of unique cases . . .” (p. 449). Ptolemy, Varenius, and Newton would have rolled over in their graves. But Hartshorne was a powerful disciplinary gatekeeper and bypassing him would be difficult. However, the forces of change represented by the new mainstream model of science were also imposing and implacable. Slowly, but inexorably, a modern version of spatial analysis emerged in a process dubbed geography’s “quantitative revolution.” In the course of that revolution, geography increasingly joined the mainstream, and in so doing recouped the earlier traditions of *geos* and *Geographia generalis*.

The truth spots for spatial analysis could not, at least initially, be existing centers of calculation for geography, which were controlled by regionalists such as Hartshorne. They needed to be heterotopias, open to new ideas and means of reordering, which meant either newly formed sites (lacking prior traditions) or ones marginal to the extent that the regional geography establishment in the United States did not know or care about them.

This was the case at the University of Washington in Seattle, located on the distant, periphery of the Pacific Northwest. In *annus mirabilis*, 1955, though, a group of talented, energetic, and ambitious graduate students serendipitously arrived at “UDub’s” geography department, where they ended up working primarily with William Garrison, a young assistant professor who had arrived in 1950 from Northwestern University in Illinois. Garrison, the person who first joined the terms “spatial” and “analysis” as a single phrase, was a U.S. Air Force navigator in the Pacific Theater during World War II and trained in statistics, mathematics, and synoptic weather modeling. As a graduate student in geography during the late 1940s Garrison was a teaching assistant for Clarence Jones at Northwestern University, a dyed-in-the-wool *topos* and *choros* man. His teaching work for Jones was not a happy experience, with Garrison later saying about Jones’s lectures: “they led me to keep asking: ‘What’s the theory? What’s the theory? What’s the theory?’” (Garrison, 1998, p. 1). Specifically, “a systematic approach was in order ...” (Garrison, 1979, p. 119).

It was a systematic approach, the new mainstream science approach, which Garrison pioneered with his graduate students in the late 1950s. His project involved a team of researchers funded by both the Office of Naval Research (ONR) and the federal government working with graduate students as well as faculty from other departments. The research goals were narrowly defined; evaluating highway development and road-system efficiency. Modeling was the order of the day, especially urban models, such as central place theory (which we will say more about below), and the gravity model. These models were tested using rigorous data analysis, deploying statistical techniques taught by Garrison in the first quantitative course ever offered in the United States in the field of geography: Geography 436, Quantitative Methods. There were also the machines—initially Friden calculators—but later an IBM 650 computer housed in the attic of the chemistry building. Lacking, however, were both a programming language and a hard drive. By using a technique of “patch wiring,” according to a graduate student at the time, Waldo Tobler (1998), “it was possible to store two bits of information on the rotating magnetic drum if you were lucky” (p. 2).

The resulting volume, *Studies of Highway Development and Geographic Change* (Garrison, Berry, Marble, Nystuen, & Morill, 1959) was a remarkable text, unlike anything else published in English in the name of academic geography up until that time. Crammed with calculations, data matrices, statistical techniques, cost curves, and demand schedules, even its maps were subverted, overlaid with numbers, arrows, starburst lines, and balancing equations. But in another respect the book’s spatial analysis was unremarkable, simply a recouping of the earlier tradition we have described.

The other early truth spot was the University of Iowa at Iowa City. Its key advantage was that it was a new geography department with the added benefit of being headed not by a geographer, but by an economist, Harold McCarty. In the late 1930s McCarty had even hosted August Lösch, a German economist who had come to Iowa to collect data for his book on central place theory. McCarty, appointed founding geography department head in 1946, subsequently hired like-minded faculty, including Kurt Schaefer, a left-wing German émigré economist. Schaefer had fled Nazi Germany in the 1930s, going first to the United Kingdom, where he was a researcher at the London School of Economics, before later immigrating to the United States.

McCarty viewed geographers primarily as hewers and drawers of empirical data, which once collected would be handed over to economists, who, using their theories, would explain what had been found. As at the University of Washington, McCarty gathered around him a group of graduate students to assist in carrying out this empirical work and to take the message of quantification back out into the geographical world. While serendipity played some role in determining which graduate students ended up in Iowa City, McCarty also actively recruited, using a trip to New Zealand in 1961 to persuade bright Antipodean students to join the cause.

McCarty was the first human geographer to use a regression equation in his study of industrial linkage. Funded by the ONR, he created a team of assistant professors and graduate students to carry out similar work. Their version of *Studies of Highway Development* was *The Measure of Association in Industrial Geography*, completed in 1956 (McCarty, Hook, & Knos, 1956). In addition, Kurt Schaefer provided intellectual legitimation, publishing in 1953 a blistering attack on Hartshorne's regionalist approach argued from the standpoint of logical positivism. Schaefer died just before his article appeared in print, so he was not able to respond to Hartshorne's (1955) own vigorous defense. But it did not really matter, because the fight had been won before Hartshorne even picked up his pen. As powerful as he was, Hartshorne could not, Canute-like, turn back the rushing tide of spatial analysis as it swept with increasing force through the field of geography in the United States to establish within a decade the network seen on the map in Fig. 6.1.

Lund

Lund is on the Quant Geog airline schedule because of the work done there by Torsten Hägerstrand, particularly his study of spatial diffusion, *Innovationsförloppet ur korologisk synpunkt*, later translated into English as *Innovation Diffusion as a Spatial Process* (1953/1967). That work deployed formal modeling and the statistical analysis of numerical data, which in turn attracted the attention of William Garrison and his students in Seattle. Donald Hudson, chair of the Department of Geography at the University of Washington, wrote to Hägerstrand on 9 December 1957: "The work carried forward in your department has come to our attention, particularly ... [what] you are doing in the development of theory in human

geography.”² Hägerstrand was consequently invited to Seattle for the spring quarter (March 30–June 13) academic term in 1959. Two early truth spots were thus linked. But how did Lund become a truth spot in the first place? And where did the kind of theory that Hägerstrand practiced and Garrison and his students found so interesting come from? Although Lund and Seattle are located on the same flight plan, our suggestion is that the processes by which each got there were quite different and reflected precisely their peculiar geographies.

Lund was neither a peripheral geography department in the same way as the University of Washington at Seattle, nor a new department like Iowa’s. Swedish social sciences also did not experience the kind of new rigor that swept American social sciences in the postwar period. Nonetheless, Hägerstrand at Lund came to spatial analysis early on, indeed, even before the Washington and Iowa groups. In large part Lund achieved this through its role as a center of calculation attractive to people and ideas. Especially important, we suggest, were Lund’s direct and indirect links to Freiburg, in southwestern Germany, and Tartu, in Estonia.

In 1937 the German geographer Walter Christaller, author of *Central Places in Southern Germany* (Christaller, 1933/1966), published his Habilitation thesis, *Rural Settlements in Germany in Their Relation to Community Administration*. At this time he also began a short career as lecturer at Freiburg University (Preston, 2009). There Christaller founded and worked at the *Kommunalwissenschaftliches Institut* (Institute for Municipal Studies), chaired by the professor of constitutional, administrative, and financial law, Theodor Maunz, who rationalized concentration camp imprisonment in his writing and was in charge of the *Referent für Judentum in der Rechtswissenschaft* (Jewry in Legal Studies). It was within this Freiburg setting that Christaller began developing a new form of applied geography called *Kommunalgeographie* (municipal geography). Here Christaller effectively wedded the abstractions of spatial analysis taken from German location theorists such as von Thünen and Weber with Nazi applied planning practices (Barnes, 2012; Rössler, 1989).

Three years later, Christaller was recruited by Konrad Meyer, head of the Planning and Soil Office of Himmler’s Reich Commission for the Strengthening of Germandom (for details see Barnes, 2013). The aim of the office was to provide the Third Reich with areal plans (known as the *Generalplan Ost* or Master Plan for the East) for its eastern conquests. That plan, according to Rössler (1989), was developed for Himmler as a detailed policy for the settlement and administration of the newly acquired eastern territories. It was to build a “truly German and Aryan community” (p. 426) through settlement construction. At least at one of the Nuremberg trials the *Generalplan Ost* was a central topic of discussion. Rössler (1989) writes, Meyer was brought to Nuremberg in 1946 accused in case 8, which was called the *Volkstumsprozess* [the racist policies trial].

The line of defense was to show that the work of Himmler’s planning office was only to produce scientific planning studies which never were realized in any form. (p. 427)

² Donald Hudson to Torsten Hägerstrand, 9 December 1957. Papers of Torsten Hägerstrand, Lund University.

The key problem in the trial, according to Rössler (1989), was that there was no discussion of how the “new” land was acquired. It became part of a new German East primarily by the liquidation of the Jewish population who previously owned and inhabited it.

There is another point to make that brings us to Lund. Although many geographers in Germany and elsewhere ignored the work that Christaller pioneered during the 1930s because it was outside the traditional *Landeskunde* with its regional approach, not all geographers did. One of the first references to Christaller’s thesis on central place theory was in Edgar Kant’s (1935) dissertation, *Bevölkerung und Lebensraum Estlands* (Population and Living Space in Estonia), published 2 years after Christaller’s dissertation. The book presents a mixture of ideas circulating at the time, blending geological, biological, demographic, racial, and geometrical discourses to provide a holistic interpretation of the Estonian *Lebensraum* and population. It built primarily on the Swedish geographer Sten de Geer’s concept of *Baltoscandia* (the Baltic region) (de Geer, 1928).

Unlike Christaller, who struggled throughout his life to be accepted by academia, Edgar Kant forged a distinguished academic career. Within a year of finishing his dissertation, he was made professor of economic geography at Tartu University. His interests were as much applied as they were academic. He produced, among other things, a social geography of the cities of Tallinn and Tartu, mapping the various ethnic and demographic segments of the cities. When the Red Army annexed and occupied Estonia in autumn 1939 (a consequence of the Molotov–Ribbentrop Pact signed between the Soviet Union and Nazi Germany), Kant remained in the country, albeit in hiding because of fear of deportation to Siberia. Two years later Germany invaded the Soviet Union, and within days the *Wehrmacht* occupied Estonia. Kant then came out of hiding, with the Nazis appointing him rector of the University of Tartu, a position he retained until September 1944. At that point, with the Red Army approaching fast, Kant again fled Tartu. In a letter to his former supervisor, the Finnish geographer Johannes Gabriel Granö, he described his night time escape by motorcycle to a secret hideout on the coast. There a motorboat was persuaded to wait for one more passenger.

The same year that Christaller began work in Freiburg, a young student, Torsten Hägerstrand, arrived from his native Småland for undergraduate study at the University of Lund. Although Hägerstrand initially had set his mind on studying ethnography, he found his interests better met by geography. In 1947, Hägerstrand enrolled in the doctoral program of Lund’s Department of Geography. By then, Edgar Kant, who had been taken directly to Sweden in that motorboat, was now working in the same department, initially as an archivist, later as a research fellow. But because of his poor Swedish (one of the few European languages he could not speak), he was assigned a research assistant, Hägerstrand.

Hägerstrand says Kant was the critical impetus for his research on diffusion and migration that culminated in his 1953 dissertation. One of Kant’s first publications in exile was “Den inre omflyttningen i Estland i samband med de estniska städernas omland” (1946) [Internal Migration within Estonia and its Relation to the Urban Hinterland]. In the paper, Kant shifts markedly away from politically fraught

concepts such as *Lebensraum*, and instead emphasizes statistics and models of spatial analysis. The formalistic language of spatial analysis and its joining to applied geography was transposed or translated for a new truth spot across the Baltic Sea.

Gerd Enequist, Professor of Human Geography at Uppsala, Sweden, who had read Kant's work on Estonia and central place theory, invited Kant to speak at the symposium on *Tätorter och omland* [Central Places and the Hinterland] held at Uppsala in 1950. Enequist later said that: "My direction was in many respects determined by Christaller, who I discovered through Edgar Kant, whose work on town systems in Estonia I reviewed in 1936" (Enequist quoted in Buttimer, 2005, p. 178). Anne Buttimer later commented that the 1950 Uppsala symposium "was the first occasion during which he [Kant] became known among Swedish colleagues. He was accompanied by an entourage of devoted students—Bergsten, Dahl, Godlund and Hägerstrand—the budding makers and shapers of mid-twentieth-century human geography [and society] in Sweden" (p. 178). The circle was completed by the invitation to Christaller to be the opening-day, plenary speaker at the 1960 International Geographical Union (IGU) conference in urban geography organized by Hägerstrand at Lund (Norborg, 1962). That event, more than any other, was a celebration of the arrival of spatial science, and featured alumnae of both Iowa and Washington among its participants (Barnes, 2012). The various truth spots of spatial analysis had come together, but the routes they took to get there were quite different.

Conclusion

The purpose of our chapter following the science studies literature of the last 40 years was to show how the disciplinary articulation of geographical ideas became caught up in events played out geographically on the ground. It is not ideas on the one hand and the geographical world on the other. Rather, ideas are from the beginning thoroughly suffused by and intertwined with the world. They are worlded. We sought to show this for the idea of spatial analysis. Further, we brought to that task a specifically geographical conception of worlding, relying on the three notions of heterotopia, truth spots, and centers of calculation. As we noted, however, none of these ideas were devised by geographers, in spite of their geographical purchase. Surely this needs to change. Geographical ideas need to be developed to understand the geography of ideas. There is a need for an intellectual geography, or a geography of ideas to complement the established fields of intellectual history and the history of ideas.

In concluding we would like to return to the map at the beginning of the chapter, Peter Taylor's "Quant Geog airlines flight plan." It is a remarkable figure, tracing the movements of an idea between centers of calculation or truth spots. It suffers, however, from the common problem of all cartographic representation. It cannot properly describe the often topsy-turvy, unforeseen, and unpredictable routes that ideas travel. A map represents a moment frozen in time and space. What we have attempted to do in this chapter is to augment Taylor's map by overlaying it with

many overlapping descriptions and narratives—historical, biographical, place-based, and geographical. We aimed to create an intellectual palimpsest, and the basis for a different kind of map. This map joins often contradictory and simultaneous movements of people, objects, and ideas in time and space. It is an intellectual historical geography or a geographical history of ideas.

References

- Barnes, T. J. (2004). Placing ideas: Genius loci, heterotopia and geography's quantitative revolution. *Progress in Human Geography*, 28, 565–595. doi:[10.1191/0309132504ph5060a](https://doi.org/10.1191/0309132504ph5060a)
- Barnes, T. J. (2008). Geography's underworld: The military-industrial complex, mathematical modelling and the quantitative revolution. *Geoforum*, 39, 3–16. doi:[10.1016/j.geoforum.2007.09.006](https://doi.org/10.1016/j.geoforum.2007.09.006)
- Barnes, T. J. (2012). Notes from the underground: Why the history of economic geography matters: The case of central place theory. *Economic Geography*, 88, 1–26. doi:[10.1111/j.1944-8287.2011.01140.x](https://doi.org/10.1111/j.1944-8287.2011.01140.x)
- Barnes, T. J. (2013). “Desk killers”: Walter Christaller, central place theory, and the Nazis. In P. Meusburger, D. Gregory, & L. Suarsana (Eds.), *Knowledge and Power* (pp. 187–201). Knowledge and Space, Vol. 7. Dordrecht: Springer. doi:[10.1007/978-94-017-9960-7_9](https://doi.org/10.1007/978-94-017-9960-7_9)
- Berggren, L., & Jones, A. (Eds.). (2000). *Ptolemy's geography: An annotated translation of the theoretical chapters*. Princeton: Princeton University Press.
- Berry, B. J. L., & Marble, D. F. (Eds.). (1968). *Spatial analysis: A reader in statistical geography*. Englewood Cliffs: Prentice Hall.
- Bloor, D. (1999). Anti-Latour. *Studies in History and Philosophy of Science*, 30, 81–112. doi:[10.1016/S0039-3681\(98\)00038-7](https://doi.org/10.1016/S0039-3681(98)00038-7)
- Buttimer, A. (2005). Edgar Kant (1902–1978): A Baltic pioneer. *Geografiska Annaler, Series B, Human Geography*, 87, 175–192. doi:[10.1111/j.0435-3684.2005.00191.x](https://doi.org/10.1111/j.0435-3684.2005.00191.x)
- Cartwright, N. (1999). *The dappled world: A study of the boundaries of science*. Cambridge, UK: Cambridge University Press.
- Christaller, W. (1937). *Die ländliche Siedlungsweise im Deutschen Reich und ihre Beziehungen zur Gemeindeorganisation* [Rural Settlements in Germany in Their Relation to Community Administration]. Stuttgart: W. Kohlhammer.
- Christaller, W. (1966). Central places in southern Germany (C. W. Baskin, Trans.). Englewood Cliffs: Prentice-Hall. (Original work published 1933)
- Curry, M. R. (2005). Toward a geography of a world without maps: Lessons from Ptolemy and postal codes. *Annals of the Association of American Geographers*, 95, 680–691.
- De Geer, S. (1928). Das geologische Fennoskandia und das geographische Baltoskandia [The geological Fennoscandia and the geographical Baltoscandia]. *Geografiska Annaler*, 10, 119–139.
- Garrison, W. L. (1959). Spatial structure of the economy: II. *Annals of the Association of American Geographers*, 49, 471–482. doi:[10.1111/j.1467-8306.1959.tb01631.x](https://doi.org/10.1111/j.1467-8306.1959.tb01631.x)
- Garrison, W. L. (1979). Playing with ideas. *Annals of the Association of American Geographers*, 69, 118–120. doi:[10.1111/j.1467-8306.1979.tb01238.x](https://doi.org/10.1111/j.1467-8306.1979.tb01238.x)
- Garrison, W. L. (1998, March). Interview with Trevor Barnes. Berkeley.
- Garrison, W. L., Berry, B. J. L., Marble, D. F., Nystuen, J. D., & Morrill, R. L. (1959). *Studies of highway development and geographic change*. Seattle: University of Washington Press.
- Gieryn, T. F. (2002). Three truth-spots. *Journal of the History of Behavioral Sciences*, 38, 113–132. doi:[10.1002/jhbs.10036](https://doi.org/10.1002/jhbs.10036)
- Hägerstrand, T. (1967). *Innovation diffusion as a spatial process* (A. Pred and G. Haag, Trans.). Chicago: University of Chicago Press. (Original work published 1953)

- Hartshorne, R. (1939). *The nature of geography: A critical survey of current thought in the light of the past*. Lancaster: Association of American Geographers.
- Hartshorne, R. (1955). "Exceptionalism in geography" re-examined. *Annals of the Association of American Geographers*, 45, 205–244.
- Hetherington, K. (1997). *The badlands of modernity: Heterotopia and social ordering*. London: Routledge.
- Kant, E. (1935). *Bevölkerung und Lebensraum Estlands: Ein anthropoökologischer Beitrag zur Kunde Baltoskandias* [Population and habitats of Estonia: An anthropo-ecological contribution to the lore of Baltoscandia]. Tartu: Akadeemiline Kooperatiiv.
- Kant, E. (1946). Den inre omflyttningen i Estland i samband med de estniska städernas omland [The internal resettlement in Estonia in relation to the hinterland of Estonian cities]. *Svensk Geografisk Arsbok*, 22, 83–124.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Latour, B. (1999). "For Bloor and beyond"—a reply to David Bloor's "Anti-Latour". *Studies in History & Philosophy of Science*, 30, 113–129. doi:10.1016/S0039-3681(98)00039-9
- Latour, B. (2005). *Reassembling the social: An introduction to Actor Network Theory*. Oxford: Oxford University Press.
- Leighly, J. (Ed.). (1963). *Land and life: A selection from the writings of Carl Ortwin Sauer*. Berkeley: University of California Press.
- Lindberg, D. C., (1992). *The beginnings of western science: The European scientific tradition in philosophical, religious, and institutional context, 600 B.C. to A.D. 1450*. Chicago: University of Chicago Press.
- Livingstone, D. N. (2003). *Putting science in its place: Geographies of scientific knowledge*. Chicago: University of Chicago Press.
- Lukermann, F. E. (1961). The concept of location in classical geography. *Annals of the Association of American Geographers*, 51, 194–210. doi:10.1111/j.1467-8306.1961.tb00373.x
- Lukermann, F. E. (n.d.). *The Praecognita of Varenius: Seven ways of knowing*. Unpublished manuscript, University of Minnesota, Department of Geography.
- McCarty, H. H., Hook, J. C., & Knos, D. S. (1956). *The measurement of association in industrial geography*. Iowa City: University of Iowa, Department of Geography.
- Nagel, T. (1986). *The view from nowhere*. New York: Oxford University Press.
- Norborg, K. (Ed.). (1962). *Proceedings of the IGU symposium in urban geography Lund 1960*. Lund: C.W.K. Gleerup.
- Nye, M. J. (2011). *Michael Polanyi and his generation: Origins of the social construction of science*. Chicago: University of Chicago Press.
- Preston, R. E. (2009). Walter Christaller's research on regional and rural development planning during World War II. In *METAR—Papers in Metropolitan Studies, Vol. 52*, Freie Universität Berlin, Institut für Geographische Wissenschaften. Retrieved from http://edocs.fu-berlin.de/docs/servlets/MCRFileNodeServlet/FUDOCS_derivate_000000001731/METAR_52_Preston_2009.pdf?hosts=localPutnam.
- Putnam, H. (1981). *Reason, truth and history*. Cambridge, UK: Cambridge University Press.
- Rheinberger, H. J. (2010). *On historicizing epistemology: An essay*. Stanford: Stanford University Press.
- Rössler, M. (1989). Applied geography and area research in Nazi society: Central place theory and planning, 1933 to 1945. *Environment and Planning D: Society and Space*, 7, 419–431. doi:10.1068/d070419
- Schaefer, F. K. (1953). Exceptionalism in geography: A methodological introduction. *Annals of the Association of American Geographers*, 43, 226–249.
- Shapin, S. (1998). Placing the view from nowhere: Historical and sociological problems in the location of science. *Transactions of the Institute of British Geographers*, 23, 5–12.

- Taylor, P. J. (1977). *Quantitative methods in geography: An introduction to spatial analysis*. Boston: Houghton Mifflin.
- Tobler, W. (1998). Unpublished interview with Trevor Barnes, Santa Barbara, March.
- Wartz, W. (1989). Newton, the Newtonians, and the *Geographia Generalis Varenii*. *Annals of the Association of American Geographers*, 79, 165–191.

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Chapter 7

Knowledges in Disciplines and Cities: An Essay on Relations Between Archaeology and Social Sciences

Peter J. Taylor

Preamble: Knowledges

In this paper I argue that the path dependency of disciplinary knowledges in the social sciences and archaeology that emerged in the late nineteenth century have led to a long-standing focus on states for framing knowledge production, thus overlooking the important role of cities for understanding social change. By outlining the neglect of cities in the social sciences and archaeology, I develop the radical position that cities as hubs of practical knowledge production preceded both the emergence of states and agriculture. It is contended that this argument has to be made outside of established disciplinary frameworks because researchers working within conventional disciplinary tenets have been too “disciplined” by seemingly established truths set about a century ago. The perspective of a geographer seems to be ideal in this regard because geography never quite fitted into the nineteenth century disciplinary canon. A geographical perspective is thus well suited for bringing cities back into disciplinary discourses as well as into debates about the development of societies.

In the modern world, knowledge comes in two different forms. First, there is the academic knowledge created in universities and associated institutions. It is here that research work is done that cumulatively adds to stocks of knowledge called disciplines. In addition there is a teaching function in this academic knowledge production that reproduces the disciplines through socializing young adults to become future cohorts of knowledge creators. This knowledge has essentially an oligarchic structure of disciplining by peer review (i.e., certifying the created knowledge). Second, there is practical knowledge that is required to make a living outside universities. In this case the disciplining is by the market. Practical knowledge has

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to be useful so that it can be deployed to make money. I realize these two knowledges overlap in many instances (e.g., in corporate research and development departments, in the professions, in defense department laboratories), but I will keep them separate for the purposes of this essay. Here I will tell a story about an intersection of these two knowledges, with particular emphasis on their contrasting spatialities.

The spatial mobility of academic knowledge is facilitated by academic networks. This is concretely represented by researchers bringing new knowledge to seminars, workshops, and conferences, but the crucial network is the one that records the cumulative knowledge production. Disciplinary journal articles, research monographs, and academic books are the nodes where the spatial mobility of knowledge is represented by the citations. In contrast, practical knowledge has many more loci, but one stands out as the exceptional place for knowledge production: cities. It is the hustle and bustle of cities—their inherent *busy-ness*—that is the major testing ground for practical knowledge, which is why commercial knowledge constitutes business. If the knowledge works—you can make money from it—then the knowledge will be reproduced, modified, and extended as necessary. Vibrant cities are the best places for doing business. The spatial mobility of this practical knowledge flows within and between cities. This essay is about a specific case study of how the academic knowledge of disciplines makes sense of practical knowledge practices.

To explore this intersection I will focus on origins, on how cities came about in association with the beginnings of both agriculture and states. These social changes are the practical knowledge productions I consider. The academic knowledges then follow. Archaeology is the discipline that specializes in the study of such origins; social science is about social change, and since these three origins constitute epochal changes they are of direct relevance to social science understanding. The hypothesis is that by shining the spotlight on these critical origins some basic contradictions of knowledge production in cities and disciplines will be revealed.

The argument proceeds in a rather distinctive way. There will be two introductions, one for each type of knowledge. And then there will be two indictments, for social science and for archaeology. In all of this I will be taking a very city-centric position and this comes to the fore in the substantive section where I bring cities back in to understand both the creation of states and the development of agriculture.

Introductions

The Times and Spaces of Academic Social Knowledges

The academic knowledge of today is ultimately derived from the nineteenth century reorganization of German-speaking universities to emphasize the research function and thereby privilege specialization. It is from the university chairs established to organize the new intensive research work that modern disciplines have evolved. Of

the four original faculties—theology, law, medicine, and philosophy—it was in the latter two that research specialization occurred, and especially in philosophy (the highest research degree is still a PhD) (Ben-David & Zloczower, 1962). One key feature of this process was a bifurcation into sciences and arts that commonly resulted in division into two separate faculties housing very different disciplines (lower research degrees are still called MSc or MA). The differences existed in both research subject matter (non-human–human) and research practices (nomothetic–idiographic). It was the immense dominance of Germany in academic science knowledge in the second half of the nineteenth century (Taylor, Hoyler, & Evans, 2008) that stimulated emulation in many other countries to create the modern university.

The social sciences began to emerge in the late nineteenth century as a sort of in-between research category combining the research subject matter of the arts with the research methods of the sciences. This process was largely consolidated in U.S. universities in the first half of the twentieth century to create a tripartite division for studying social change, the new disciplines of economics, political science, and sociology (Wallerstein et al., 1996). By about 1950, it was commonplace for this disciplinary trinity to be established as departments in most universities. This three-way division of knowledge broadly followed the reform movements that dominated late nineteenth century politics. The goals of these movements were articulated as demands for economic reforms, political reforms, and social reforms. Thus there came about a general view of human behavior being divided into economic, political, and social activities taking place in the economy, the state, and (civil) society as separate institutional worlds. The new social science disciplines reflected this view and set about devising separate research agendas along these lines.

There are three key points that arise from this construction of social science (Wallerstein et al., 1996).

1. The basic units of analysis were defined by state territories—empirically the abstract concepts of economy, state, and society were all nationalized, as in British economy, French state, and American society, to produce a one-scale *mosaic social science* of multiple countries.
2. The knowledge produced by the three disciplines covered all modern human behaviors—this was a knowledge monopoly position. The power of this monopoly can be seen in other surviving disciplines eventually having to create trilogy subdisciplines as they adjusted to demands of being modern: for instance, economic anthropology, political geography, and social history.
3. This was nomothetic knowledge of modern, rational behavior and therefore it initially only applied to modern, rational economies, states, and societies in advanced regions of the world where the modern universities were located. It was a social knowledge of modern *us*, with the un-modern *them* initially excluded. The exclusions were in both time and space and, being un-modern, they could only be studied idiographically (i.e., outside social science). In time a new discipline of history studied the un-modern past of modern nations. In space there were two un-moderns, for old civilizations Orientalism emerged to understand why they stagnated, and for smaller societies, anthropology was constructed to understand why they never progressed in the first place.

Note that geography does not feature in this academic knowledge framework; straddling the science–arts boundary and initially eschewing specialization (favoring synthesis over analysis), it is an odd-ball survivor only adapting to social science as human geography in the second half of the twentieth century with the victory of systematic geographies (specialist trinity subdisciplines) over regional geography (the art of synthesis). I make this point to reveal my personal intellectual positionality as a geographer: I am a social scientist outsider.

This neat academic knowledge arrangement began to change in the second half of the twentieth century (Wallerstein et al., 1996). Most importantly the world changed with decolonization so that development (a property of states) replaced progress (a property of modern civilization only). This meant that the whole world was opened up to social science study with new research agendas on economic development (toward affluence), political development (toward democracy), and social development (toward modernization). In addition disciplinary boundaries became increasingly porous, resulting in new research areas, such as cultural studies, area studies, and feminist studies, refusing to be contained by the old disciplines. Even more important these areas of study have undermined, or really sidestepped, the simple nomothetic–ideographic distinction so that, especially through cultural studies, the methodological wall between the trinity and the humanities (arts) has crumbled. Thus in the early twenty-first century the academic knowledge organization in the social sciences and humanities is quite complex. Old disciplines remain institutionally powerful within universities as departments (awarding PhDs) and with their traditional prestigious research journals; while at the same time there is a plethora of new interdisciplinary (or multidisciplinary or transdisciplinary) journals with their own networks of researchers and conferences.

Practical Knowledges in, Through, and Out of Cities

Practical knowledge is constituted by the everyday constructs and information people use to live their lives. I focus on the practical knowledge that is necessary for making a living. Such knowledge depends on quality and quantity of contacts and intensity of communications with those contacts. In this situation one particular class of settlements, cities, has been found to be exceptionally important. One can go as far as to say that there is a qualitative difference between city life and life elsewhere in terms of the nature and salience of knowledge for work. This idea of cities as special knowledge-rich milieus is to be found in a wide range of scientific studies (Batty, 2013; Brenner, 2014; Glaeser, 2011; LeGates & Stout, 2015; Neal, 2013; Scott, 2012; Storper, 2013; Taylor, 2013).

Recent resurgences in urban economics and economic geography have focused on the advantages of cities for economic development. Two main processes have been postulated. First, localization refers to the knowledge-related benefits of firms

from the same industry clustered together. This relates to industry-specific opportunities thus stimulating creativity and innovation. In particular tacit knowledge within an industry is said to require immersion in localized industrial culture. This is important in both product development and skilled labor availability. Classic historical examples are the New York advertising cluster on Madison Avenue and the London newspaper cluster on Fleet Street. In these cases cost-cutting opportunities elsewhere eventually made the two clusters uneconomic but they had by then provided untraded advantages to their cluster of firms for several generations. And after the cluster breakup proximity remained important as clustering re-emerged in new locations (Faulconbridge, Beaverstock, Nativel, & Taylor, 2010).

Second, there are agglomeration effects of multiple firms from a wide range of industries co-locating in a city or region. There are collective advantages in terms of infrastructure and other common services. But a key advantage is to be near to clients. For instance, in Sassen's (2001) classic work, the global city is simultaneously the main producer of advanced business services and the main market for such services. And in such work, close and regular contact with clients is found to be necessary, especially face-to-face meetings. Agglomeration also constitutes an ecology of skills that facilitates project work involving producers from different specialties combining to create unique products for particular clients. This is specifically important for user-led innovation where observation and interaction in cities are indispensable. In an empirical test for the efficacy of clusters and agglomeration Glaeser, Kallal, Scheinkman, and Schleifer (1992) found the latter to be more associated with economic growth.

The above advantages are place or territorial (internal) assets and it is now widely recognized that they are complemented by network (external) assets. As Sassen (2001) recognizes, cities are strategic places within myriad flows of materials, people, and information. Contemporary cities in globalization have been modeled as a world city network generated through knowledge-based work: professional, financial, and creative servicing of global capital (Taylor, 2004). Intensity of integration into this network (city connectivity) is a measure of a city's global external assets through globalization. This has been conceptualized in several ways, such as global pipelines (Bathelt, Malmberg, & Maskell, 2004) and global communities of practice (Amin & Thrift, 1992).

Outside this specifically economic consideration of contemporary cities and their networks, there are other studies that emphasize the generic importance of cities across history. For example, the world city network model has been interpreted generically as central flow theory, a general description of cities in networks. The key substantive examples are Hall (1998) with his description of leading cities as centers of creativity, Soja's (2000, 2010) concepts of synekism and regionality of cityspace in urban revolutions, McNeill and McNeill (2003) with their references to cities in the human web of world history, Algaze's (2005a, 2005b) work on internal and external relations in Sumerian cities, and LaBianca and Scham's (2006) applications of Castells's (1996) space of flows to antiquity. These are all discursive harnessings of evidence to support the critical importance of practical knowledge production in and through cities for historical social change.

Indictments

All institutions are created at some point in time to satisfy a need. Subsequently needs change and relevance of an institution is naturally eroded. As noted previously, today's disciplines are about a century old and they still retain many vestiges of their creation. In fact by the twenty-first century they appear not to have worn particularly well (Wallerstein, 1991). Here I indict social science (in general) and archaeology.

Of Mainstream Social Science

As previously shown, contemporary social science consists of a mixture of old disciplines and various new areas of study. The latter can seem to be opportunist, perhaps transient, compared to the deep knowledge of the disciplines. Thus researchers in the studies sector are commonly certified by their PhD in one of the disciplines, and there is always a tendency to revert to trinity thinking as in politico-cultural studies, economic area studies, and feminist sociology. In other words, social science is currently strewn with ambiguities. These are reflected in Wallerstein's (2004) prognosis. On the one hand he argues that "the social construction of the disciplines as intellectual arenas that was made in the nineteenth century has outlived its usefulness and is today a major obstacle to serious intellectual work" (pp. 169–170). But at the same time he suggests that "there is richness in each of the disciplinary cultures that should be harvested, stripped off its chaff, and combined (or at least used) in a reconstruction of the social sciences" (pp. 169–170).

Of course, the debate will be about identifying the "chaff" (Wallerstein, 2004)! In his contribution to this reconstruction, world-systems analysis, he transcends states and I agree this to be an essential stripping.

Cities have not been well served by the trinity and not just because the nationalization of social knowledge downgraded them to, literally, a bit part in the overall scheme of things. With the focus on the scale of the state, the exceptional nature of cities in relation to enhanced knowledge potentials has been severely neglected. In Wallerstein's stripping off the state-centric chaff he moves focus from national economies to world-economy; I will follow Jacobs (1969, 1984) and move from national economies to city economies. I highlighted profound economic contributions being made at this scale above, but it is still the case that urban economics (or regional economics or spatial economics) remains a Cinderella area of study in the discipline of economics, where status remains wedded to national econometric models. Geography has been the other discipline contributing to the rediscovery of the importance of cities described previously. But the main legacy of research here has been in studying cities in hierarchies within countries modeled as national urban systems. In this approach the world consists of circa 200 (the number of countries

varies with world political processes) national urban systems (i.e., one per country). This is mosaic social science at its very worse. Cities abhor boundaries. Their *raison d'être* is being strategically connected within complex spaces of flows, which is antithetical to being neatly ordered within state territories.

The ridiculousness of this academic knowledge can be easily illustrated using the examples of London and New York, both interpreted as being top of the hierarchy in their respective national urban systems. At first glance this seems obvious but in fact it grossly underestimates the importance of both cities. Both of these great cities have long been leading ports in the world-economy but this very tangible property could be kept from social science academic knowledge because the study of trade through trade theory was nationalized, it was deemed a property of states not cities. Thus this major city function was largely ignored in national urban systems analyses, seemingly unmindful that New York cannot be understood as just part of the United States, and London cannot be understood as just part of the United Kingdom. Perhaps because of such limitations, national urban systems research largely disappeared in the 1980s and was replaced by research on studies of cities in globalization, originally conceived hierarchically, following the mosaic habit, but latterly seen as world city network (Taylor, 2004, 2009). It might have been thought that the coming of globalization would have advanced the importance of cities in social science. Certainly an impressive world and global city literature has emerged (Brenner & Keil, 2006) that locates cities as critical to globalization processes. However, the study of cities sits uncomfortably in reader compilations from the globalization literature where cities are largely neglected (Lechner & Boli, 2000). This is because the trinity has survived the huge social changes wrought by globalization, as reflected by the labels economic globalization, political globalization, and social (or cultural) globalization. This is not surprising when the key text, Held, McGrew, Goldblatt, and Perraton's (1999) *Global Transformation*, is actually about transformation of the state in economic, political, and social realms of activity (Taylor, 2000).

Research on cities in social science has come to be labeled urban studies (which aspires to combine urban economics, urban political science, urban sociology plus urban geography and urban history); that is to say, it is one of the many areas of study that have grown to facilitate subject matter that transcends trinity divisions as indicated earlier. There is an excellent reader representing this literature (LeGates & Stout, 2015) but one part of its composition reveals the extant shallowness of this example of an area of study. When it comes to including chapters on the origins of cities there is actually just one paper, a classic written in 1950 by Gordon Childe, who appears in archaeological textbooks as a founding father, one of Renfrew and Bahn's (2008) early "searchers" (p. 36). Presumably this means that the compilers of the urban studies reader cannot find a later, social science, contribution on the question of city origins. What an indictment of social science for neglecting the study of city origins. But using such an old archaeology paper is also strange; does it suggest cities have been similarly neglected in this discipline?

Of Mainstream Archaeology

Archaeology is the discipline that we might be expected to go to for research on the origins of cities. Childe's (1950; Smith, 2009) classic paper located the first cities in late fourth millennium BC Mesopotamia and this remains the consensus within the discipline. There have been other suggestions, as I will relate later in this essay, but these have been largely dismissed as not providing credible evidence for the existence of earlier cities. But, more importantly, this question has been of peripheral concern in archaeological research. This can be shown by reference to the latest edition of the best-selling introductory textbook on archaeology (Renfrew & Bahn, 2008). Textbooks are the basic means of socializing new generations into a discipline; thus they provide the current understanding of the key questions, methods, and theories that constitute that discipline (Taylor, 2015). Renfrew and Bahn (2008) include no discussion at all about city origins. Why might this be?

In my introductory discussion of social science above there was no mention of archaeology. The discipline's obvious locale would be as a time discipline alongside history with ancient history. However its formal location in universities is mostly with anthropology. This makes some sense to the degree that anthropology treats hunter-gatherer and early agricultural societies, and such societies dominate the pre-history that archaeology investigates. This is to locate archaeology in the outer reaches of comparative anthropology with an inevitable neglect of concern for cities. Thus in their text of over six hundred pages, Renfrew and Bahn's (2008) index includes no reference for city or cities.

Whereas national spatiality has dominated social science scholarship, in archaeology it is evolutionary temporality that features strongly in this scholarship. Evolution theory, related to nineteenth century obsession with progress, survives more in archaeology than elsewhere in social science. Darwin has his own box feature in Renfrew and Bahn (2008, p. 27) entitled "Evolution: Darwin's Great Idea." Basically, evolution has been used to understand increasing complexity of society but without any recognition of the exceptional complexity of cities.

Recently, some archaeologists have provided very strong critiques of traditional evolutionary models of social change (Gamble, 2007, pp. 10–32; Yoffee, 2005, pp. 8–15). Yoffee (2005, p. 34), in particular, is a trenchant critic of what he calls the current "neo-evolutionary" approach in archaeology.

What neo-evolutionalism never was, was a theory of social change. Rather, it was a theory of classification, of identification of ideal types in the material record. ... In a vague sort of way, mainly by talking about different adaptations as if they were somehow like genetic differences, neo-evolutionists drew on the prestige of Darwin's theory and often proclaimed they had created a new science of social evolution. However, neo-evolutionists could not explain change other than in holistic terms and were content to identify as evolutionary mechanisms... climatic change or/and population growth. (pp. 31–32)

For Gamble (2007) "change takes the form of future-creep" so that "differences are expected to happen eventually and can be explained simply by the passage of enough time, a commodity with which human prehistory is abundantly blessed" (p. 23).

For both scholars there is not enough emphasis on process: Who are the agents and why do their activities generate social change? Such questions lead to social science.

It is very relevant that the archaeologists I have drawn on to critique city-state and evolution—Gamble, Smith and Yoffee—are familiar with social science literature (including rediscovery of cities) and bring these disciplines into their own work. But they are not necessarily very typical. Renfrew and Bahn (2008, pp. 12–13) introduce archaeology by relating it to other disciplines: they identify only three: anthropology, history, and science (for techniques). There is no specified relation to social science and this is reflected in subsequent substantive chapters. Chapter 5 “How Were Societies Organized: Social Archaeology” (pp. 177–230) makes no reference to sociology literature, and chapter 9 “What Contact Did They Have: Trade and Exchange” makes no reference to economics literature (pp. 357–390). Despite this disdain for social science, archaeology has shared the latter’s propensity to neglect cities. Unfortunately the archaeologists I have identified above as knowing recent cities literature do not contribute to the question of city origins. Strangely, Renfrew and Bahn (2008, pp. 46–47) do have a two-page box feature on Çatalhöyük, the key settlement in the city origins debate (Jacobs, 1969; Soja, 2000; Taylor, 2012, 2013), but they use it to illustrate changing approaches to the practices of archaeology, with no mention of the controversies over interpreting the urban nature of the settlement. There can be no clearer example of denial of the city origins question in contemporary archaeology.

Debates Generated by Bringing Cities Back In

Although both social science and archaeology have early classic studies of cities, my two indictments show that both have developed traditional structures of knowledge that have underestimated the importance of cities for understanding social change. But I have also shown that cities will win out; there is development of a city-centric social science and this is being introduced into archaeology and interpretation of ancient history. The most explicit example is the work of Algaze (2005a, 2005b). In this substantive section I deploy the city-centric social science to challenge existing ideas on first, the relation between cities and states and second, the relation between cities and agriculture. In both cases I will argue that cities came first.

Unlike studies of contemporary cities, for historical cities it is not possible, of course, to directly study the processes that make cities so exceptional. With very early cities, agency in particular is a problem. Researchers do not know the agents—merchants, priests, soldiers, textile producers, scribes—researchers only know of their presence from the artifacts they have left to be discovered. Thus researchers have to investigate the potency of a city through its knowledge-rich internal and external assets in an indirect way. Fortunately there is a relevant variable, population size, for which there are general estimates that will serve as a surrogate for cities as potential creative centers. I call this the communication model of city-ness because

population size is a measure of potential communication capacity (Taylor, 2012, 2013, pp. 98–102). This is a network measure derived for internal links first and then doubled to account for equally important external links. From such analyses we find that Çatalhöyük, a possible early city, has a potential communication capacity much more than a thousand times that of a hunter-gatherer band, whereas First Dynasty Uruk, the first *great city*, had a capacity of more than half a million times said band. These quantitative results indicate the huge qualitative social difference that cities create and constitute the prime reason for city-centric study in archaeology. This generates two related debates.

Cities and the Creation of States

The first debate is about two processes being conflated into one. I reported above to there being no index references for cities in Renfrew and Bahn's (2008) textbook; however, there are nine references to city-states. It would seem understanding early cities is subsumed into the study of early states (Charlton & Nichols, 1997). But city-making and state-making are two very different processes, each requiring their own process analysis. This position is held by some social scientists (e.g., Soja, 2010, p. 364) and by a few archaeologists familiar with social science writings on cities. Monica Smith (2003) is a good example of the latter group. She is explicit on the importance of recognizing that "cities do not require a state level of authority to exist and thrive" (p. 12). Therefore:

it is ... time for the understanding of cities to be uncoupled from the necessary presence of states. By breaking this pairing of cities and states, we allow cities to be understood on their own terms as centers of political, economic, and social organization that may be considerably more complex than the territories and regions in which they are located. (p. 13)

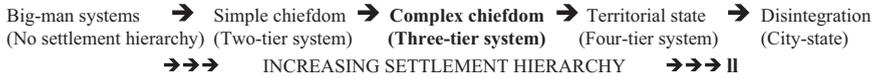
She traces the conflation of cities with states back to Childe (1950, p. 12), who created a framework in which "theorizing about urbanism has often really been about states rather than cities." This key point had been made much earlier by Price (1978):

The relation between urbanism and the state, however, has been the cause of profound confusion for a variety of reasons, both scholarly and ideological. Childe's Mesopotamian data combined urbanism and the state in a single sequence and permitted the uncritical evaluation of this particular association. (p. 175)

Monica Smith (2003) indicts Robert Adams, the great chronicler of Mesopotamian urbanism; she points out that, paradoxically, in his 1966 classic *The Evolution of Urban Society*, despite the book's title, his "central concern is the growth of the state" (quoted in Smith, 2003, p. 12). But Smith (p. 15) argues that "cities in the premodern world did not require a state level of organization". This important point seems not to have (yet?) percolated into the archaeological mainstream as represented by Renfrew and Bahn (2008).

(a) STATES OUT OF CHIEFDOMS

Hunter-gatherer bands



(b) CITY- STATE INVENTION

Hunter-gatherer temporary trading post
 (Part of temporary trading network)

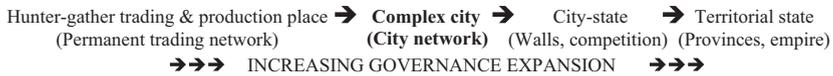


Fig. 7.1 Alternative origins of states. Pivotal stages or steps are in *bold*. II indicates ending of increase (Design by author)

Traditionally, states have been interpreted as the outcome of increasingly complex governance processes, consequent upon class formation and widening material inequalities. This model is stripped bare to its essentials in Fig. 7.1a as a sequence of governance types representing evolutionary stages as criticized by Yoffee (2005, p. 34). Enhanced complexity is represented spatially by central place hierarchies with three settlement tiers indicating the key complex chiefdoms that generate states in civilizations (in which the number of tiers increases to four). An alternative model is shown in Fig. 7.1b based upon Jacobs (1969) and Soja (2000). The starting point is settlements in a trading network that morphs into a city network via the Jacobs process of import replacement. The more successful this network becomes, the more cosmopolitan are the cities. It is this unprecedented social complexity with consequent intergroup conflicts that generates a demand for new stronger governance structures. This is best illustrated in Childe’s (1950) original case study: his “urban revolution” in early Mesopotamia (Taylor, 2012, 2013, pp. 115–118). Here we find two important sequences. First, accountancy—the language of commerce—is invented before writing—the language of state bureaucracy (Nissen, Damerow, & Englund, 1993). Second, in the new literature, there are myths—collective stories—that describe times before the era of epics, heroic tales of individuals who become kings (i.e., they centralize governance into states). This relates to a change from transient governance in the form of a league of cities towards a region of city-states in military competition (Jacobsen, 1970). The change is marked by huge labor investments in city walls. Thus are city networks converted into competitive city-states. In Mesopotamia this transition took about 700 years.

The vast majority of archaeologists continue to support narratives related to Fig. 7.1a, whereas the alternative narrative based upon Fig. 7.1b is much more

pleasing to social scientists (including archaeologists who identify as social scientists). It all comes down to whether you think chiefdoms can become complex enough to invent states; I think not. Social complexity in and through cities occurs at a whole new level; surely this is what is needed to generate such an important invention as states.

Cities and the Development of Agriculture

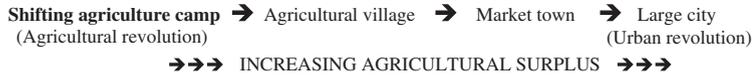
The second debate is about one process being divided into two. These are Childe's (1950) ancient historical framework of two revolutions seemingly several millennia apart. First there is the agricultural revolution that ushers in the Neolithic followed, second, by the urban revolution ushering in the Bronze Age civilization. Since this temporal sequencing was created, new evidence for origins of agriculture has pushed back the first revolution by several millennia, while the second revolution has proven to be much more temporally stable in mainstream thinking: hence a widening gap between them. Despite this divergence there is a social science intervention here that subsumes the development of agriculture into the process of initial city development.

Here I develop the controversial idea of Jacobs (1969) on agriculture being invented in cities. I know of no archaeologist who supports her thesis. Her argument involves pushing back the timing of the first cities. She focuses upon Çatalhöyük in southern Anatolia where a settlement of between four thousand and ten thousand people has been excavated to show a complex division of labor. The problem for archaeologists is that it appears about four thousand years before the rise of cities in Mesopotamia, traditionally viewed as the very first cities (i.e., Childe's urban revolution). Their reaction has been to dismiss it as a city; their preferred label is *large village* to emphasize its rurality. But Çatalhöyük is not alone as a relatively large settlement existing before Mesopotamian cities. Soja (2000) has augmented Jacobs's interpretation by showing a large network of such settlements at this time within the Fertile Crescent, birthplace of agriculture.

Figure 7.2a shows the traditional interpretation of the rise of cities: a simple sequencing of settlements by size culminating in cities. In this argument the latter first occur in Mesopotamia because improvements in agriculture (irrigation) increased production, thereby generating a food surplus large enough to feed cities. But this is a naive supply model; why should farmers work harder to generate large surpluses and create cities? Surely increased production potential is an opportunity for more leisure time? The alternative model is shown in Fig. 7.2b in which it is existing cities that provide a demand for more food. For Jacobs (1969) this is a classic case of import replacement. Hunter-gatherer-traders were exchanging food products within new trade networks but found it hard to keep up supply as city networks emerged. In this situation people in cities invented agriculture to replace and enhance the hunter-gatherer-trader food supply. Thus hinterlands were created around cities in which to produce food. As cities grew larger, more food

(a) BASIC EVOLUTIONARY THINKING

Hunter-gatherer temporary camp



(b) BASIC COMMUNICATION ALTERNATIVE

Hunter-gatherer temporary trading post
(Part of a temporary trading network)

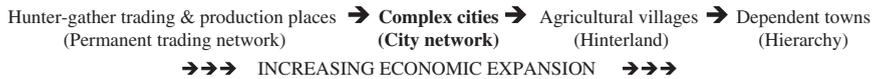


Fig. 7.2 Two settlement development sequences. Starting points of developmental phases are in italics; pivotal stages are in bold (Design by author)

technologies were invented, including irrigation in Mesopotamia, which fed new large cities such as Uruk.

This is more like a stand-off than a debate, with the minority position again based upon the qualitative social difference that cities make. The stark differences have been recently exposed in the debate between Smith, Ur, and Feinman (2014) and Taylor (2012, 2015). The former’s only reference to social science is a very early paper from about the same time as Childe’s work (Wirth, 1938), the link being made previously by Gates (2011, pp. 2–3).

Conclusion: The Limiting Case of Uncertainty of Knowledge

My conclusion is that understanding origins is a limiting case of Wallerstein’s (2004) uncertainty of knowledge thesis. Wallerstein (2004) has argued that there is an inherent uncertainty of knowledge due to the positionality of researchers/practitioners interacting with ever-changing subject matters. Archaeological knowledge, especially on origins lost in the mist of time, is a limiting case of this uncertainty because empirical evidence derives from serendipity, based upon immensely low probabilities of survival and discovery. Strong opinions are therefore due to either entrenched paradigmatic thinking (my take on archaeology’s reluctance to shake off nineteenth century ideas) or plausible process theory that makes sense of what little evidence we have (my view of what social science can be). It is on this basis that I think hunter–gatherer–traders created city networks and thereby released knowledge potentials for the invention of such epoch-making institutions as agriculture and states.

References

- Algaze, G. (2005a). *The Uruk world system: The dynamics of expansion of early Mesopotamian civilization* (2nd ed.). Chicago: University of Chicago Press. (Original work published 1993)
- Algaze, G. (2005b). The Sumerian takeoff. *Structure and Dynamics: eJournal of Anthropological and Related Sciences*, 1, 5–48. Retrieved from <http://escholarship.org/uc/item/76r673km>
- Amin, A., & Thrift, N. J. (1992). Neo-Marshallian nodes in global network. *International Journal of Urban and Regional Research*, 16, 571–581. doi:10.1111/j.1468-2427.1992.tb00197.x
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28, 31–56. doi:10.1191/0309132504ph469oa
- Batty, M. (2013). *The new science of cities*. Cambridge, MA: MIT Press.
- Ben-David, J., & Zloczower, A. (1962). Universities and academic systems in modern societies. *European Journal of Sociology*, 3, 45–84. doi:10.1017/S0003975600000527
- Brenner, N. (Ed.). (2014) *Implosions/explosions: Towards a study of planetary urbanization*. Berlin: Jovis
- Brenner, N., & Keil, R. (Eds.). (2006). *The global city reader*. London: Routledge.
- Castells, M. (1996). *The rise of network society*. Oxford: Blackwell.
- Charlton, T. H., & Nichols, D. L. (1997). The city-state concept: Development and application. In D. L. Nichols & T. H. Charlton (Eds.), *The archaeology of city-states: Cross-cultural approaches* (pp. 1–14). Washington, DC: Smithsonian Institution Press.
- Childe, V. G. (1950). The urban revolution. *Town Planning Review*, 21, 3–17. doi:10.3828/tpr.21.1.k853061t614q42qh
- Faulconbridge, J., Beaverstock, J. V., Nativel, C., & Taylor, P. J. (2010). *The globalization of advertizing: Agencies, cities and spaces of creativity*. London: Routledge.
- Gamble, C. (2007). *Origins and revolutions: Human identity in earliest prehistory*. Cambridge, UK: Cambridge University Press.
- Gates, C. (2011). *Ancient cities: The archaeology of urban life in the Ancient Near East and Egypt, Greece and Rome*. London: Routledge.
- Glaeser, E. (2011). *Triumph of the city*. London: Macmillan.
- Glaeser, E. L., Kallial, H. D., Scheinkman, J. A., & Schleifer, A. (1992). Growth in cities. *Journal of Political Economy*, 100, 1126–1152. Retrieved from <http://www.jstor.org/stable/2138829>
- Hall, P. (1998). *Cities in Civilization*. London: Pantheon Books.
- Held, D., McGrew, A., Goldblatt, D., & Perraton, J. (1999). *Global Transformations*. Cambridge, UK: Polity Press.
- Jacobs, J. (1969). *The economy of cities*. New York: Vintage.
- Jacobs, J. (1984). *Cities and the wealth of nations*. New York: Vintage.
- Jacobsen, T. (1970). *Toward the image of Tammuz and other essays on Mesopotamian history and culture*. Cambridge, MA: Harvard University Press.
- LaBianca, O. S., & Scham, S. A. (Eds.). (2006). *Connectivity in antiquity: Globalization as long-term historical process*. London: Equinox.
- Lechner, F. J., & Boli, J. (Eds.). (2000). *The globalization reader*. Oxford: Blackwell.
- LeGates, R. T., & Stout, F. (Eds.). (2015). *The city reader* (3rd ed.). London: Routledge. (Original work published 1996)
- McNeill, J. R., & McNeill, W. H. (2003). *The human web: A bird's-eye view of world history*. New York: Norton.
- Neal, Z. P. (2013). *The connected city*. London: Routledge.
- Nissen, H. J., Damerow, P., & Englund, R. K. (1993). *Archaic bookkeeping: Early writing and techniques of economic administration in the ancient Near East*. Chicago: University of Chicago Press.
- Price, B. (1978). Secondary state formation: An explanatory model. In R. Cohen & E. R. Service (Eds.), *Origins of the state: The anthropology of political evolution* (pp. 165–190). Philadelphia: Institute for the Study of Human Issues.
- Renfrew, C., & Bahn, P. (2008). *Archaeology: Theories, methods and practice*. London: Thames & Hudson.

- Sassen, S. (2001). *The global city*. Princeton: Princeton University Press.
- Scott, A. J. (2012). *A world in emergence: Cities and regions in the 21st century*. Cheltenham: Edward Elgar.
- Smith, M. E., Ur, J., & Feinman, G. M. (2014). Jane Jacobs' 'city first' model and archaeological reality. *International Journal of Regional and Urban Research*, 38, 1525–1535.
- Smith, M. L. (2003). Introduction: The social construction of ancient cities. In M. L. Smith (Ed.), *The social construction of ancient cities* (pp. 1–36). Washington, DC: Smithsonian Books.
- Smith, M. L. (2009). V. Gordon Childe and the urban revolution: A historical perspective on a revolution in urban studies. *Town Planning Review*, 80, 3–29. Retrieved from http://works.bepress.com/michael_e_smith/37
- Soja, E. W. (2000). *Postmetropolis: Critical studies of cities and regions*. Oxford: Blackwell.
- Soja, E. W. (2010). Cities and states in geohistory. *Theory and Society*, 39, 361–376. doi:10.1007/978-94-007-0756-6_15
- Storper, M. (2013). *Keys to the city*. Princeton: Princeton University Press.
- Taylor, P. J. (2000). Embedded statism and the social sciences 2: Geographies (and metageographies) in globalization. *Environment and Planning A*, 32, 1105–1114. doi:10.1068/a32153
- Taylor, P. J. (2004). *World city network: A global urban analysis*. London: Routledge.
- Taylor, P. J. (2009). Urban economics in thrall to Christaller: A misguided search for city hierarchies in external urban relations. *Environment and Planning A*, 41, 2550–2555. doi:10.1068/a42235
- Taylor, P. J. (2012). Extraordinary cities: Early 'city-ness' and the origins of agriculture and states. *International Journal of Urban and Regional Research*, 36, 415–447. doi:10.1111/j.1468-2427.2011.01101.x
- Taylor, P. J. (2013). *Extraordinary cities: Millennia of moral syndromes, world-systems and city/state relations*. Cheltenham: Edward Elgar.
- Taylor, P. J. (2015). Post-Childe, post-Wirth: Response to Smith, Ur and Feinman. *International Journal of Urban and Regional Research*, 39, 168–171. doi:10.1111/j.1468-2427.2015.12181.x
- Taylor, P. J., Hoyler, M., & Evans, D. M. (2008). A geohistorical study of 'The rise of modern science': Mapping scientific practice through urban networks, 1500–1900. *Minerva*, 46, 391–410.
- Wallerstein, I. (1991). *Unthinking social science: The limits of nineteenth century paradigms*. Cambridge, MA: Polity Press.
- Wallerstein, I. (2004). *The uncertainties of knowledge*. Philadelphia: Temple University Press.
- Wallerstein, I., Juma, C., Keller, E. F., Kocka, J., Lecourt, D., Mudimbe, V. Y.,...Trouillot, M-R. (1996). *Open the Social Sciences*. Stanford: Stanford University Press.
- Wirth, L. (1938). Urbanism as a way of life. *American Journal of Sociology*, 44, 1–24.
- Yoffee, N. (2005). *Myths of the archaic state: evolution of the earliest cities, states and civilizations*. Cambridge, UK: Cambridge University Press.

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Part II
Mediators, Networks, and Learning

Chapter 8

Collaboration and Knowledge Exchange between Scholars in Britain and the Empire, 1830–1914

Heather Ellis

In recent years there has been growing interest among historians in conceptualizing the British Empire as a space of knowledge production and circulation (Jöns, 2008; Pietsch, 2010, 2011). It has become clear that over the course of the late nineteenth and early twentieth century connections between scholars attached to British universities and those based in the wider Empire, as well as between universities themselves, increased significantly in number and complexity. These connections took a variety of forms, from the migration of students and scholars, including both individuals working within the bureaucratic structures of Empire and those outside them, to the exchange of publications and correspondence. Indeed, historians have felt able to speak of the existence of a *British academic world*, consisting chiefly of the British Isles and the settler colonies of Canada, Australia, and South Africa (Pietsch, 2011).

Instead of attempting to identify the various scholarly networks existing within the British Empire, I seek rather to analyze the impact the experience of traveling these networks and collaborating with colleagues from other parts of the Empire had upon the identities of British scholars in the period between 1830 and 1914. Historians who have examined the interaction of British scholars with the Empire have tended to focus on the important task of tracing the specific networks they constructed and proving their existence. Questions of meaning and identity have as a result received considerably less attention. Following the work of Carl Bridge and Kent Fedorowich (2003), among others, historians continue to assume that scholarly cooperation between individuals and institutions within the Empire had the effect (and often also the aim) of strengthening imperial ties and promoting an overarching imperial loyalty (Pietsch, 2010). This assumption has been particularly noticeable when referring to the fields of geography (Hudson, 1977; Kearns, 1997),

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H. Jöns et al. (eds.), *Mobilities of Knowledge*, Knowledge and Space 10,
DOI 10.1007/978-3-319-44654-7_8

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ethnology (Anderson, 1992; Brown, 1993), and anthropology (Feuchtwang, 1973; Francis, 1994; Kuklick & Jones, 1978; Morrison, 1984). The tendency to assume a close link between participation in imperial networks and a sense of loyalty to the idea of empire seems, in turn, to be related to another tendency within the historiography of higher education institutions in Britain (and arguably across the world), namely to assume a close relationship between the flourishing of universities and the growth of the nation state and nationalism (Craig, 1984; Jarausch, 1983; Välimaa, 2004). If one considers how frequently imperialism is treated as being closely related to nationalist sentiment, it comes as little surprise that many historians have assumed that Oxford and Cambridge (as well as the Scottish and provincial English universities to a lesser extent) promoted the idea of empire (Symonds, 1991). They are likewise often perceived to have been enthusiastic supporters of nationalist identities over the course of the nineteenth century (Anderson, 2004, p. 149; Anderson, 2006, p. 47).

As a consequence of this tendency, relatively few historians have questioned the assumption that a majority of university scholars would be in favor of empire and identify with the imperial project (notable exceptions are Stuchtey, 1999, pp. 149–171; Symonds, 1991, pp. 80–98). Indeed, Joseph Hodge (2007, p. xxi) refers to the widespread view that by the late nineteenth century, science and technology came to be seen as “indispensable ‘tools of empire’.” In recent years, historians have become increasingly interested in exploring the limitations and constraints of Western imperial power, and, in particular, the conflicted and often contradictory role of science and scientific scholars within it. Thus, Hodge’s (2007) study, *Triumph of the Expert*, for example, emphasizes science’s role in revealing the “enigmatic and fractured nature of Western imperialism” and the “tensions and conflicts within colonial policy and the colonial state.” (Hodge, 2007, p. xx). In a similar way, Helen Tilley’s work on Britain’s Empire in Africa, in particular, the African Survey of 1929–1938, highlights the important role of scientists in developing critiques of imperial policy (Tilley, 2011).

What will be introduced here in this chapter is a distinction between imperial networks and the space of Empire, on the one hand, and the meanings and identities associated with them, on the other. Conceiving of the Empire purely in spatial terms (as David Lambert and Alan Lester [2006] have done in their study of imperial “careering” in the long nineteenth century) decouples it from an automatic association with imperial sentiment and allows the possibility that many different motivations drove those individuals who traveled within its borders and made use of its networks. Lambert and Lester highlight “the complexity, varied scale, constitutions and compositions of personal imperial spaces and networks” (Butlin, 2009, p. 5). If this can be said of those who were directly connected with imperial institutions such as the colonial civil service, then how much more must it apply to scholars working for universities connected only indirectly with the imperial project?

Another advantage of conceptualizing the Empire in spatial terms, rather than simply as idea or ideology, is that it encourages us to treat it in a comparative light, alongside other spatial frames of reference such as the local, the regional, the national, and the global, which also helped to shape people’s experiences and identi-

ties at the time. As Frederick Cooper (2005) has written, “the spatial imagination of intellectuals . . . from the early nineteenth century to the mid-twentieth century was . . . varied. It was neither global nor local, but was built out of specific lines of connection and posited regional, continental and transnational affinities” (p. 109). In other words, the challenge is to ask how important (relative to other spatial frames) the Empire was to those who traversed its networks, and under what specific conditions it emerged as especially relevant. Here, we should heed the call of Robin Butlin (2009) to pay more attention to “the dynamics and spatial scales of cultural circuits” (p. 41) in the nineteenth and early twentieth centuries.

Motivations Driving Scholarly Networking Within the British Empire

In the next section I consider the variety of motivations that drove scholars attached to universities in Britain to travel across the Empire and engage in a range of collaborative projects with colleagues working in the colonies. There is no doubt that a desire to deepen imperial ties and promote imperial unity lay behind the actions of certain scholars. One well-known example would be Sir Bartle Edward Frere, who rose through the ranks of the Indian Civil Service to become Governor of Bombay in 1862. As well as his career in the Indian Civil Service, he was active in linguistic, geographical, and historical scholarship of the peoples of India and held a number of academic appointments, most importantly as chancellor of the University of Bombay, also from 1862. In addition, he was elected president of the Royal Asiatic Society on three occasions, a fellow of the Royal Society and president of the Royal Geographical Society (RGS) in 1873–1874. For Frere, geographical study of the Empire was inseparable from a desire to promote the imperial project and, in his own words, replenish “the vital springs of national life” (Benyon, 2004).

However, by no means all scholars shared this view. It is possible to find many academics who traveled widely in the British Empire and collaborated with a range of colleagues at colonial universities, for whom the Empire itself and the furtherance of its interests were not of prime importance. Such individuals have not, however, received the attention they deserve. Historians continue to argue that in many cases science and scientific interests have been used as an excuse to conceal rampant imperial ambitions. Marxist historians like Brian Hudson (1977) have, for example, interpreted the relationship between the *new scientific geography* and the *new imperialism* in the 1880s and 1890s in this light. There are certainly instances in the late nineteenth and early twentieth centuries where this was undoubtedly the case. The most famous example is probably the so-called Geographical Conference organized by King Leopold II of Belgium at Brussels in 1876. Superficially, it was supposed to consider the humanitarian needs of the populace of central Africa and ways of advancing scientific research and was attended by scholars from an impressive range of countries including Belgium, Britain, France, Germany, Italy, Russia, and Austria-Hungary. Initial discussions considered the possibility of establishing

collaborative scientific stations and founding an “International African Association.” However, the work of the conference soon came to an end when it became clear that the main motivation behind the initiative had been Leopold’s imperial ambitions in the Congo (Wesseling, 1996). As Wesseling (1996) has written, “very few were fooled by the word ‘international’” (p. 89).

In recent years, however, scholars have become more sensitive to the multiple motivations driving those actors moving within the sphere of empire. Key to this, as Helen Tilley has pointed out, is recognizing empire as one of a number of overlapping and interlocking spaces through and in which individuals traveled, which should not be reduced in importance or overlooked in discussions of the national-international dichotomy that continues to dominate the historiography (Tilley, 2011, p. 9). In particular, there have been calls for a more nuanced understanding of the figure of the explorer, who has often been viewed as a *tool* of empire. As Felix Driver (2001) has argued, “the idea of exploration was freighted with multiple and contested meanings, associated variously with science, literature, religion, commerce and empire” (p. 2). In his work on the imperial fashioning of Vancouver Island, Daniel Clayton (2000, pp. 8–9) has likewise identified a variety of motivations driving explorers, including humanitarian sentiments and a scientific and philosophical agenda.

When examining the lives and trajectories of individual scholars, the relative importance of imperial identity and the imperial project vis-à-vis the interests of their particular discipline must of course be thought of in terms of a sliding scale. For many such scholars, the relationship must be visualized in terms of a partnership, with the interests both of the individual disciplines and of the Empire being served. Representative here might be the career of Roderick Impey Murchison; a military man by training, he nonetheless went on to serve as director-general of the Geological Survey from 1855 and president of the Royal Geographical Society from 1843 until 1871. Personally, he was an imperialist who wanted to deepen imperial ties; however, at the same time, his involvement with the Geological Survey saw university-trained geologists sent out to nearly every colony of the Empire, an endeavor that in turn produced an unprecedentedly detailed picture of colonial geology. Indeed, T. G. Bonney has written of “the mutually beneficial bargain . . . struck by Murchison” in which “science helped take an inventory of, develop, and justify the empire, while the empire offered science access to invaluable overseas data” (Bonney, 2004, para 8.)

It may be possible to place the figure of Halford Mackinder in this category also. Traditionally, scholars have tended to interpret the career of the first reader in geography at the University of Oxford and father of the *new geography* as a classic example of an academic serving the interests of empire (Kearns, 1997; Ryan, 1994). Mackinder, however, denied this late in life, declaring that the interests of geography as a science had always been uppermost in his mind. At the very least, equal weight ought to be given to his academic interests in assessing his career. “In truth,” Brian W. Blouet (2004) has written, “his political and geographic aims were inseparable; he wanted to create a new scientific geography which could be pressed into the service of imperialism” (para. 23).

There were other scholars such as John Holland Rose, appointed reader in modern history at the University of Cambridge in 1911, who, although interested in and enthusiastic about the Empire, pursued work in a wide range of research areas. Thus, on the one hand, Rose joined together with A. P. Newton and E. A. Benians to edit successive volumes of the *Cambridge History of the British Empire* (1925–1936) and founded the Rose Studentship for Imperial History in 1932; however, in the main, his research focused on the history of continental Europe from 1780 to the present day, with a particular interest in the life and career of Napoleon. Like many of his contemporaries, Rose had huge respect for the achievements of German historians and worked hard to promote friendship and collaboration between the scholarly communities in Germany and Britain on the eve of World War I. In addition to winning a high reputation within Britain and the Empire, he received honorary degrees from extra-imperial universities in America and Poland (Otte, 2004).

There were, however, many scholars who made use of imperial networks in the late nineteenth century with little or no concern for the imperial project. A good early example of such a career is that of the astronomer, Sir John Herschel. Educated at Cambridge and elected to a fellowship at St John's College in 1813, Herschel engaged in a wide range of collaborations with scholars in the Empire in order to further his astronomical research. Thus, in 1833 he traveled to the Cape of Good Hope so that he could view from the southern heavens stars he had already observed in England. In this task, he was to work closely with the London-trained doctor, Thomas Maclear, who had been appointed director of Britain's Royal Observatory at the Cape. He was likewise assisted by the Australian-born astronomer James Dunlop and his catalogue of nebulae he had observed from Parramatta in New South Wales. During his stay at the Cape, Herschel served as president of the South African Literary Association and Scientific Institution and corresponded from there with several leading British scientists, in particular Charles Lyell, professor of Geology at King's College, London. Herschel's research enjoyed worldwide renown, several of his works being translated into Chinese and Japanese (Crowe, 2004).

Many other similar cases could be mentioned such as the entomologist, William Sharp Macleay, educated at Trinity College, Cambridge. In terms of his academic contacts, he was deeply embedded in the world of continental European science, corresponding at length with German and French natural philosophers on various topics of physiological entomology. He was likewise in regular contact with American entomologists and was elected a corresponding member of the Academy of Natural Sciences at Philadelphia. However, at the same time, he made extensive use of British imperial networks to pursue his scientific researches. One of his most successful studies, *Annulosa Javanica* (which was published in 1825) comprised a systematic description of insects collected in Java between 1812 and 1817 by Thomas Horsfield under the auspices of the East India Company and Sir Stamford Raffles. Once again, in 1838, he published illustrations of various insects collected in South Africa between 1834 and 1836 during an expedition under the direction of Andrew Smith that had been funded by the Cape of Good Hope Association for Exploring Central Africa (Boulger, 2004).

Those working within the emerging disciplines of archaeology and anthropology were particularly astute at using the networks provided by the British Empire to further the interests of their own studies. Take, for example, John Garstang, honorary reader in Egyptian archaeology at the University of Liverpool from 1902. Educated at Jesus College, Oxford, Garstang made the acquaintance of the Egyptologist, Flinders Petrie, and joined his excavations at Abydos in Egypt. Although Garstang was to spend several years working in Egypt, he did not confine himself to the boundaries of the British Empire, going on to dig in areas such as Jerusalem and Palestine. Likewise, in his scholarly contacts, he did not restrict himself to the British academic world, but corresponded regularly with continental scholars, particularly in France, and was even presented with the Legion d'Honneur in 1920 (Gurney, 2004).

Such weaving in and out of the space of Empire was far from uncommon. The anthropologist and anatomist, Elliot Smith, who was born in New South Wales and educated at the University of Sydney, made extensive use of imperial networks in the course of his career. After coming to England in 1896 on a James King traveling scholarship, he continued his research at St John's College, Cambridge, under the anatomist, Alexander Macalister, publishing some eight papers on cerebral morphology between 1896 and 1897. In 1901, he acted as consultant to the University of California's Hearst Egyptological expedition and in 1907 carried out an archaeological survey of Nubia together with Sir Gaston Maspero, George Andrew Reisner, and Frederic Wood Jones. However, later in his career, after being appointed to the chair of Anatomy at University College, London, he also became involved with anthropological fieldwork outside the Empire, in particular, Davidson Black's paleontological Chinese research, which yielded the famous "Peking skull" and other human fossils. Smith's own work also gained him fame outside the confines of British academia; in 1911, he was awarded the Prix Fauvel by the Anthropological Society of Paris (Richards, 2004).

The Empire was thus one of many spheres in which British scholars were active in this period. Moreover, it was not simply British scholars who were drawn to the various parts of the Empire for purposes of scientific research. Egypt, India, Australia, and many other locations attracted scholars from all over the world and, in this sense, the British Empire must be conceptualized as a truly international space of research. To take just one example, the Orientalist, Henry Ferdinand Blochmann, having studied Persian and Arabic under H. L. Fleischer at Leipzig and Haase at Paris, joined the British army in 1858 with the expressed intention of traveling to India to pursue his study of Eastern languages. There he collaborated with the British-born Arabic scholar, William Nassau Lees, and through him was appointed assistant professor of Arabic and Persian at the Calcutta Madrasa in 1861. In 1862, he became pro-rector of Doveton College, Calcutta, and went on to carry out archaeological tours in India and British Burma (Beveridge, 2004).

Nor were individual disciplines themselves bound by the borders of Empire. We have seen how individual scholars moved in and out of the imperial space in pursuit of particular scientific interests. Similarly, the Royal Geographical Society awarded

medals in the late 1880s not only to British and colonial scholars but also to European explorers of Africa, including the Germans, Georg Schweinfurth and Gustav Nachtigal. Continental scholars, from France, Germany, and Holland, in particular, gave papers to the Society and members of the RGS regularly corresponded and exchanged papers with their counterparts abroad (Butlin, 2009, pp. 268, 280). In 1877, the RGS's Expeditions Committee announced that it wanted to advance geographical science "to the exclusion of any dealings with territorial and commercial undertakings" (Bridges, 1973, pp. 222–223). As D. R. Stoddart (1980, p. 197) has shown, the final years of the nineteenth century were certainly a time when growing numbers of purely theoretical papers were appearing in the Society's journals. The role played by the RGS was clearly not that of a straightforward "tool of empire." Michael Heffernan (1994) was right to challenge the long-standing view that "European geography was European imperialism, albeit dressed up in a slightly more academic and scholarly guise" (pp. 93–94).

An International Republic of Letters

Belonging to a different group again are those scholars who not only engaged with imperial networks primarily in the pursuit of academic interests, but who made a positive virtue of their willingness to travel all over the world for the sake of their discipline. Indeed, many academics saw themselves as participating in an international *republic of letters* of which the British Empire was only one part. "International relationships in university study," declared the educationalist Michael Sadler in his introduction to the 1906 translation of Friedrich Paulsen's work on the German universities, "are closer today than at any previous time since the beginning of the sixteenth century" (Paulsen, 1906, p. vii). Traditionally, the nineteenth century has been seen by historians as the era of nationalism and imperialism; however, in recent scholarship, it has been increasingly recast as a period of growing globalization. This argument gains strength from the fact that many commentators at the time remarked on the growing interconnectedness of the various parts of the world, particularly in the field of scholarship. As Benedict Stuchtey and Peter Wende (2000) have argued in their study of British and German historiography between 1750 and 1950:

[T]he great European *res publica litteraria* still existed, that international community which, in the Middle Ages, had been attached to the church of Christ, and which, since the Renaissance and especially during the Enlightenment, had become a transnational congregation of men of letters. Out of this tradition, still vigorous in [the] nineteenth-century, grew numerous contacts, mutual perceptions, and transfers which contributed to the formation of modern university education in the age of nationalism. (p. 3)

Writing in the *Contemporary Review* in 1886, the German scholar and professor of Comparative Philology at Oxford, Friedrich Max Müller, remarked upon the

continuing vitality of what he described as a “universal republic of letters” encompassing not only Europe but the entire globe:

The whole world seems writing, reading, and talking together ... Newton’s “Principia” are studied in Chinese, and the more modern works of Herschell, Lyell, Darwin, Tyndall, Huxley [and] Lockyer, have created in the far East the same commotion as in Europe. Even books like my own, which stir up no passions, and can appeal to the narrow circle of scholars only, have been sent to me, translated not only into the principal languages of Europe, but into Bengali, Mahratti, Guzerathi, Japanese—nay, even into Sanskrit. (Müller, 1886, p. 790)

Moreover, he described eloquently how such an ideal could coexist happily with a hearty love of nation and empire. It does not “follow,” he wrote,

that because our Imperial patriotism is keen, our hearts are incapable of larger sympathies ... We want patriotism, just as we want municipal spirit, nay even clannishness and family pride. But all these are steps leading higher and higher till we can repeat with some of the greatest men the words of Terence, “I count nothing strange to me that is human.” (Müller, 1886, pp. 789–790)

There were indeed scholars whose careers became emblematic of this revitalized *republic of letters* whose extent was not contiguous with national or imperial boundaries.¹ Such, for example, was Thomas Henry Huxley. Having studied medicine at the University of London, he traveled on numerous expeditions both within and outside the British Empire as a scientific assistant surgeon. Among other places, he visited Sydney, South New Guinea, New Zealand, Cape Town, and Rio de Janeiro. In every place, he took an active part in local intellectual life. Later in his career, he was appointed Fullerian Professor of Physiology at the Royal Institution in London and was elected president of the Ethnological and Geological Societies. He also established a regular correspondence with leading continental scholars such as Ernst Haeckel, for whom he wrote the introduction to the 1879 English translation of his work, *Freedom in Science and Teaching*. He was likewise at the forefront of the Transatlantic Science Movement and served on the committee of E. L. Youmans’s *International Science Series*. In 1876, he visited America and collaborated with colleagues at Yale, Harvard, and Johns Hopkins University. He was even offered a professorship at Harvard (Desmond, 2004).

Huxley’s cosmopolitan career was also in step with broader trends among the British scientific community as a whole. In the late nineteenth century British scholars increasingly sought to establish international organizations and conferences related to their particular disciplines. Thus, Sir Archibald Geikie, appointed professor of geology at Edinburgh in 1871, was not just president of the British Geological Association but was also active in setting up the first international geological congresses (Oldroyd, 2004). Likewise, Sir John Keltie, Secretary to the Royal

¹ In contrast to this, however, it should be noted that Taylor, Hoyler, and Evans (2008) highlight the importance of regional scientific networks over the course of the eighteenth century, often centered on the use of a shared language. This development points to the decline of Latin as the common language of academia and the rise of vernacular scholarship.

Geographical Society, was instrumental in organizing the sixth International Geographical Congress held in London in 1895 (Baigent, 2004).

Even the organization that sounds from its name as though it would be particularly national, perhaps imperial, in focus—the British Association for the Advancement of Science (BAAS)—was becoming considerably more cosmopolitan in the final years of the nineteenth century. When the Association met for the first time outside the British Isles—namely in Montreal in 1884—it was not national or imperial identity that took center stage in the discussions but rather the priorities of the various scientific disciplines represented there. In welcoming the delegates, who, significantly, included prominent continental and American scholars, the Canadian prime minister, John A. Macdonald, addressed his audience in the following terms:

I really do not know in what capacity I am called upon to address this audience, whether as a scientist or as a Canadian or as a member of the government. I cannot well say—I will say, however—I come here as a scientist. (Rayleigh, 2008, p. 35)

Likewise, Jean-Louis Beaudry, the mayor of Montreal, stressed in his address that “the student of almost every branch of science must find something worth learning” (p. 33) at the meeting. A similar impression is gained from the reports of the proceedings published in periodicals at the time. One report, which appeared in the *Contemporary Review* and was written by a Canadian delegate, G. M. Grant, addressed the delegates as representatives of their respective disciplines and pointed out the particular characteristics of the countryside around Montreal that might be of interest to them as scientists. Speaking of the range of cliffs known as The South Joggins, delegates were told: “The whole ground is classic to geological science; and it would be as unpardonable in a geologist to omit a visit to the South Joggins as for an Egyptologist to go to Cairo without seeing the Pyramids” (Grant, 1884, p. 237). The cosmopolitan attitude of the Association is also clear from the fact that it had deliberately scheduled its meeting in Montreal so that its members could also visit the meeting of the American Association for the Advancement of Science, which was being held in Philadelphia a week later (p. 246). A similar sense of the international perspective of the BAAS is gained from looking at the causes it agreed to fund at the 1884 meeting. Along with the predictable grants to scientific projects within the British Isles and the Empire, it was agreed to provide funding to investigate the “volcanic phenomena of Vesuvius” and “earthquake phenomena of Japan” (British Association for the Advancement of Science, 1885, p. lxxvi).

Critiques of Imperialism

Whereas cosmopolitan scholars like Huxley confined themselves to promoting what may be termed the gospel of scientific internationalism, some of their disciples went on to develop nuanced critiques of imperialism while still making extensive use of the networks of empire. This included even those scientists employed directly by

the colonial state (Hodge, 2007; Tilley, 2011). In her 2011 study, *Africa as a Living Laboratory*, Helen Tilley has stressed the need for historians to deliberately foreground “a dimension of the interactions among power, political economy, and knowledge production that has as yet received little scholarly attention: the subversive relationship that could exist between science and empire” and the “processes of knowledge production subversive of the status quo” that could emerge from that relationship (p. 24). Indeed, it is noteworthy how many of those scholars who developed critiques of imperialism were working either directly for the colonial services or in disciplines directly related to the growth of the Empire and with most experience of traveling within its boundaries. Geographers were particularly important in this regard. A useful early example would be Alexander von Humboldt. Traveling widely in Latin America in the early years of the nineteenth century, he became very critical of systems of colonial rule. On the other hand, he was quite happy to make use of the networks of the British Empire for scientific purposes. In April 1836, for example, he wrote a letter to the Duke of Sussex, then president of the Royal Society, asking for access to British territories in order to set up a line of magnetic and meteorological stations (Rupke, 2008). Similarly, Helen Tilley (2011) has singled out anthropologists as being among “the most outspoken critics of colonialism’s imperfections and inadequacies” (p. 30). This is a point confirmed by George Stocking in his study, *Victorian Anthropology*, where he highlights the number of anthropologists working within the British Empire who took on “the role of defender . . . and explicator” of indigenous ways of life and modes of thought (Stocking, 1987, p. 273).

Among other prominent critics of empire who were active at the heart of the British academic establishment were members of a network of geographers who were also founders of the international anarchist movement, in particular, Peter Kropotkin and Élisée Reclus. Both Kropotkin and Reclus were welcomed into the Royal Geographical Society, and invited to publish in leading British journals such as the *Contemporary Review*. This was despite their clear condemnation of the imperial project (Ferretti, 2011). Among others, Kropotkin and Reclus collaborated closely with the social evolutionist and town planner, Patrick Geddes. Geddes had been one of Huxley’s pupils at the School of Mines in London and had gone on to study natural sciences at the Sorbonne under Huxley’s friend, Henri de Lacaze-Duthiers. A complex character, holding chairs at the Universities of Dundee and Bombay, Geddes not only imbibed Huxley’s cosmopolitanism; he also pioneered the concept of regionalism as an alternative to national and imperial identity (Meller, 2004). In 1903, together with his friend and fellow sociologist, Victor Branford, Geddes founded the Sociological Society in London, which was used, in the words of John Scott (2007), as a “vehicle” for Geddes’s ideas, in particular the concept of regionalism. Branford, moreover, actively sought to promote regionalism internationally, corresponding with such eminent figures as Emile Durkheim, Marcel Mauss, and Ferdinand Tönnies. In 1913 Geddes founded the International Regional

Survey Association and during World War I preached the importance of regionalism as an antidote to conflict. War, he argued, had been the outcome of the machinations of national and imperial governments based in capital cities; regional centers, on the other hand, were dedicated to the peaceful exchange of goods and ideas. Together with Branford, he published a series of volumes under the title, *The Making of the Future*, which set out his vision for a future society based on regional identity (Meller, 2004).

Other scholars and scientists who developed detailed critiques of the British Empire based on their own experiences of working within its boundaries specialized in the study of tropical disease. Such, for example, was Andrew Davidson, a former superintending surgeon in Mauritius, who was appointed as the first lecturer in tropical diseases at the University of Edinburgh. In his *Geographical Pathology* (1892), Davidson warned against further imperial expansion primarily on health grounds. Much of India, he concluded, had a pathology inimical to Europeans and continued emigration of Britons to this and other parts of the Empire would only further the physical degeneration of the race. H. Martyn Clark, a medical doctor, trained at Edinburgh and working in Amritsar, launched a similar critique of Britain's westernizing policy in India on the grounds of its dangerous side effects for health. In a paper presented to the Royal Scottish Geographical Society in 1893, he condemned, in particular, what he described as this

mania for widening and improving streets, for introducing costly schemes of drainage and water-supply and for approximating Indian towns to the Western ideal . . . In the East everything Eastern is not of necessity bad, nor is a thing that is good in the West always suitable in the East . . . to supplant old habits by others, acquired under totally different conditions of life—natural[,] social, climatic—is not for the benefit of the people. By removing protecting walls and deflecting angles, we do but lay the city more open to the enemy. (Clark, 1893, p. 290)

The Society, which was based in Edinburgh and enjoyed close links with the university's medical community, provided a forum for many a critical discussion of empire in the period following its foundation in 1884 (Bell, 1995). In a lecture given to the Society in 1897, G. W. Prothero, professor of modern history at Edinburgh, gave a gloomy forecast for the future of the Empire, whose greatest problem, he argued, was an inability to function effectively across such a great expanse of territory (Prothero, 1897). Another speaker, the Edinburgh-trained medic and lecturer in tropical diseases and climatology, Robert W. Felkin, made the provocative suggestion that the British should take a much greater account of native customs in its government of India. This was particularly so in the case of health policy, he argued, where national self-conceit should play no role. "Every medical man owed a duty to science," he declared, "to observe with critical, but at the same time with no unfriendly or sarcastic eye, the acquired skill and empirical remedies used by uncivilized races" (Felkin, 1886, p. 16).

Conclusion

As stated at the beginning, this chapter is not intended to challenge the notion that British academics and universities became intimately associated and bound up with the discourse of empire and imperialism in the late nineteenth and early twentieth centuries. This is not in doubt. What I have attempted to re-examine, however, is the impact of this association upon the motivations and identities of the scholars themselves. It should not simply be assumed that a more intimate involvement and participation in imperial networks led to an agreement and identification with imperial goals. There was, indeed, a wide range of responses to empire from among British academics. There were certainly a number of scholars for whom the imperial project was an important personal mission whose aims they endeavored to further through their own work. By the same token, however, many others regularly traversed the highways and byways of empire pursuing goals little if at all related to imperialism or the imperial project. Instead, their movements, exchanges, and collaborative partnerships were directed by what they considered to be the peculiar concerns and priorities of their academic subject or research area. While these motives often led scholars to work within the bounds of empire, equally, they made use of extra-imperial networks when needs dictated. In some cases, this led to a positive identification with transnational collaboration, the clear articulation of cosmopolitan attitudes and the development of ideals of scientific internationalism. For other scholars, involvement in imperial networks and intellectual collaboration within the bounds of empire facilitated the emergence of critiques hostile to the imperial project; as we have seen, with a number of British scholars, familiarity with and participation in imperial networks seems to have bred contempt for the aims of empire rather than loyalty to its cause.

References

- Anderson, J. W. (1992). Poetics and Politics in ethnographic texts: A view from the colonial ethnography of Afghanistan. In R. H. Brown (Ed.), *Writing the social text: Poetics and politics of social science discourse* (pp. 91–116). New York: Walter de Gruyter.
- Anderson, R. D. (2004). *European universities from the enlightenment to 1914*. Oxford: Oxford University Press.
- Anderson, R. D. (2006). *British universities: Past and present*. London: Hambledon Continuum.
- Baigent, E. (2004). Keltie, Sir John Scott (1840–1927). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/34269>
- Bell, M. (1995). Edinburgh and empire: Geographical science and citizenship for a 'new' age, ca. 1900. *Scottish Geographical Journal*, 111, 139–149. doi:10.1080/00369229518736956
- Benyon, J. A. (2004). Frere, Sir (Henry) Bartle Edward, first baronet (1815–1884), colonial governor. *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/10171>
- Beveridge, H. (2004). Blochmann, Henry Ferdinand (1838–1878) (rev. by P. Loloi). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/2659>

- Blouet, B. W. (2004). Mackinder, Sir Halford John (1861–1947). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/34760>
- Bonney, T. G. (2004). Murchison, Sir Roderick Impey, baronet (1792–1871) (rev. by R. A. Stafford). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/19555>
- Boulger, G. S. (2004). Macleay, Alexander (1767–1848) (rev. by B. H. Fletcher). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/17655>
- Bridge, C., & Fedorowich, K. (Eds.). (2003). *The British world: Diaspora, culture, and identity*. London: Frank Cass.
- Bridges, R. C. (1973). Europeans and East Africans in the age of exploration. *The Geographical Journal*, 139, 220–232.
- British Association for the Advancement of Science (BAAS). (1885) Report of the 1884 BAAS meeting at Montreal. <http://dx.doi.org/10.5962/bhl.title.38241>
- Brown, R. H. (1993). Cultural representation and ideological domination. *Social Forces*, 71, 657–676. doi:10.1093/sf/71.3.657
- Butlin, R. A. (2009). *Geographies of empire: European empires and colonies c. 1880–1960*. Cambridge, UK: Cambridge University Press.
- Clark, H. M. (1893). Remarks on malaria and acclimatisation. *Scottish Geographical Magazine*, 9, 281–302. doi:10.1080/00369229308732633
- Clayton, D. W. (2000). *Islands of truth: The imperial fashioning of Vancouver Island*. Vancouver: University of British Columbia Press.
- Cooper, F. (2005). *Colonialism in question: Theory, knowledge, history*. Berkeley: University of California Press.
- Craig, J. E. (1984). *Scholarship and nation building: The universities of Strasbourg and Alsatian society, 1870–1939*. Chicago: University of Chicago Press.
- Crowe, M. J. (2004). Herschel, Sir John Frederick William, first baronet (1792–1871), mathematician and astronomer. *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/13101>
- Davidson, A. (1892). *Geographical pathology: An inquiry into the geographical distribution of infective and climatic diseases*. Edinburgh: Y. J. Pentland.
- Desmond, A. (2004). Huxley, Thomas Henry (1825–1895). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/14320>
- Driver, F. (2001). *Geography militant: Cultures of exploration and empire*. Oxford: Blackwell Publishers.
- Felkin, R. W. (1886). *Introductory address to a course of lectures on diseases of the tropics and climatology*. Edinburgh: Oliver and Boyd.
- Ferretti, F. (2011). The correspondence between Élisée Reclus and Pëtr Kropotkin as a source for the history of geography. *Journal of Historical Geography*, 37, 216–222. doi:10.1016/j.jhg.2010.10.001
- Feuchtwang, S. (1973). The colonial formation of British social anthropology. In T. Asad (Ed.), *Anthropology and the colonial encounter* (pp. 71–100). London: Ithaca Press.
- Francis, M. (1994). Anthropology and social Darwinism in the British Empire: 1870–1900 [Issue supplement s1]. *Australian Journal of Politics & History*, 40, 203–215. doi:10.1111/j.1467-8497.1994.tb00881.x
- Grant, G. M. (1884). The British Association at Montreal. *Contemporary Review*, 46, 235–251.
- Gurney, O. R. (2004). Garstang, John (1876–1956) (rev. P. W. M. Freeman). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/33341>
- Heffernan, M. J. (1994). The science of empire: The French geographical movement and the forms of French imperialism, 1870–1920. In A. Godlewska & N. Smith (Eds.), *Geography and empire* (pp. 92–114). Oxford: Blackwell.
- Hodge, J. M. (2007). *The triumph of the expert: Agrarian doctrines of development and the legacies of British colonialism*. Athens: University of Ohio Press.

- Hudson, B. (1977). The new geography and the new imperialism, 1870–1918. *Antipode*, 9, 12–19. doi:[10.1111/j.1467-8330.1977.tb00707.x](https://doi.org/10.1111/j.1467-8330.1977.tb00707.x)
- Jarausch, K. H. (1983). Higher education and social change: Some comparative perspectives. In K. H. Jarausch (Ed.), *The transformation of higher learning, 1860–1930: Expansion, diversification, social opening, and professionalization in England, Germany, Russia, and the United States* (pp. 9–36). Chicago: University of Chicago Press.
- Jöns, H. (2008). Academic travel from Cambridge University and the formation of centres of knowledge, 1885–1954. *Journal of Historical Geography*, 34, 338–362. doi:[10.1016/j.jhg.2007.11.006](https://doi.org/10.1016/j.jhg.2007.11.006)
- Kearns, G. (1997). The imperial subject: Geography and travel in the work of Mary Kingsley and Halford Mackinder. *Transactions of the Institute of British Geographers*, 22, 450–472. doi:[10.1111/j.0020-2754.1997.00450.x](https://doi.org/10.1111/j.0020-2754.1997.00450.x)
- Kuklick, H., & Jones, R. A. (1978). The sins of the fathers: British anthropology and African colonial administration. In R. A. Jones (Ed.), *Research in Sociology of Knowledge: Sciences and Art, Vol. 1* (pp. 93–119). Greenwich, CT: JAI Press.
- Lambert, D., & Lester, A. (Eds.). (2006). *Colonial lives across the British Empire: Imperial careering in the long nineteenth century*. Cambridge, UK: Cambridge University Press.
- Meller, H. (2004). Geddes, Sir Patrick (1854–1932). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/33361>
- Morrison, C. (1984). Three systems of imperial ethnography: British official as anthropologist in India. In H. Kuklick & E. Long (Eds.), *Knowledge and society: Studies in the sociology of culture past and present* (Vol. 5, pp. 141–169). Greenwich, CT: JAI Press.
- Müller, F. M. (1886). Goethe and Carlyle. *Contemporary Review*, 49, 772–793.
- Oldroyd, D. (2004). Geikie, Sir Archibald (1835–1924). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/33364>
- Otte, T. G. (2004). Rose, John Holland (1855–1942). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/35829>
- Paulsen, F. (1906). *The German universities and university study*. New York: C. Scriber's Sons.
- Pietsch, T. (2010). Wandering scholars? Academic mobility and the British world, 1850–1940. *Journal of Historical Geography*, 36, 377–387. doi:[10.1016/j.jhg.2010.03.002](https://doi.org/10.1016/j.jhg.2010.03.002)
- Pietsch, T. (2011). Many Rhodes: Travelling scholarships and imperial citizenship in the British academic world, 1880–1940. *History of Education*, 40, 723–739. doi:[10.1080/0046760X.2011.594096](https://doi.org/10.1080/0046760X.2011.594096)
- Prothero, G. W. (1897). The unity of the empire: The British colonial empire. *Scottish Geographical Magazine*, 13, 308–315. doi:[10.1080/14702549708555007](https://doi.org/10.1080/14702549708555007)
- Rayleigh, C. (2008). *The British Association's visit to Montreal, 1884: Letters*. San Diego: Icon Group International.
- Richards, G. (2004). Smith, Sir Grafton Elliot (1871–1937). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/36143>
- Rupke, N. A. (2008). *Alexander von Humboldt: A metabiography*. Chicago: Chicago University Press.
- Ryan, J. (1994). Visualizing imperial geography: Halford Mackinder and the colonial office visual instruction committee, 1902–11. *Cultural Geographies*, 1, 157–176. doi:[10.1177/147447409400100203](https://doi.org/10.1177/147447409400100203)
- Scott, J. (2007). Branford, Victor Verasis (1863–1930). *Oxford dictionary of national biography*. Oxford: Oxford University Press. <http://dx.doi.org/10.1093/ref:odnb/97274>
- Stocking, G. (1987). *Victorian anthropology*. New York: Free Press.
- Stoddart, D. R. (1980). The RGS and the 'new geography': Changing aims and changing roles in nineteenth century science. *The Geographical Journal*, 146, 190–202. doi:[10.2307/632860](https://doi.org/10.2307/632860)
- Stuchey, B. (1999). The international of critics: German and British scholars during the South African war (1899–1902). *South African Historical Journal*, 41, 149–171. doi:[10.1080/02582479908671889](https://doi.org/10.1080/02582479908671889)

- Stuchtey, B., & Wende, P. (Eds.). (2000). *British and German historiography, 1750–1950: Traditions, perceptions, and transfers*. Oxford: Oxford University Press.
- Symonds, R. (1991). *Oxford and empire: The last lost cause?* Oxford: Oxford University Press.
- Taylor, P. J., Hoyler, M., & Evans, D. M. (2008). A geohistorical study of “the rise of modern science”: Mapping scientific practice through urban networks, 1500–1900. *Minerva*, 46, 391–410. doi:[10.1007/s11024-008-9109-8](https://doi.org/10.1007/s11024-008-9109-8)
- Tilley, H. (2011). *Africa as a living laboratory: empire, development and the problem of scientific knowledge*. Chicago: Chicago University Press.
- Välilmaa, J. (2004). Nationalization, localization and globalization in Finnish higher education. *Higher Education*, 48, 27–54. doi:[10.1023/B:HIGH.0000033769.69765.4a](https://doi.org/10.1023/B:HIGH.0000033769.69765.4a)
- Wesseling, H. L. (1996). *Divide and rule: The partition of Africa, 1880–1914*. London: Praeger.

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Chapter 9

Geographies of Selection: Academic Appointments in the British Academic World, 1850–1939

Tamson Pietsch

The middle decades of the nineteenth century were a period that witnessed the establishment and expansion of universities throughout the British Empire. While in 1880 the number of universities in England, Scotland, and Ireland was just 11, by that date there were already 26 degree-granting institutions located in the British colonies (Pietsch, 2013, pp. 202–209). Most of these were located in the “settler colonies” of British North America, Australia, New Zealand, and South Africa, where they had been founded by self-confident colonial elites, who—although they looked to Britain—saw these institutions as symbols of the maturity of colonial societies and independent and autochthonous members within a wider British community. These “settler” universities therefore differed to those established in other parts of the “dependent” empire—in India and South East Asia and later in Africa—where educational institutions were established by British officials and were more explicitly associated with the imposition of foreign rule, language, and culture.

In their early years these settler universities offered a classical and liberal (and often religious) education that was designed to cultivate both the morals and the minds of the young men who would lead the economically successful colonial societies of the mid-nineteenth century. But by the 1870s these educational institutions were coming under increasing pressure to demonstrate their relevance to the socially diverse and rapidly expanding communities in which they were located, and their connection to the new forms of scientific and technical knowledge that was changing life for so many people. They responded to these demands in two ways. First, they expanded their local educational franchise, opening their curricula to include science, law, medicine, and engineering, and admitting women; and second, they

This chapter was first published in T. Pietsch, *Empire of scholars: Universities, networks and the British academic world, 1850–1939* (Manchester University Press, 2013), pp. 61–89. Reprinted with permission.

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established new links with international scholarship, investing in libraries and in mechanisms such as traveling scholarships and professorial leave-of-absence programs that were designed to carry their students and staff abroad.

But if importing books and facilitating scholarly mobility were some of the ways in which settler universities strove to reposition themselves, then attracting professors was another. “[I]t all depends on the man,” declared Sir William Ramsay, professor of chemistry at University College, London, at the Allied Colonial Universities Conference in 1903; “[i]f we had ... [great] men the students would come” (Official Report, 1904, p. 112). But in their efforts to recruit “great men,” settler universities faced a number of difficulties. First, there was the problem of distance: How were colonial institutions to conduct the business of recruitment from afar? Second, there was the problem of selection itself. How should the merits of a potential candidate be assessed? For settler universities these two problems were intimately linked. The question of who could be trusted became especially important in the context of changing measures of expertise.

In the context of the British sphere, the academic appointment process has been neglected by imperial and educational historians alike. Institutional histories, memoirs, and biographies invariably speak of academic appointments in the passive voice, but behind such phrases lay a power-laden, historically contingent, and largely unexamined world of access and exclusion that had a significant influence on the workings of British and imperial academia. Relying heavily on personal systems of trust, the appointment practices of settler universities worked to extend the networks of British scholarship beyond the British Isles, creating an expansive but uneven and exclusive terrain that mapped the borders and shaped the contours of what we might think of as the “British academic world.”

Selection Practices

Steven Shapin (1994) has argued that the “recognition of trustworthy persons is a necessary component in building and maintaining systems of knowledge, while [the] bases of that trustworthiness are historically and contextually variable” (p. xxv). In the seventeenth and eighteenth centuries, gentlemanly codes of civility were fundamental to the constitution of scientific truth in Britain. But according to Niklas Luhmann (1988, p. 97) and Anthony Giddens (1991, pp. 29–34), in the nineteenth century this began to change. The complex conditions of modern life meant that trust formerly placed in individuals began instead to be placed in institutions (Collini, 2006, p. 475). As part of this shift, systems that valued merit and expertise increasingly came in Britain—as they had since the eighteenth century in continental universities such as Göttingen—to replace personal patronage as the basis of appointment (Meusburger & Schuch, 2010, p. 82). The introduction of the written examination as a form of assessment in the middle of the century is often considered to have been particularly significant (Hoskin, 1982; Rothblatt, 1968, pp. 182–183; 1997, pp. 148–176; Stray, 2005b). As Phillipa Levine (1986) writes, it meant that

the “criteria by which to judge quality and competence were gradually standardised” (p. 158). Bound up with the process of academic specialization, by the second half of the nineteenth century it was the credentials of universities and professional societies, rather than the word of gentleman amateurs, that served as the guarantors of reliable knowledge.

At the start of the nineteenth century, professorial chairs in British universities had been filled by various forms of political and religious patronage, while college fellowships at Oxford and Cambridge were bestowed at the discretion of governing bodies and restricted to those who met certain regional, religious, and educational qualifications. But in the middle of the nineteenth century this system of patronage came under attack. In the early 1850s the Oxford and Cambridge Royal Commissions abolished closed college fellowships, which instead began to be awarded on the basis of examination performance. Meanwhile, charges of nepotism in the 1830s instituted what might be seen as an analogous process of open competition for professorial appointments. University chairs began to be advertised, and candidates were required to present to the electors (who ranged from the Crown to all the members of a lay council or convocation) public testimonials from a wide range of figures both inside and outside academe. Ambitious to attract the very best candidates, settler universities also used this practice to select their original professors. The pages of *Nature* and *The Athenaeum* contain notifications of vacant chairs in the universities of Toronto and Sydney alongside those of University College, London, and the books of testimonials deposited in the Bodleian Library contain copies of applications to positions in Australia, Ireland, and South Africa bound with those to Edinburgh and Oxford (Testimonials, 1851, 1882).

However, the traditional story of a nineteenth-century transition from patronage to merit only partially explains the changes in academic appointments procedures that took place in this period. Older forms of privileged selection persisted. Not only was the process of presenting testimonials largely a codification of earlier patronage relationships, but it was also one that rested upon elaborate forms of covert canvassing in which candidates would race to solicit the support of the individuals they considered most influential. Under this system the election of a candidate was as dependent upon the various collegiate, religious, political, and personal loyalties he could command as it was upon considerations of expertise or merit (Stray, 2005a, pp. 1–12). In the 1850s, for example, University College, Toronto, placed advertisements in the London papers, and candidates—many of whom had been approached by friends of the university in England—sent their written applications and testimonials to Canada. But the new constitution of 1853 stipulated that all appointments required government approval, and this had a discernible effect upon the selections made. The rejection of the biologist and future president of the Royal Society, Thomas Henry Huxley, in favor of the nearly 60-year-old Reverend William Hincks, professor of natural history in Cork and brother of the provincial premier, stands out only as the most egregious of these interventions (Friedland, 2002, pp. 48–49). Forms of patronage thus remained active in both settler and U.K. institutions into the twentieth century.

The Australian and New Zealand universities presented a further complication. With the journey to Sydney or Melbourne taking 3 months, it was impractical for these universities' foundation councils to receive candidates' written applications and testimonials, as occurred in Canada. The Australian universities solved this problem by vesting their trust in representatives and appointing selection committees that met in London. To serve on such committees these universities wanted two kinds of people. First, they wanted individuals living in Britain who were familiar with colonial conditions, and second, they wanted the advice of what Canterbury College in New Zealand called "commissions of eminent scholars" (Hight & Candy, 1927, p. 24). The membership of Sydney's and Melbourne's first London committees attests to this. Both universities chose John Herschel (the prominent English scientist who in the 1830s had spent time in Cape Town), George Airy (the Astronomer Royal), and Henry Malden (the professor of Greek in London) to represent British science and scholarship, while the former secretary to Governor Fitzroy served as a local voice for Sydney, and Robert Lowe, a member of the New South Wales Legislative Council and Liberal member of parliament (MP) in Britain, spoke for Melbourne. Although Australian university councils wanted the selectors on these London committees to be men distinguished by their scholarship, they were far less concerned about specific expertise: Herschel, Airy, Malden, Fitzroy, and Lowe selected men to fill a range of disciplinary positions. London committees were, however, expected to be able to act as good judges of character; a quality that, as Stefan Collini (1985) has shown, underpinned so many Victorian educational ideals. Melbourne's first chancellor, Sir Redmond Barry, made clear that he wanted the selection committee to find professors who had "such habits and manners as to stamp on their future pupils the character of the loyal, well-bred, English gentleman," while Otago University in New Zealand looked for a man "of irreproachable moral character" (as cited in Selleck, 2003, p. 31). And if Otago expressed a preference for candidates from the Scottish universities, both Australian universities sought first-class candidates from Oxford and Cambridge. Therefore, although they employed the technology of open competition, early Australian and New Zealand universities both delegated their recruitment to men who had scholarly connections in Britain, and emphasized that gentlemanly character should be a criterion for selection.

Assessing Specialized Knowledge

However, in the context of increasing disciplinary specialization and academic professionalization, the principles for what constituted a good professor began to change. As settler universities expanded their curricula to include the professions and the applied (and later social) sciences, a gentlemanly character and a first-class examination performance in the universal liberal curriculum of Oxford or Cambridge were no longer seen as sufficient. Instead, disciplinary knowledge, together with competence in the methods by which it was acquired, became important. The old

public modes of selection and the lay and generalist committees central to them did not lend themselves easily to the assessment of these qualities, and from the 1870s on they came under intense criticism. Although no exponent of twentieth-century research, in 1868 Mark Pattison, the Oxford scholar and rector of Lincoln College, condemned the fellowship examination as “a wholly inadequate test of scientific merit” and called the presentation of testimonials, the “least defensible” “of all the modes of appointment” (p. 213). Specialized practical experience was taken to be a better index of ability in many of the new scientific disciplines.

But how were these skills to be assessed and evaluated? The fragmentation of the universal curriculum and the advance of disciplinary specialization meant that generalists were no longer able to assess a candidate’s merits. In the first decade of the twentieth century, the English civic universities began to employ an appointment system that relied on expert knowledge, convening disciplinary committees that advised a university’s governing body. However, this created another difficulty: if appointments were to be dependent on the recommendation of a few individuals, which individuals could be trusted? As J. J. Thomson, the director of the Cavendish Laboratory, commented in 1912, “[t]here are some Professors whose geese are all swans, and others whose swans are all geese” (Hill, 1912, pp. 59–60). Under these conditions, personal networks and private recommendations became crucial. As a group of New Zealand professors, seeking reform, wrote of the civic universities’ new selection processes in 1911:

when the list of available candidates is before them, the members of such a Committee will pay little attention to formal testimonials, but will form their judgment on special inquiries widely pursued; and their knowledge of the learned world will enable them to judge the value and character of the evidence they thus obtain; they will also interview likely candidates in an intimate and informal way. (Hunter, Laby, & von Zedlitz, 1911, p. 49)

From the turn of the century, private knowledge and specialized expertise underpinned academic appointment in Britain’s newer universities.

Yet personalized systems of trust were something settler universities had been using since the 1880s as a way of confronting the problem of distance. For junior posts, colonial “God-professors” were frequently given unilateral powers of selection (Gardner, 1979, pp. 56–67). On the one hand this enabled individuals such as Sydney’s professor of medicine, T. H. Anderson Stuart, and Toronto’s professor of history, G. Murray Wrong, to bring out from Britain men they knew personally. In the 1880s Anderson Stuart populated virtually his entire department with medical graduates from his old university, Edinburgh, while in the early 1900s Wrong did much the same with Oxford historians. But on the other hand such practices also facilitated the appointment of local or on-the-spot candidates. Such appointments were frequently expedient. In the 1880s and 1890s the best men that could be found by the colleges of the University of the Cape of Good Hope, which still provided prematriculation education, were usually graduates of British universities (most often from Scotland) who were already in South Africa. Local appointments could be opportunistic; for example, the future Nobel Prize-winning physicist Frederick Soddy was made senior demonstrator (a non-tenured but sometimes senior position

approximately equivalent to lecturer) at McGill University because he happened to visit its chemistry department when passing through Montreal (Yaffe, 1978, p. 15). Yet the process was also open to abuse. In Melbourne in 1884 the local newspaper leveled charges of nepotism at the university because one of the medical professors was assisted by his son, while another professor was in the process of trying to get his appointed (Selleck, 2003, p. 206).

Search Committees

For more senior posts, however, the established settler universities contacted disciplinary specialists and asked for their private assessment or recommendation. Using this method, the Canadian universities had from the 1880s operated what effectively were search committees. Officially, the power of appointment remained with a university's governing body, to which recommendations would be made. But these were lay rather than academic bodies, and in practice (and sometimes also in statute) a great deal of power came to be vested in the principal or vice-chancellor who, in combination perhaps with the head of department and one or two other faculty members, conducted recruitment. Each time an appointment came up, the committee or governing body either would "invite [applications from] candidates or would proceed by method of calling someone already favorably known to them" (Peterson, W., Peterson to J. Davidson, October 10, 1900). The private recommendation of an applicant's colleague, supervisor, or head of department was taken to be more trustworthy than their public testimonials. By writing privately both to their friends in Britain and their colleagues in the United States, Canadian university principals looked both east and south, seeking out appropriately qualified men from England or Scotland, or Canadian graduates who since the 1870s had been undertaking graduate work in the universities of the United States.

University principals were central to this process and their archives overflow with voluminous private correspondence regarding appointments. Letters to friends and colleagues—both in Britain and the US—show them soliciting the names of likely candidates, inviting applications, checking endorsements and organizing meetings. These archives point to the largely informal filtering process that preceded a recommendation to an appointment committee or governing body. In fact, on a number of occasions, McGill's Principal Peterson expedited this process by "borrowing" the appointment lists of universities in Britain: "There have been so many elections to Chairs on the other side of the water of late," he wrote to Professor E. B. Titchener of Cornell in 1903, "that it is altogether unnecessary to make inquiries there, as I think we are well informed as to possible candidates" (Peterson, W., Peterson to E. B. Titchener, May 1, 1903). Often official advertisements were little more than fronts, as the letter in 1901 from Principal Peterson to the University of Manchester's Alfred Flux regarding the chair of political economy at McGill reveals. Flux and Peterson had been corresponding about the position for some time, and Flux had agreed to accept it. But "it was felt," wrote Peterson, "that it

might be more satisfactory to those who have endowed the Chair, and who do not know how much has been accomplished already by private correspondence, if we followed the usual course of throwing the Chair open to all candidates” (Peterson, W., Peterson to A. Flux, March 18, 1901). Those who responded to the advertisement in good faith must have been disappointed when Flux was eventually officially selected.

The consequence of this process was that a powerful principal could exercise significant sway in the making of appointments. But by the same token, an uninterested or poorly connected one could cause serious disruption, failing to act as a directing force on the powers of the governing body (Drummond, 1983, pp. 18–19; Friedland, 2002, pp. 234–235). Indeed, it was perhaps the lack of interest in academic matters of Arthur Currie, McGill’s principal between 1920 and 1933, that led the university to put in place statutory arrangements stipulating a board of selection for filling vacant chairs (McGill University, 1936). By contrast, Robert Falconer (principal from 1907 until 1932) was of great value to the University of Toronto because of his extensive network of contacts both in Britain and the United States. George Parkin, the first secretary of the Rhodes Trust, was an old friend of his and served as something of an “agent” in Oxford, as did William Osler until his death in 1919 (on agents, see Pietsch, 2013, pp. 109–114). But Falconer’s connections also extended to America. Sitting on the board of the Carnegie Foundation, Falconer had reason to travel frequently to New York, where he came into contact with many of the leading American university men. Yet it is clear from the tone of their correspondence that the presidents and principals of the Canadian universities were far less familiar with the university world in the United States than they were with that in Britain. In this period at least, their letters to Edinburgh or Oxford—to men with whom they had studied or worked—were full of a kind of intimacy absent from those exchanged with their southern neighbors.

London Selection Committees

Australian universities also made specialized personal knowledge much more central to their appointment processes after 1880. Although their governing bodies technically retained the power of final selection, they continued to rely on London selection committees whose recommendations carried enormous weight. But the ways in which these committees worked began to change. Instead of the old generalist panels, subject-specific selectors began to be appointed. Having some connection to these selectors gave candidates an enormous advantage, as the case of W. H. Bragg shows. When Horace Lamb, the foundation professor of pure mathematics at Adelaide, resigned to take up the chair at Owens College in 1885, the South Australian agent-general, Sir Arthur Blyth, asked Lamb to join the director of the Cavendish Laboratory, J. J. Thomson, and himself on a selection committee (Jenkin, 2008, p. 64). Bragg, who at the time held an assistant lectureship at Thomson’s college in Cambridge, was on his way to attend one of Thomson’s lectures when he

was overtaken by the director himself, canvassing for the Adelaide post. Thomson asked Bragg if William Sheppard, the Senior Wrangler and an Australian, was applying for the position (Wranglers are the 12 highest-scoring final year undergraduates in mathematics at the University of Cambridge; the Senior Wrangler is highest). Bragg did not know, but asked Thomson if he might himself have a chance. Thomson, much to Bragg's surprise, replied that he would. This coincidence led Bragg to submit an application, and he was invited to attend an interview in London in December. From a field of 23 candidates, 15 from Cambridge and 14 of whom were Wranglers, Bragg was selected, and he left England to take up the chair of mathematics and experimental physics at Adelaide in 1886. In much the same way as the Canadian principals, the disciplinary experts appointed to the Australian selection committees engaged in an informal process of solicitation and encouragement, making judgments based on their personal knowledge of candidates. Such was the power of these London committees that a canny candidate working in an Australian university would not send his application across the hall to the registrar, but instead forward it all the way to London (e.g., Wilson, 1889).

Bragg's story highlights two further innovations introduced by the Australian universities in this period. First, although an Australian representative was retained on London committees, by the end of the century the return migration of some professors and the introduction of leave-of-absence schemes had helped create a growing pool in Britain of academic men who had themselves worked or studied in the colony. This meant that the Australian universities now had a group of willing and—more importantly—trustworthy representatives in Britain on whom they could depend. Indeed, as the twentieth century progressed, a growing number of these men themselves became leading figures in British scholarship. The London committee for the University of Sydney's chair of physics in 1923 stands as an example. It included two Nobel Prize winners familiar with Australia (Professor Sir William Bragg and Professor Sir Ernest Rutherford), a former holder of the vacated Sydney chair (Sir Richard Threlfall), and a former professor of anatomy at Sydney and frequent member of its selection committees (Professor J. T. Wilson) (University of Sydney, 1923, p. 818). Increasingly, Australian universities were able to count on their own faculty and alumni to help make appointments from London.

Second, Bragg's selection for the Adelaide chair points to the emergence in the late nineteenth century of the interview as an authenticating tool that introduced a new and even more personal method of assessment. Employed since the mid-nineteenth century in the recruitment of men for the Indian Civil Service and developing as a feature of celebrity journalism in the 1880s, the history of the interview remains unwritten. In the academic world of the late nineteenth century it was as likely to take the form of a fireside chat as anything more formal, and it was seen by selectors as something that was only necessary in the absence of other forms of personal knowledge. In 1911, the agent-general for Victoria, who was responsible for organizing the selection for a new chair of English for the University of Melbourne, made this clear. He reported that "it was not thought necessary to ask [the short-listed candidates] to attend" an interview, because the members of the committee felt they knew all the gentlemen short-listed (Agent General for Victoria,

1911). While the university sector remained small, such a coincidence was likely, but as the numbers of universities expanded in the early twentieth century, selectors could less frequently claim acquaintance with all the applicants. In this context the interview was adopted as a substitute for direct personal knowledge. For example, acting in 1919 on the advisory committee for the chair of physics at the University of Cape Town, Ernest Rutherford was led by the “impossibility of forming a personal judgment on the large majority of the candidates” to suggest that the University in South Africa should employ the Australian system of an interview in London (Rutherford, E., Rutherford to High Commissioner, April 13, 1919).

However, Rutherford’s suggestion was something that Cape Town resisted for two reasons. From the turn of the century the Cape university had set great store by the advice of professors at Edinburgh and Glasgow, and their judgment continued to be valued throughout the tenure of John Carruthers Beattie, the university’s Scottish-born vice-chancellor (1918–1937) (Mackintosh, K., Mackintosh to Beattie, November 7, 1923). In 1919 Glasgow’s Professor Andrew Gray had been asked to act alongside Rutherford and J. J. Thomson as an advisor, and allowing an interview in London would have sidelined him (Rutherford, E., Rutherford to High Commissioner, April 13, 1919). But the 1919 correspondence also indicates that the university in Cape Town did not wish to cede its jurisdiction over this powerful mode of assessment to its advisors in Britain. As the South African High Commissioner wrote to Rutherford:

you will not forget that the appointment will be made by the University itself after it has the valued aid of the Committee’s report and recommendations, and of course as far as candidates already in South Africa are concerned the University authorities may be assumed to have more personal knowledge than the Committee could possibly have (High Commissioner, High Commissioner to Rutherford, March 7, 1919).

By limiting the committee—and the British applicants—to a judgment based only on the provision of written materials, the University of Cape Town reserved for itself the ability to override the London committee’s recommendations. Yet the university’s attempt to maintain local control of appointments was only partially successful, and in the interwar period the English-speaking South African universities used London selection committees with increasing frequency (Ritchie, 1918, pp. 416, 428).

It was the New Zealand colleges that were most skeptical of London committees. Although Otago and Canterbury had used committees in London and Scotland to select their foundation staff, the institution of the federal system in 1876 and the provincial rivalries it inflamed caused the college councils to assert their control over appointments. Although London advisory committees were still sometimes convened, the colleges maintained “an attitude of hostility” towards them. Indeed, college councils reserved their “absolute right to reconsider candidates who ha[d] been rejected” in England (Hunter, Laby, & von Zedlitz, 1911, pp. 46–54). According to the group of reforming professors in 1911, the refusal to extend trust to London was at the heart of the colleges’ recruitment problems, for the lay members who sat on local college selecting bodies had neither the special expertise nor the personal knowledge needed to properly evaluate applications:

The Council will go through the testimonials, many of its members knowing nothing of the men who testify, and being quite unable to evaluate their testimony or to make allowance for, or go behind, the notoriously misleading phraseology of these unreal documents . . . In such circumstances the decision is bound to be determined partly by paper qualifications, degrees and the like, which are always misleading, and partly by quite irrelevant considerations. (Hunter, Laby, & von Zedlitz, 1911, p. 48)

This, the reformers thought, was “the worst method which could be devised” (Hunter, Laby, & von Zedlitz, 1911, p. 50) in appointing candidates to university posts. Instead they pressed for the institution of the method that the newer civic universities in England were beginning to use. Although they recognized that such a system was not immediately replicable in New Zealand given its “geographical circumstances,” the reformers suggested that its virtues could be maintained by appointing “a committee of selection in Great Britain.” The main drawback of such committees, they acknowledged, was that their “members [we]re not deeply enough concerned in the matter to insure [sic] the exhaustive and thorough investigation of individual cases”; with sufficient care of selection, however, this was something they believed could be overcome (p. 50).

Personalized Trust Versus Government Recruitment

In their different ways, Canadian and Australian universities had in the last decades of the nineteenth century developed many of the features advocated by the New Zealand reformers in 1911. Moving away from a reliance on testimonials and generalist selectors, they had placed their faith in the private, personal recommendations of disciplinary specialists. While the Canadian universities did this through extensive search procedures that drew upon the connections of university principals and faculty members, the Australian institutions were able to depute their own former staff to act on their behalf. In doing so they overcame both of the difficulties identified by the New Zealand reformers. These expansive systems of personalized trust underpinned academic appointment procedures in most of the settler colonies up until World War II.

By contrast, in India and South East Asia a wholly other system of selection was in operation. There it was civil servants rather than universities or academics that undertook the recruitment of professors. The colleges of the Indian universities had originally been staffed by British-born teachers. Under pressure from Indian nationalists, from the 1880s they were replaced by an increasing number of Indian graduates. But a British presence was retained in the form of a “superior” graded Indian Educational Service (IES) comprising 92 members. This had been established by the Government of India in 1897 and its members were recruited through a committee of the India Office in London. Positions were advertised and selection was based upon assessment of a candidate’s written application, formal testimonials and—finally—an interview. Although the India Office endeavored to stay in close touch with the English universities and the elite public schools, the civil servants who

staffed its committees continued to place great weight on teaching capacity and manly character rather than research ability or specialized expertise (Whitehead, 2003, p. 17). As far as the India Office was concerned, the Indian universities—like the African institutions after them—remained closely tied to the civilizing project, and a degree from Oxbridge together with good form on the river were ample qualifications for those who taught in them. Prizing administration over teaching (most of which was left to underpaid Indians), largely ignoring research, and rewarding longevity of tenure rather than quality of performance, the conditions of tenure in the IES further worked to discourage the best scholars from applying to these posts. Attracting British recruits to the Indian Educational Service—which was less prestigious than the Indian Civil Service and less well remunerated—became even harder in the years after 1900, when the new civic universities in England provided opportunities at home for many who formerly would have applied (Whitehead, 2003, pp. 11–18). As Calcutta’s Professor C. V. Ramen commented in 1921, “in the matter of the quality of the men sent out to us, we have been sadly disillusioned, and we have had painfully to learn the lesson of self-reliance” (Hill, 1921, p. 367). In World War I, Indian teachers began to replace IES men, and from the 1920s the universities in South Asia were effectively Indianized. Although frequently required to have a British degree, these professors were selected locally rather than in Britain, and the private recommendations of British scholars were far less important in their recruitment.

Therefore, if the period after 1880 was one in which settler universities instituted appointment procedures that relied heavily on the personal recommendations of expert British academics, it was one in which the Indian universities moved in the opposite direction. The bureaucratic management of recruitment, the hierarchical imperial cultures that shaped selection criteria, and the rise of an Indian nationalist movement that contested the institutions of imperial rule meant that the systems of personalized trust, so crucial to appointment in the settler universities, played a minimal role in India.

Geographies of Selection

By extending British academic networks to the settler colonies, these appointment practices helped create an expansive academic community in which forms of proximity and distance were measured by personal relationships as well as by accumulated mileage. At a primary level the selection practices of settler universities reinscribed the “global colour line” championed by late-Victorian writers such as J. R. Seeley, Charles Dilke, and Charles Pearson (Lake & Reynolds, 2008). Students from Africa, India, and the West Indies often found it difficult to even gain admission to British universities. “If I were a head of an Oxford College,” wrote one Colonial Office official in 1928, “possessing my present knowledge of West African students, nothing on earth would persuade me to receive one of them”; “[w]ith Indian applications,” explained one of the tutors at Corpus Christi College,

Cambridge, “we do not consider anybody who is not backed by the India Office” (Fiddian, 1928; Pickthorn, K., Pickthorn to the Educational Officer for West Africa, May 8, 1928). Although Indians were employed in the colleges of South East Asia and a small number of Africans found places on the staff at the South African Native College at Fort Hare in the Eastern Cape, it is difficult to find any trace of Indians or Africans applying for positions in settler universities and hard to imagine they would have been considered favorably if they had (Kerr, 1968, pp. 275–277). The exchange in 1900 between the India Office and Dadabhai Naoroji, the United Kingdom’s first Indian MP and friend to many Indian scholars in Britain, highlighted just how difficult it was for “Her Majesty’s Indians subjects” to secure senior academic appointments even in India. While Naoroji was “thankful to read” that, so long as they were “distinguished graduates of Universities of United Kingdom, . . . there [wa]s nothing to prevent the selection of the natives of India” for the Indian Educational Service, he nonetheless queried the lack of recognition accorded to Indian degrees, and perceptively noted that there remained a large question over “how this eligibility of the Indian [wa]s to be practically given effect” (Naoroji, D., Naoroji to the Under Secretary of State, June 29, 1900).

Origin and Nationality

Yet the boundaries of the British academic world were not just racial. European- or American-born applicants were only infrequently appointed to positions in settler universities. Although some Europeans did win chairs in the colleges of South and East Asia and to an extent also in South Africa and Canada, where they were prominent in disciplines such as languages and music, they were frequently confined to junior positions in the academic hierarchy. Americans were even fewer in number. Instead the professoriate at English-speaking settler universities was overwhelmingly “British” in an expansive sense. Between 1880 and 1930, 90% of professorial appointments at Toronto, 95% of those at Cape Town and all of those at Sydney were born either in Britain or in the colonies (Pietsch, 2010, 2013, p. 86, fn. 49). This is not to say that scholarly collaboration and exchange with European and American scholars did not take place. In the late nineteenth century significant numbers of Europeans made research trips to the settler colonies, while settler academics frequently traveled to laboratories and libraries in Europe, and in Canada’s case also the United States. The University of Sydney’s investment in German-language journals alone attests the rich trade in international publications and the influence they carried. But for the most part these intellectual exchanges did not translate into employment.

Given language differences, it is perhaps not surprising that the numbers of European-born appointments to settler institutions were not high. However, this was an obstacle that did not apply to candidates from the United States. English-speaking and from a robust university sector, American candidates might have seemed good contenders for positions in settler universities. Australian chairs in disciplines that

did not have a strong presence in British universities were frequently advertised in the United States and received significant numbers of American applicants; of the 34 candidates who put their names forward for the chair of dental science at the University of Melbourne in 1924, 17 were from the United States (University of Melbourne, 1909, 1924b). But Americans were virtually never appointed to these positions, and American experience figured only marginally in the careers of Australian appointees.

In Canada, American experience was looked upon more favorably. But, as in Australia, few Americans were appointed to positions in Canadian universities. In the shadow of the cultural and economic, not to mention military, might of the United States, Canadian universities asserted their British loyalty when it came to professorial appointments. In their search for new professors, for example, Toronto and McGill sought British-born candidates on the one hand, and American-trained Canadians on the other. It was thought that both would be more “likely [than Americans] to understand the methods and needs of a Canadian University” (Harkness, J. Harkness to Peterson, March 14, 1903) But the preference for Canadian-born candidates also reflected a specifically local colonial politics. Led by James Loudon—the University of Toronto’s first “home-grown” professor, and between 1892 and 1906 also its president—the self-styled “nativist” movement that emerged in the 1870s had by the 1880s translated into a decisive shift in the balance between British- and Canadian-born professorial appointments at that university. With Loudon as president, and the government still officially controlling appointments, 75 % of those selected for permanent positions at University College between 1889 and 1911 were not just Canadians but Toronto graduates (Friedland, 2002, pp. 113–115). Although the percentage of locally born appointments dropped following Loudon’s departure, British-born professors would never again outstrip Canadians on the staff at Toronto. At the University of Sydney the same shift occurred in the 1920s when the surge in national pride attendant with Australia’s wartime contributions led to calls for “native sons” of the university to come into their own and displace their British-born “foster fathers” who were to recede appropriately into the background (Morison, 1997, p. 325). By contrast, up until World War II, the professoriate of the University of Cape Town remained dominated by British-born recruits (over 65 %), with South Africans only constituting 10 to 20 % of all new appointments (Pietsch, 2013, p. 86, fn. 54).

This predominance of colonial-born professors at Toronto and Sydney might seem to signal a localization of the trust systems fundamental to appointments procedures. But focusing only on birthplace hides the extent to which most of these “native” professors had spent an extended period of time abroad, either as students or in employment. After studying or working in Britain or the United States, they were drafted back to their country of origin by the personal processes detailed above. On the one hand, the Toronto selection processes recruited a good number of Canadians with American experience (30 %) and a significant number with European experience as well (until 1918 it also was 30 %, dropping to 15 % in the 1920s) (Pietsch, 2010). But on the other hand, Toronto’s informal search procedure recruited a professoriate that was characterized by significant British experience:

30–45 % of the professors appointed in the period 1900–1930 had spent time in Britain. Indeed, from the turn of the century there was a positive preference for British degrees, with the Canadian Universities Conference in 1911 “strongly express[ing]” its opinion that the universities “would greatly prefer to have professors who had pursued their post-graduate work in the United Kingdom rather than in the United States” (Roberts, 1911, June 6). At Sydney, meanwhile, reliance on London selection committees led to a professoriate that until 1940 was dominated by men with British experience: throughout the period over 70 % of all those appointed at Sydney had undertaken some work or study in the United Kingdom. And at Cape Town all of the professors had experience abroad, with 85 % per cent having worked or studied in Britain. Indeed, at Cape Town Scottish experience was particularly important, and it is striking that in the decade before World War II, half of those appointed had spent time in Scotland (Pietsch, 2013, p. 86, fn. 57). Therefore, despite the predominance of the “native-born” in places such as Toronto and Sydney, throughout the period all these settler universities continued to appoint large numbers of academics with British experience.

Although British race patriotism played a significant part in this, the selection processes that settler universities operated privileged those candidates who were connected to British scholarly networks. These were networks to which Americans did not belong. Since the late eighteenth century, they had been traveling instead to European institutions such as the universities in Göttingen and Paris, attracted by their growing reputation and resources, and freedom from the confessional tests that regulated admission in Oxford and Cambridge. The fight for independence from Britain together with the defeat of Napoleon further pushed American students away from British and French and towards German institutions in Heidelberg, Berlin, Leipzig, Halle, and elsewhere (Honeck & Meusburger, 2012, p. 296). Speaking in 1921 of the period before World War I, George McLean, the director of the American University Union in London, drew attention to this:

German Universities catered to us [Americans] at little cost, welcomed us with open hands and brought us into close contact with their greatest Professors. They acknowledged our credentials, initiated us into research and, with the exception of a few notorious Universities, made us work for our degrees, and sent us home with a measure of devotion to the Fatherland. Some of us caught a glimpse of the charms of the British Universities as we passed by, but no one beckoned us in. (Hill, 1921, p. 415)

Although after 1901 Rhodes scholarships brought up to 32 American students annually to Oxford, reports from 1911 suggest that, unlike their settler contemporaries, these Americans remained on the edges of Oxford life. “[T]hey live a good deal apart,” reported one college don, “and have never identified themselves with the life of the college as the colonists have.” They “have not the same incentive to work as a colonist scholar,” pointed out another; the “latter knows that honors gained at an English university will be of some help to him in after life,” whereas “[the American] feels that his future career does not depend in any appreciable degree upon our examinations” (The Carnegie Foundation, 1910, p. 58). Despite Rhodes’s intentions, the universities of the United States operated as part of a separate academic world.

The case of Edinburgh-born Thorburn Brailsford Robertson makes this clear. In 1884 Robertson migrated to South Australia as a child with his parents. He attended the University of Adelaide where he studied physiology under Professor E. C. Stirling and mathematics under W. H. Bragg. Although Robertson initially considered becoming a mathematical physicist, he was unable to find a position in Australia and without a traveling scholarship he could not go to Britain. So in 1905 he accepted a position as assistant lecturer to the leading German-born American physiologist, Jacques Loeb, in the physiology department at the University of California at Berkeley (Robertson, T. B., Robertson to Laby, September 23, 1919). Under Loeb, Robertson developed research skills and an interest in physiochemistry that would influence him for the rest of his career. He obtained a PhD, married his former Adelaide professor's daughter, Jane Stirling, and was appointed assistant professor of physiological chemistry and pharmacology on the departure of Loeb in 1910 and full professor in 1917 (Rogers, 2006). At the end of that year Robertson accepted an invitation to lecture at the University of Toronto and this in turn led to an offer of appointment there. Pulled by the lure of British connections as well as a generous salary, he accepted the chair of biochemistry and moved to Toronto in 1918 (University of Toronto, 1918). But Robertson wanted to return to Australia. As he told T. H. Laby in 1919, despite receiving at Toronto "much larger funds for research" . . . "after fourteen years of absence, I would rather accept a moderate opportunity to do good work in Australia than any sort of opportunity whatever in America or Canada" (Robertson, T. B., Robertson to T. H. Laby, September 23, 1919). Before writing to Laby, Robertson had applied for a position at the newly founded Walter and Eliza Hall Institute for Pathology in Melbourne. Yet despite his qualifications, he was "not very sanguine of obtaining the appointment." This was because he had learnt that "the choice [was] to be made in London, where experiences of the American School [were] not viewed with favour." Robertson lamented the system that excluded scholars like him: "I am," he wrote, "handicapped by the comparative lack of development of my special subject in England," and by the "system of application & selection by London committees which . . . throws all Australian appointments into the hands of a few men" who, though they may be very good men, have an outlook "necessarily . . . limited in directions which chance to be foreign to them." "In British circles," Robertson concluded, his "long association with America" hampered his chances of employment (Robertson, T. B., Robertson to T. H. Laby, September 23, 1919). Cut off from British disciplinary networks, he had to rely on old family connections to obtain appointment in Australia: he finally took over his father-in-law's chair at Adelaide.

Built upon long-distance personal connections, the selection practices of British and settler universities drew the boundaries of a British academic world that included the settler colonies but that, for the most part, did not extend to Europe, India, or the United States.

Social Proximity and Distance

This British academic world had an uneven topography. The role played by personalized systems of trust in the making of appointments facilitated access for those with the right connections. It meant that particular schools and the recommendation of certain individuals could come to acquire especial weight, and well-connected candidates possessed significant advantages. The monopolization of physics and mathematics appointments by Cambridge graduates provides only one example. As early as 1885 the Earl of Carnarvon and Lord Lieutenant of Ireland wrote complaining to the agent-general for South Australia: “Irish Candidates for Educational posts have been frequently overlooked by the Colonial authorities, in mathematics especially, as these appointments are practically in the hands of Cambridge men” (as cited in Jenkin, 1985, p. 85). In physics a word from J. J. Thomson carried weight well into the twentieth century, and a recommendation from the New Zealand-born Ernest Rutherford could make or break a career. Indeed, between 1890 and 1930 these two men had a hand in virtually every physics appointment in the British settler world. Similarly, Scottish ties exercised a particular influence at Cape Town, Otago, and Queen’s University. When the Scottish-born philosopher, John Clark Murray, left Queen’s for McGill in 1872, the recommendation of Glasgow’s Edward Caird was enough to secure his student, John Watson, the post. In Canada, Watson maintained close connections not only with colleagues in Scotland but also with his Scottish contemporaries who had gone to work in the United States, and he employed these connections extensively when looking for an assistant professor in 1912 (Watson, 1912). As these examples show, networks of personal connection became associated with particular institutions, investing each with an authority that conditioned recruitment and selection.

Settler universities were acutely conscious of the value of British scholarly ties and actively sought to recruit academics from within those circles. For example, weighing the merits of the British-born, Australian-educated, and Chicago-employed Thomas Griffith Taylor as a possible head for Toronto’s new department of geography in 1929, the professor of political economy, Harold Innes, felt that “[Griffith Taylor’s] international reputation and strong connections in the United States, England (Cambridge) and Australia, Toronto and Canada [meant that he] would be placed at one stroke in a position to develop the subject under most favourable circumstances” (Innes, 1929). Similarly at Melbourne, the 1924 selection committee for the chair of dental science recommended the appointment of F. C. Wilkinson, a graduate of and lecturer at the University of Liverpool, above the only “suitable” Australian applicant—the Melbourne-trained James Monahan Lewis—on the grounds that “[Wilkinson’s] medical education and associations [in Britain] would serve to influence dental education more along the lines of medical education” (Barrett, 1924). From this angle, the preference of settler universities for British candidates does not just signal their lack of faith in the merits of their own degrees: instead it was another mechanism by which they sought to connect themselves to scholarship in Britain (Selleck, 2003, p. 504).

When the civic universities began to institute appointment practices that also relied on personalized systems of trust (in fact, their committees were often staffed by the same people who advised settler universities) the expansive nature of British academic networks also helped facilitate the movement of professors working in settler universities back to posts in Britain. The careers of the holders of the Sydney chair of chemistry provide a good example. Beginning with Archibald Liversidge (professor at Sydney from 1874 to 1907), four successive professors of organic chemistry proceeded from Sydney to British universities (MacLeod, 2010, p. 388). The story of their appointment is complicated, but shows just how entwined—and how important—expansive academic networks could be. Before his departure for the Davy-Faraday laboratory at the Royal Institution in London in 1907, Liversidge had been instrumental in organizing the 1914 Australian meeting of the British Association for the Advancement of Science. It was at this conference that the British-born and trained Robert Robinson, who had been appointed to the newly created chair of organic chemistry in Sydney in 1912, met the leading British chemists of the day. The following year they supported him in his application for the newly created chair at Liverpool. Meanwhile, John Read—who was working under W. J. Pope at the Municipal School of Technology in Manchester, and then in Cambridge—was appointed Robinson's successor in Sydney (Hirst, 1963). In 1921 Robinson moved to St. Andrews, but when his old student friend Arthur Lapworth took over as head of the Manchester department, Robinson moved to assume the position Lapworth had vacated—the Manchester chair of organic chemistry. On his departure from St. Andrews, Robinson recommended as his replacement John Read—his successor at Sydney. The University of Sydney appointed to the empty chair John Kenner, from the University of Sheffield. His candidature had been supported by, among others, Professor J. F. Thorpe (who had been Robinson's former colleague at Owens College, Manchester, before his move to Imperial College) (University of Melbourne, 1924a, p. 826). When in 1927 the Manchester College of Technology was looking for a replacement for its chair of technological chemistry, Robinson's head of department, Lapworth—then occupying the chair of chemistry—invited Kenner in Sydney to take up the role (Todd, 1979). To fill Kenner's empty chair, the University of Sydney appointed a London committee that consisted of Robinson and Read and W. J. Pope (now at Cambridge) (University of Sydney, 1927). The man they recommended for the post was J. C. Earl, an Australian who had studied chemistry in Adelaide before serving in World War I and then transferring to complete a PhD under Robinson at St. Andrews. Since 1922 he had been lecturer at Sydney, under first Read and then Kenner. Robinson went on to hold the Waynflete Chair of Chemistry at Oxford and to receive in 1947 the Nobel Prize. As this extensive network of connection and appointment shows, although distance and institutional location always mattered, the settler universities could and often did operate as an integral part of the British academic sphere.

The possibilities opened up by these selection practices, in combination with the reduced time and cost of travel, created an academic population that—even outside the trips facilitated by temporary leave-of-absence schemes—was much more mobile than it had previously been. No longer was migration merely unidirectional:

rather, return and circulatory migration increasingly also characterized the lives of academics working in settler universities. This was particularly the case for academics who went to Australia, where, contrary to the assessment of Donald Fleming and others, a ticket to Sydney was not a one-way trip but rather just one move of the series of moves that constituted an academic life (Auchmuty, 1963, p. 34; Fleming, 1964, pp. 183–184). By the interwar period most professors at Sydney had, on average, relocated overseas two or more times (not including relocations within Britain or Australia). This figure is striking. It means that for every British-born and trained professor who moved permanently to Sydney (one relocation), there was another who had moved three times, and for every professor born and trained in Australia who remained there (no relocations), there was another who had moved four times. Movement along the Britain–Australia axis was much more common than movement between the universities of the new Australian nation (Pietsch, 2010, p. 386). Sydney professors, therefore, had significantly more experience of British universities than they had of other Australian institutions.

As the examples above suggest, academics moved along migratory axes that were particular to both their discipline and their country of origin. The age and position of the ancient English universities frequently made them important sites in multiple disciplinary networks, but in medicine and the sciences the Scottish institutions continued to exert a pull. At such places as Cape Town, Otago, and Queen's, Scottish ties were particularly important. And if Australia, New Zealand, and English-speaking South Africa looked predominantly to the United Kingdom, the Canadian universities came to function as something of a hinge between the otherwise largely distinct British and American systems. Brailsford Robertson was not the only one to move along this route; R. M. MacIver, Griffith Taylor, and Jacob Gould Shurmann were others who used Canada to move between Britain and America (Blackburn, 1989, p. 73).

Cultures of Academic Sociability

Although the priority that universities gave to personal knowledge facilitated the participation of some academics working in the universities of the settler empire, it also created a highly uneven and unequal terrain that excluded many others. The informal connections that underpinned academic appointments were forged by cultures of academic sociability that were not only raced, but gendered and classed as well.

By the end of the nineteenth century the opening up of the academic franchise had resulted in an increasing number of women graduates in the settler colonies, and some of these began to find academic employment as demonstrators or assistant lecturers in settler universities. Some traveling scholarships also took women abroad: to the women's colleges of Oxford and Cambridge, to Scotland, to the University of London, and in some cases to the United States (Goodman, Jacobs, Kisby, & Loader, 2011; Selleck, 2003, p. 319). Unforeseen vacancies and World

War I opened up still more opportunities, and as the 1920s progressed, women began to be appointed at the level of lecturer (an entry-level, usually tenured post).

Despite these growing opportunities, for women the barriers to an academic career remained severe. In 1932, the percentage of professors who were women in Australian universities was zero. In Canada it was under one per cent. In Britain, New Zealand, and South Africa the figures were only marginally higher, at 1.5, 3.8, and 1.4%, respectively (Ainley, 2005, pp. 251–258; Perrone, 1993). For those who did find academic work, employment conditions were far from equal. At the University of the Witwatersrand in Johannesburg, for example, women were paid 15% less than men at all levels of the university hierarchy, and faced compulsory retirement upon marriage or reaching the age of 55 (Murray, 1982, p. 328). In 1924 Margaret Hodgson—a lecturer in history—had contested these pay scales, but in the council debate that followed, Alexander Aiken’s opinion that “the work of women is not equal to that of men” won out and the provisions remained in force (Murray, 1982, p. 329). Hodgson was again defeated in her attempts to secure change in 1934 when she wished to marry. Despite waging a campaign that involved an appeal to the minister of education and resulted in the abolition of the unequal pay provisions, she was nonetheless forced to resign. Across the British academic world perceptions about the gendered character of different branches of knowledge, in combination with theories of innate sexual difference and expectations about gender roles, restricted women’s participation in academic life (Dyhouse, 1976; Pickles, 2001; Watts, 2007, pp. 142–143, 154–148).

Settler universities, like their cousins in Britain, were environments that fostered and rewarded masculine cultures of sociability (Gillet, 1981, p. 371; Pickles, 2001, pp. 273, 275; Watts, 2005; Whitehead, 1999). Geoffrey Sherrington and Julia Horne have argued that in the 1880s Australian universities witnessed a “re-affirmation of the almost ‘aristocratic’ ideal of character formation focused on the emergence of the male ideology of athleticism and celebration of the body and physical endeavour rather than the mind” (Sherrington, 1983; Sherrington & Horne, 2009, p. 134). The students imported this ethic from their schools and the early professors encouraged it by playing alongside them on the sports field. By the turn of the century it was being championed more broadly as a means of strengthening the bonds of empire. In the settler university these forms of sociability were reinforced by the high incidence of British experience among the male academic staff. Looking back on his time as a young history lecturer at the University of Melbourne between the wars, Norman Harper attested to this when he talked about departmental parties at which he “was often depressed by all those people who had been to Oxford or Cambridge, Athens or Thebes, London or Rome, who conducted in-conversations which left outsiders feeling like barbarians” (Goodman, 2004, p. 7).

Women operated on the edges of these spaces. They were officially barred from membership of many professional and disciplinary societies: the British Physiological Society excluded them until 1915, and the Royal Society until 1945 (Pickles, 2001, p. 275). Thought to be financially supported by their husbands and therefore less deserving of the positions, laboratory time and research money accorded to their brothers, they worked on the margins of both the formal and the

informal structures that facilitated academic connection. Those who did manage to secure traveling scholarships found themselves either in the parallel realm of the women's colleges or in the homosocial cultures that dominated seminar, library, and laboratory (Squier, 1997; Watts, 2007, pp. 142, 144; Zuckerman, Cole, & Bruer, 1991, p. 17). Women working in settler universities thus found it especially difficult to make the kinds of relationships that were so important for an academic career.

To navigate the highly gendered terrain of early twentieth-century academia, female scholars frequently required the backing of male colleagues. Baldwin Spencer at Melbourne and Edgeworth David at Sydney were particularly open to offering women opportunities, employing several in their departments. But as scholars such as Helena Pycior, Nancy Slack, and Pnina Abir-Am have pointed out, it was a supportive marriage that most often enhanced a women's chance of doing academic work (MacLeod, 1979; Morantz-Sanchez, 1987; Pycior, Slack, & Abir-Am, 1996). It was not uncommon for women students or assistants to marry their professors, and some formed "collaborative" relationships that gave them space to work. Marriage to the Canadian astronomer Frank Scott Hogg, for example, enabled Helen Hogg to pursue her own research, while Edith Osborn not only helped her husband establish a department at Adelaide, but served as lecturer and demonstrator in the department of botany at Sydney following his appointment there as professor (Ainley, 1996).

Yet the example of Hogg—who worked in a junior capacity until her husband's death—also shows that even in such relationships women were rarely accorded full credit for the work they undertook (Dyhouse, 1995, p. 471). More usually women were vital components of what Hannah Gay has called the "underground economy" of academia (Dyhouse, 1995, p. 471; Gay, 1996). "[T]he function of a wife, my lad," wrote Donald Hunter, director of the (British) Medical Research Council's Department for Research into Industrial Medicine, to the South African medic, J. F. Brock, "is to help you to get that [manuscript] into print" (Hunter, D., Hunter to J. F. Brock, February 27, 1933). Women transcribed articles, ordered research, and conducted experiments for their husbands, brothers, and fathers in ways that went largely unacknowledged. They maintained and facilitated male sociability, conducting personal and professional correspondences and organizing the afternoon teas, dinner parties, and excursions to the country that fostered connections between academic men. As with Noel Annan's (2001) "intellectual aristocracy," marriage played a central role in knitting together the affective relations of the British academic world. Two of J. T. Wilson's daughters married Australians studying under him in Cambridge, while Rutherford's only daughter also married one of his students, Ralph Fowler, who would himself later hold the chair of theoretical physics at the Cavendish Laboratory. In these ways women joined Europeans in what we might think of as "the shadow networks" of the British academic world. Although they were frequently enmeshed in long-distance ties, these were not of a kind that earned them a significant place inside settler institutions. Even as they participated in the scholarly project, women provided the poorly paid, under-recognized, and often locally based labor that both supported and enabled the mobility of the white, male, and largely middle-class Britons appointed to senior posts (Collins, 2009; Goodman & Martin, 2002; Hall, 1992; Theobald, 1996).

The expansive networks of the British academic world played an important role in shaping, policing, and extending these racial, gendered, and gentlemanly geographies. Unofficial information traveling along these networks determined who was and who was not admitted to them. One of the candidates who applied for the chair of physics in Adelaide in 1885 was passed over because it had been heard that he was considered “not safe with the bottle” (cited in Jenkin, 1985, p. 84). In 1905 Mr. Price (of Harvard) appeared to Toronto’s James Mavor to be “too juvenile looking [sic] to take affective control of Toronto’s large classes,” (Mavor, J., Mavor to Loudon, October 31, 1905) and in Melbourne Esmonde Higgin’s affiliation with the Communist Party meant he was, according to one of his supporters, “regarded with deep suspicion” (cited in Anderson, 2005, p. 75). Similarly, “while not knowing him personally,” the members of the 1919 advisory committee for the Cape Town chair of physics “felt [they] ought to mention” that they had “heard somewhat conflicting reports of [Lewis Simons’s] personality and his ability to get on with students” (Chair of Physics Advisory Committee, 1919).

This continuing emphasis upon character and the informal means by which it was assessed also created space for more insidious forms of discrimination, as the case of the Polish-born Lewis Berstein Naymier (later Namier) at the University of Toronto shows. While some anglicized Jews were able to find academic appointments in Australia, Canada, and South Africa, those who did not obviously conform to British cultural expectations met a very different experience (Friedland, 2002, pp. 342–348; Gibson, 1983, pp. 199–202; Horn, 1999, pp. 34–35, 136–138, 165–136; Zimmerman, 2007). Naymier—whom the Master of Balliol College, A. L. Smith, described as “the ablest man we have had in economics and history for some years” (as quoted in Friedland, 2002, p. 235)—had been recommended by Smith in 1911 for a junior appointment in Toronto’s department of political economy. But Godfrey Lloyd, a member of the department who was in England meeting candidates and who interviewed Naymier, seemed to take against him, preferring Gilbert Jackson who had a second-class degree from Cambridge as the “safer choice”. “Of course,” wrote Lloyd of Naymier, “he is not in the least British,” and the “one definite drawback, about which opinions vary, is the extent to which his foreign accent affects his intelligibility” (Lloyd, G., Lloyd to J. Mavor, 1911). The head of department, James Mavor, was similarly minded (Mavor, J., Mavor to Falconer, July 20, 1911). In the end Jackson was awarded the position. But the same year the Toronto history department wanted to appoint a lecturer and Naymier’s name was again put forward. Although he was strongly favored by the outgoing post-holder Kenneth Bell, and in the face of Falconer’s assertions that “the fact of his being a Jew has not influence one way or another with us,” once again Naymier’s Jewishness—often discussed in terms of his “difficult” accent—proved an obstacle (as quoted in Friedland, 2002, p. 235). In particular, Joseph Flavelle, a member of the board of governors, “did not like the choice of a Polish Jew as an interpreter of history . . . who by his broken accent constantly proclaims it,” (p. 235) and Naymier was again passed over. Despite his evident ability and good Oxford connections, the combination of anti-Semitism, British race patriotism, and the weight given to personal assessments led Toronto to reject Naymier’s application (Cannon, 2004).

The racial, gendered and—although not discussed in detail here—classed cultures of British academia were thus intimately bound up in the same processes that extended British networks to settler universities. In concert with, but also often in the face of, stated university policies, expansive personal networks shaped the composition and character of academic bodies.

Speaking in 1912, the one-time inspector-general of schools in Western Australia, Cyril Jackson, described the process of selecting new academic personnel:

[S]upposing a Professor of Geology, or some other branch of science, is wanted, it is very difficult to know where such a man is likely to be found. One cannot possibly know all the staffs of the various Universities in England, and one has to do the best one can by writing to friends. (Hill, 1912, p. 318)

This practice of “writing to friends” was a crucial aspect of the making of appointments in settler universities. Personal relationships developed in such sites as common rooms and laboratories were carried with academics when they migrated. These trusted long-distance ties then become the channels that settler universities relied on when weighing the merits of potential candidates. As I have shown in this chapter, the official institutional practice of universities was premised upon the private knowledge and the personal relationships of their staff and students.

Yet the place universities accorded to private knowledge meant that their measures of expertise were contingent upon the cultures of academic sociability in which the friendships of their staff were formed. Not only were these cultures that were racially exclusive, they were also heavily gendered. Even as women were marginalized from the formal structures of academia, as correspondents, assistants, and marriage partners they provided much of the “affective labour” (Hardt & Negri, 2004, p. 108) on which the maintenance of academic relationships depended. The technologies of selection used by settler universities therefore helped to shape a British academic world that was both expansive and exclusionary. They point to the role that social systems play—as Peter Meusburger has shown elsewhere in this series—in conditioning the recognition, acceptance, and movement of knowledge and in contributing to its “spatial disparities” (Meusburger, 2013, pp. 22, 16).

References

- Agent General for Victoria, 1911, *Report on London Committee to University of Melbourne Chancellor*. Registrar’s Correspondence (UM312 1911/34; English Chair, 19 June 1911). University of Melbourne, Melbourne.
- Ainley, M. G. (1996). Marriage and scientific work in twentieth century Canada: The Berkeleys in marine biology and the Hoggs in astronomy. In H. M. Pycior, N. G. Slack, & P. G. Abir-Am (Eds.), *Creative couples in the sciences* (pp. 143–155). New Brunswick: Rutgers University Press.
- Ainley, M. G. (2005). Gendered careers: Women science educators at Anglo-Canadian universities, 1920–1980. In P. Stortz & E. L. Panayotidis (Eds.), *Historical Identities: the professoriate in Canada* (pp. 248–270). Toronto: University of Toronto Press.

- Anderson, F. (2005). *An historian's life: Max Crawford and the politics of academic freedom*. Melbourne: Melbourne University Press.
- Annan, N. (2001). *The dons: Mentors, eccentrics and geniuses*. Chicago: University of Chicago Press.
- Auchmuty, J. J. (1963). *The idea of the university in its Australian setting: A historical survey*. (n.p.): Melbourne.
- Barrett, J. W. (1924, August 19). *Report of Barrett on behalf of the London selection committee*. Registrar's Correspondence (UM312/1924/162/Chair of Dental Science). University of Melbourne Archives, Melbourne.
- Blackburn, R. (1989). *Evolution of the heart: A history of the University of Toronto library up to 1981*. Toronto: University of Toronto Library.
- Cannon, J. (2004). Namier, Sir Lewis Bernstein (1888–1960). *Oxford Dictionary of National Biography*. Retrieved from <http://www.oxforddnb.com/view/article/35183>
- Carnegie Foundation (1910). *Fifth Annual Report of the President and the Treasurer*. Boston: Merrymount Press. Retrieved from <https://archive.org/details/annualreportarn07caruoft>.
- Chair of Physics Advisory Committee. (1919). *Report on the candidates for the Chair of Physics at the University of Cape Town*. Chair of Physics (AA 1-156/Chair of Physics/Report). University of Cape Town Archives, Cape Town.
- Collini, S. (1985). The idea of 'character' in Victorian political thought. *Transactions of the Royal Historical Society*, 35, 29–50. doi:10.2307/3679175
- Collini, S. (2006). *Absent minds: Intellectuals in Britain*. Oxford: Oxford University Press.
- Collins, J. (2009). Creating women's work in the academy and beyond: Carnegie connections, 1923–1942. *History of Education*, 38, 791–808. doi:10.1080/00467600903305574
- Drummond, I. M. (1983). *Political economy at the University of Toronto: A history of the department, 1888–1982*. Toronto: University of Toronto.
- Dyhouse, C. (1976). Social Darwinistic ideas and the development of women's education in England, 1880–1920. *History of Education*, 5, 41–58. doi:10.1080/0046760760050105
- Dyhouse, C. (1995). The British Federation of University Women and the status of women in universities, 1907–1939. *Women's History Review*, 4, 465–485. doi:10.1080/09612029500200093
- Fiddian, A. (1928, February 28). *File note, Colonial Gov[ernment] Schol[arship]s Admission to Brit[ish] Uni[versitie]s*. Colonies, General: Original Correspondence (CO 323/1001/13: 28 Feb. 1928). National Archives UK, London.
- Fleming, D. (1964). Science in Australia, Canada and the United States: Some comparative remarks. In H. Gulac et al. (Eds.) *Proceedings of the Tenth International Congress of the History of Science*, pp. 179–196.
- Friedland, M. L. (2002). *The University of Toronto: A history*. Toronto: University of Toronto Press.
- Gardner, W. J. (1979). *Colonial cap and gown: Studies in the mid-Victorian universities of Australasia*. Christchurch: University of Canterbury.
- Gay, H. (1996). Invisible resource: William Crookes and his circle of support, 1871–81. *British Journal for the History of Science*, 29, 311–336. doi:10.1017/S0007087400034488
- Gibson, F. (1983). *Queen's University, Vol. 2, 1917–1961*. Montreal: McGill-Queen's University Press.
- Giddens, A. (1991). *The consequences of modernity*. Cambridge: Polity.
- Gillet, M. (1981). *We walked very warily: A history of women at McGill*. Montreal: Eden Press Women's Publications.
- Goodman, D. (2004). 'There is no-one to whom I can talk': Norman Harper and American history in Australia. *Australasian Journal of American Studies*, 23, 5–20.
- Goodman, J., Jacobs, A., Kisby, F., & Loader, H. (2011). Travelling careers: Overseas migration patterns in the professional lives of women attending Girton and Newnham before 1939. *History of Education*, 40, 179–196. doi:10.1080/0046760X.2010.518163
- Goodman, J., & Martin, J. (Eds.). (2002). *Gender, colonialism and education: The politics of experience*. London: Woburn Press.

- Hall, C. (1992). *White, male and middle class: Explorations in feminism and history*. London: Polity Press.
- Hardt, M., & Negri, A. (2004). *Multitude: War and democracy in the age of empire*. New York: Penguin.
- Harkness, J. (1903, March 14). [Letter to W. Peterson] Office of the Principal, William Peterson (RG2 c26/Mathematics Chair 1903). McGill University Archives, Montreal.
- High Commissioner for South Africa. (1919, March 7). [Letter to E. Rutherford]. Chair of Physics (AA 1-156/7 March 1919). University of Cape Town Archives, Cape Town.
- Hight, J., & Candy, A. M. F. (1927). *A short history of the Canterbury College*. Auckland: Whitcombe and Tombs.
- Hill, A. (Ed.). (1912). *Congress of the Universities of the Empire, 1912: Report of proceedings*. London: University of London Press: Hodder & Stoughton.
- Hill, A. (Ed.). (1921). *Congress of the Universities of the Empire, 1921: Report of proceedings*. London: G. Bell & Sons.
- Hirst, E. L. (1963). John Read, 1884–1963. *Biographical Memoirs of Fellows of the Royal Society*, 9, 236–260.
- Honeck, M., & Meusburger, P. (2012). American students up to 1914. In P. Meusburger & T. Schuch (Eds.), *Wissenschaftsatlas of Heidelberg University: Spatio-temporal relations of academic knowledge production* (pp. 296–299). Knittlingen: Bibliotheca Palatina.
- Horn, M. (1999). *Academic freedom in Canada*. Toronto: University of Toronto Press.
- Hoskin, K. (1982). Examinations and the schooling of science. In R. MacLeod (Ed.), *Days of judgement: Science, examinations, and the organization of knowledge in Victorian England* (pp. 213–236). Driffield: Studies in Education.
- Hunter, T., Laby, T. H., & von Zedlitz, W. (Eds.). (1911). *University reform in New Zealand*. Wellington: Whitcombe & Tombs.
- Hunter, D. (1933, February 27). [Letter to J. Brock] J. Brock Papers (BC1041/A1/1). University of Cape Town Archives, Cape Town.
- Innes, H. (1929, March 23). [Memorandum by Harold Innes re. Prof Griffith Taylor] Office of the President (A1967-0007/287). University of Toronto Archives, Toronto.
- Jenkin, J. (1985). The Appointment of W. H. Bragg, F. R. S., to the University of Adelaide. *Notes and Records of the Royal Society of London*, 40, 75–99. doi:10.1098/rsnr.1985.00
- Jenkin, J. (2008). *William and Lawrence Bragg, father and son*. Oxford: Oxford University Press.
- Kerr, A. (1968). *Fort Hare 1915–48: The evolution of an African college*. London: Hurst.
- Lake, M., & Reynolds, H. (2008). *Drawing the global colour line: White men's countries and the international challenge of racial equality*. Cambridge, UK: Cambridge University Press.
- Levine, P. (1986). *The amateur and the professional: Antiquarians, historians and archaeologists in Victorian England, 1838–1886*. Cambridge, UK: Cambridge University Press.
- Lloyd, G. (1911, July 12). [Letter to J. Mavor] Office of the President (A1967-0007/21/20). University of Toronto Archives, Toronto.
- Luhmann, N. (1988). Familiarity, confidence, trust: Problems and alternatives. In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 94–107). New York: Basil Blackwell.
- MacKintosh, J. (1923, November 7). [Letter to Currathurs Beatie]. Personal file of J. K. Wylie. (AA 1–156). University of Cape Town Archives, Cape Town.
- MacLeod, R. (1979). Fathers and daughters: reflections on women, science and Victorian Cambridge. *History of Education*, 8, 321–333. doi:10.1080/0046760790080405
- MacLeod, R. (2010). *Archibald Liversidge, FRS: Imperial science under the Southern Cross*. Sydney: Sydney University Press.
- Mavor, J. (1905, October 31). [Letter to James Loudon] Papers of James Loudon (B1972-0031/5/Box 013/14). University of Toronto Archives, Toronto.
- Mavor, J. (1911, July 20). [Letter to R. Falconer] Office of the President (A167-0007/21/20). University of Toronto Archives, Toronto.

- McGill University (1936, September 16). *The Powers of the Senate with Respect to the Establishment of Chairs*. [Memorandum] Office of Principals, Arthur Currie, Arthur Eustace Morgan, and Lewis Williams Douglas (RG2 c53). McGill University Archives, Montreal.
- Meusburger, P. (2013). Relations between knowledge and economic development: Some methodological considerations. In P. Meusburger, J. Glückler, & M. el Meskioui (Eds.), *Knowledge and the Economy* (pp. 15–42). Knowledge and Space: Vol. 5. Dordrecht: Springer.
- Meusburger, P., & Schuch, T. (2010). From mediocrity and existential crisis to scientific excellence: Heidelberg University between 1803 and 1932. In P. Meusburger, D. N. Livingstone, & H. Jöns (Eds.), *Geographies of science* (pp. 57–93). Knowledge and Space: Vol. 3. Dordrecht: Springer.
- Morantz-Sanchez, R. M. (1987). The many faces of intimacy: Professional choices among nineteenth and early twentieth century women physicians. In P. G. Abir-Am & D. Outram (Eds.), *Uneasy careers and intimate lives: Women in science, 1787–1979* (pp. 77–103). New Brunswick: Rutgers University Press.
- Morison, P. (1997). *J. T. Wilson and the fraternity of Duckmaloi*. Amsterdam: Rodopi.
- Murray, B. K. (1982). *Wits: The early years: A history of the University of the Witwatersrand Johannesburg and its precursors, 1896–1939*. Johannesburg: Witwatersrand University Press.
- Naoroji, D. (1900, June 29). [Letter to the Under Secretary of State]. India Office Records, Public and Judicial Department Papers: Annual Files (IOR/L/PJ/6/555/file 2168). British Library, London.
- Pattison, M. (1868). *Suggestions on academical organisation*. Edinburgh: Edmonston & Douglas.
- Perrone, F. (1993). Women academics in England, 1870–1930. *History of Universities*, 12, 339–367.
- Peterson, W. (1900, October 10). [Letter to J. Davidson]. Office of the Principal, William Peterson (RG2 c15-35/2/641/97/59/10 Oct. 1910). McGill University Archives, Montreal.
- Peterson, W. (1901, March 18). [Letter to A. Flux]. Office of the Principal, William Peterson (RG2 c32/2). McGill University Archives, Montreal.
- Peterson, W. (1903, May 1). [Letter to E. B. Titchener]. Office of the Principal, William Peterson (RG2 c33/5/1 May 1903). McGill University Archives, Montreal.
- Pickles, K. (2001). Colonial counterparts: The first academic women in Anglo-Canada, New Zealand and Australia. *Women's History Review*, 10, 273–298. doi:10.1080/09612020100200288
- Pickthorn, K. (1928, May 8). [Letter to the Educational Officer for West Africa] Schol[arship]s Admission to Brit[ish] Uni[versities]. Colonies, General: Original Correspondence (CO 323/1001/13: 8 May 1928). National Archives UK, London.
- Pietsch, T. (2010). Wandering scholars? Academic mobility and the British world, 1850–1940. *Journal of Historical Geography*, 36, 377–387. doi:10.1016/j.jhg.2010.03.002
- Pietsch, T. (2013). *Empire of scholars: Universities, networks and the British academic world, 1850–1939*. Manchester: Manchester University Press.
- Pycior, H. M., Slack, N. G., & Abir-Am, P. G. (Eds.). (1996). *Creative couples in the sciences*. New Brunswick: Rutgers University Press.
- Ritchie, W. (Ed.). (1918). *The history of the South African College, 1829–1918* (Vols. 1–2). Cape Town: T. M. Miller.
- Roberts, R. D. (1911, June 6). [A report of the preliminary conference of representatives of the Canadian Universities held at Montreal]. Office of the President (A1967-0007/16/57/254). University of Toronto Archives, Toronto.
- Robertson, B. (1919, September 23). [Letter to T. H. Laby]. T. H. Laby Papers (UM85/2/1/2/1919). University of Melbourne Archives, Melbourne.
- Rogers, G. E. (2006). Robertson, Thorburn Brailsford (1884–1930). *Australian Dictionary of Biography*. Online edition. Retrieved from <http://www.adb.online.anu.edu.au/biogs/A110429b.html>
- Rothblatt, S. (1968). *The revolution of the dons: Cambridge and society in Victorian England*. London: Faber and Faber.
- Rothblatt, S. (1997). *The modern university and its discontents the fate of Newman's legacies in Britain and America*. Cambridge: Cambridge University Press.

- Rutherford, E. (1919, April 13). [Letter to High Commissioner for South Africa]. Chair of Physics (AA 1-156/13 April 1919). University of Cape Town Archives, Cape Town.
- Selleck, R. J. W. (2003). *The shop: The University of Melbourne, 1850–1939*. Melbourne: Melbourne University Press.
- Shapin, S. (1994). *A social history of truth: Civility and science in seventeenth-century England*. Chicago: University of Chicago Press.
- Sherington, G. (1983). Athleticism in the Antipodes: the A.A.G.P.S. of New South Wales. *History of Education Review*, 12(2), 16–28.
- Sherington, G., & Horne, J. (2009). Modes of Engagement: universities and schools in Australia, 1850–1914. In P. Cunningham, S. Oosthuizen, & R. Taylor (Eds.), *Beyond the lecture hall: Universities and community engagement from the middle ages to the present day* (pp. 133–150). Cambridge, UK: University of Cambridge, Faculty of Education.
- Squier, S. (1997). Conflicting scientific feminisms: Charlotte Haldane and Naomi Mitchinson. In B. T. Gates & A. B. Shteir (Eds.), *Natural eloquence: Women reinscribe science* (pp. 179–195). Madison: University of Wisconsin Press.
- Stray, C. (2005a). Flying at dusk: The 1906 praelections. In C. Stray (Ed.), *The Owl of Minerva: the Cambridge praelections of 1906*, (pp. 1–12). Proceedings of the Cambridge Philological Society: Supp. Vol. 28. Cambridge, UK: Cambridge Philological Society.
- Stray, C. (2005b). From oral to written examinations: Cambridge, Oxford and Dublin, 1700–1914. *History of Universities*, 20, 76–130.
- Testimonials in favour of Mr. Daniel Wilson (Candidate for the Chair of History and English Literature in the University of Toronto) (1851). Bodleian Library, University of Oxford, Oxford.
- Testimonials in favour of T. P. Anderson Stuart (Candidate for the Chair of Anatomy and Physiology in Sydney University) (1882). Bodleian Library, University of Oxford, Oxford.
- Theobald, M. R. (1996). *Knowing women: origins of women's education in nineteenth-century Australia*. Cambridge, UK: Cambridge University Press.
- Todd, A. (1979). James Kenner, 1885–1974. *Biographical memoirs of fellows of the Royal Society*, 25, 389–405.
- University of Melbourne (1909, December). [Application records]. Registrar's Correspondence (UM312/1909/23: Engineering–Chair). University of Melbourne Archives, Melbourne.
- University of Melbourne. (1924a). *Calendar of the University of Melbourne, 1925*. Melbourne: Author.
- University of Melbourne (1924b). [Application records]. Registrar's Correspondence (UM312/1924/162: Chair of Dental Science–Applications). University of Melbourne Archives, Melbourne.
- University of Sydney. (1923). *Calendar of the University of Sydney, 1924*. Sydney: Author.
- University of Sydney. (1927, August 8). [Committee of Advice re Chair of Chemistry] Minutes of the Senate (G1/1/18/Committees/Organic Chemistry: 1928, 8 Aug. 1927). University of Sydney Archives, Sydney.
- University of Toronto (1918). File on T. B. Robertson. (A1967-0007/box 49). University of Toronto Archives, Toronto.
- Watson, J. (1912, January–September). [Correspondence]. John Watson Fonds (1064/1/ Correspondence 1898–1925). McGill University Archives, Montreal.
- Watts, R. (2005). Gendering the story: change in the history of education. *History of Education*, 34, 225–231. doi:[10.1080/00467600500065076](https://doi.org/10.1080/00467600500065076)
- Watts, R. (2007). *Women in Science: A social and cultural history*. Abingdon: Routledge.
- Whitehead, C. (2003). *Colonial educators: the British Indian and colonial education service 1858–1983*. London: I. B. Tauris.
- Whitehead, K. (1999). From youth to 'greatest pedagogue': William Cawthorne and the construction of a teaching profession in mid-nineteenth century South Australia. *History of Education*, 28, 395–412.

- Wilson, J. T. (1889, September 9). [Letter of application and testimonials of James T. Wilson]. J. T. Wilson Papers. (P162 S1/3/9 Sept. 1889), University of Sydney Archives, Sydney.
- Yaffe, L. (1978). *History of the Department of Chemistry McGill University*. Montreal: McGill University.
- Zimmerman, D. (2007). 'Narrow-minded people': Canadian universities and the academic refugee crises, 1933–1941. *Canadian Historical Review*, 88, 291–315. doi:[10.3138/chr.88.2.291](https://doi.org/10.3138/chr.88.2.291)
- Zuckerman, H., Cole, J. R., & Bruer, J. T. (Eds.). (1991). *The outer circle: Women in the scientific community*. New York: W.W. Norton.

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Chapter 10

The University of Cambridge, Academic Expertise, and the British Empire, 1885–1962

Heike Jöns

When Sir Frank Leonard Engledow (1890–1985), Drapers’ Professor of Agriculture in the University of Cambridge, traveled to Southern Rhodesia and South Africa from 13 May to 17 September 1948 to advise the British colonial government on agricultural development in Southern Rhodesia, he kept one of his neatly organized travel journals. The first pages contained the most recent pictures of his botanist wife Mildred (née Roper, 1896–1956) and their four daughters Margaret (aged 26), Catherine (24), Ruth (20), and Audrey (15). These images were followed by notes on his travel kit, itinerary, personal encounters, correspondences, expenditures, field observations, to-do-lists, and readings. At the end, he had noted a few biblical verses, including “Fear God & keep his commandments: for this is the whole duty of man” (Ecclesiastes 12: 13; see Engledow, 1948).

Engledow was a devoted Christian, who had a profound knowledge of the Bible, attended church regularly, and served as a churchwarden (Bell, 1986). From a post-colonial perspective, his Christian beliefs stood in stark contrast to the prevailing racial discourses of scientific development work in the 1940s (Butlin, 2009; Tilley, 2011). At a meeting with Mr. K. M. Goodenough, High Commissioner in the United Kingdom for Southern Rhodesia, at Rhodesia House on 6 November 1947, Engledow was told that the relationship between white settlers and local Africans would be rapidly changing due to: “(a) Native betterment demanded by S. Rhodesian natives and by world opinion. (b) Ignorant natives useless to industry and may ruin land by erosion, etc. (c) Every member of the country’s small population must produce as much wealth as possible” (Engledow, 1947).

This chapter is an extended version of an article original published in the SAGE journal *Environment and Planning A*. It is republished within the journal’s terms and conditions. For the original article, see Jöns, H. (2016). The University of Cambridge, academic expertise and the British empire, 1885–1962. *Environment and Planning A*, 48, 94–114. doi:10.1177/0308518X15594802

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This briefing by Goodenough provides a glimpse of colonial discourses about Africa in the mid-twentieth century that often still reinforced the stereotyping of an “inferior” indigenous population. Powerfully exposed by Said’s (1978) seminal work *Orientalism* in eighteenth- and nineteenth-century British and French discourses, this process was inextricably linked to a feeling of European superiority and the desire of advancing commerce by “civilizing” indigenous peoples, even if the legitimizing racist ideologies contradicted Christian principles. On the eve of decolonization, this situation and growing economic challenges led to increasing competition and clashes between European settlers and indigenous populations over land, labor resources, and cash crop market shares, which created a large demand for scientific expertise (e.g., Engledow, 1949, 1950) and eventually resulted in the replacement of colonial reform by a policy of decolonization (Flint, 1983).

My aim in this chapter is to examine the complex role that university science and scholarship played for interactions between Britain and its colonies. The inquiry is guided by three research questions: To what extent and why did British university scientists and scholars travel to destinations within the British empire? How did the nature and geographies of imperial travel by British academics change over time? And in which ways did their expertise contribute to academic knowledge production and imperial interests? To answer these questions, I situate the travels of individual Cambridge academics within all documented imperial and international travel in the University of Cambridge from 1885–1886, the academic year in which leave of absence was first recorded, to 1954–1955, when looming decolonization and new forms of travel, specifically by air, began to alter the nature of academic mobility.

This chapter builds on previous research that has used the unique longitudinal data set on leave of absence from the University of Cambridge to analyze the geographies of academic knowledge production by type of academic work (Jöns, 2008) and disciplinary identities (Heffernan & Jöns, 2013). The following analysis contributes a highly original perspective to this progressive research agenda by responding to four research desiderata in wider geographical and interdisciplinary debates about knowledge production, travel, and imperialism, thereby providing a pioneering academic study of the extent to which British academics working across the sciences and the humanities contributed to British imperial governance.

Firstly, my research strengthens the dimension of empire in an emerging body of work that studies transnational linkages, circulations, and networks of universities at the level of institutions rather than nation states (e.g., Charle, 2004; Heffernan & Jöns, 2007, 2013; Meusburger & Schuch, 2012; Pietsch, 2013; Taylor, Hoyler, & Evans, 2008). Secondly, this chapter aims to complement prevailing biographical studies of imperial scientific travelers (e.g., Driver, 2001; McEwan, 2000) by situating individual practices within collective academic travel and analyzing how the former reproduced and changed patterns of academic engagement with different parts of the colonial world over seven decades. Thirdly, this study speaks to a growing body of work on the contribution of academic expertise to colonial and postcolonial networks (e.g., Hodge, 2007; Stuchtey, 2005; Tilley, 2011) by comparing the origins, natures, and geographies of personal, institutional, academic, and govern-

mental imperial knowledge networks. Fourthly, this essay charts novel territory by examining the involvement of Cambridge academics in imperial agendas because previous research has characterized the University of Oxford as an important arena within which British imperial ideology was formulated, whereas Cambridge has mostly been regarded as preoccupied with education and learning rather than theology and politics (Symonds, 1986/1992). Overall, I argue that a profound understanding of the interplay between academic expertise and imperial governance requires an integrated analysis of macropatterns and microperspectives.

Knowing the Empire

This study is situated at the intersection of geographers' engagement with the development, nature, and critique of British imperialism (e.g., Bell, Butlin, & Heffernan, 1995; Butlin, 2009; Godlewska & Smith, 1994) and studies of exploration and travel for the production and circulation of scientific knowledge in imperial and international contexts (e.g., Driver, 2001; Heffernan, 1994; Jöns, 2008; Livingstone, 2003; McEwan, 2000). Both lines of inquiry are evoked in Said's (1978) compelling argument that science, scholarship, and empire have been mutually constituted projects since the eighteenth century. They have become popular international and interdisciplinary endeavors with converging interests in the spatiality of knowledge production and the conceptualization of empire and science as networks linked by various circulations (e.g., Hodge, 2011; Lambert & Lester, 2006; Ogborn, 2000).

This chapter's first original approach to imperial travels of scientists and scholars relates to its comparative disciplinary research perspective, which studies academics working across all disciplines. Venturing beyond the disciplinary tradition particular to geography situates this chapter within studies on the geographies of scientific knowledge that have examined the difference location has made for the supposedly universalist claims advanced in other disciplines (e.g., Livingstone & Withers, 2011; Meusburger, Livingstone, & Jöns, 2010). Drawing on Livingstone's (2003) argument that the locations where scientific knowledge was generated, communicated, and displayed profoundly shaped the development of science, those studies have emphasized how European colonial empires were constituted by the circulation not only of traded commodities but also of ideas, theories, practices, objects, and people; by acts of translation between different languages and cultures; and by a complex, scalar politics of exchange and authority (e.g., Ogborn, 2008; Raj, 2010).

Recent geographical studies of empire have also developed highly differentiated perspectives of a networked empire by emphasizing multiple experiences in different national and imperial contexts (e.g., Lambert & Lester, 2006). This includes examinations of the role of previously underplayed factors such as race, class, and gender for the creation, articulation, and circulation of geographical knowledge (e.g., Blunt & McEwan, 2002), as well as circulations between imperial and colonial nodes with central and peripheral standing and the complex interactions of

European and non-European knowledge producing practices within the colonial “periphery” (e.g., Bravo, 1999; Driver, 2001; Ogborn, 2000; Raj, 2010).

This chapter’s comparative geographical research perspective thus constitutes a second original approach to imperial academic travel because it accesses those multidimensional circulations by exploring how Cambridge academics contributed to the spaces of British imperial regulation, authority, and control in different parts of the empire. By focusing on knowledge production through circular academic travel, this study complements Pietsch’s (2010) work on appointment practices of universities in different regions of Britain’s settler empire that stresses the great extent to which academic careers focused on British imperial networks in the early twentieth century. The question of how the frequency, nature, and geographies of imperial travel from the University of Cambridge changed in the context of early decolonization also adds to a growing body of research about the wider impact of decolonization on postcolonial relationships (e.g., Blunt & McEwan, 2002; Craggs, 2011; Craggs & Wintle, 2016).

Conceptually, the present study frames circular academic travel from the University of Cambridge as an integral part of systematic mobilization processes in a scientific “center of calculation” (Latour, 1987, p. 215). Such mobilization processes have facilitated knowledge production at the home base through the accumulation and subsequent transformation of heterogeneous resources into new scientific and scholarly arguments (De Certeau, 1986). The notion of a center of calculation has been especially useful for geographical studies of knowledge production in modern institutions, such as the University of Cambridge, where circular academic travel generated important cumulative effects for the emergence of a modern research university and an Anglo-American academic hegemony (Jöns, 2008; for a government institution, see Barnes, 2006). The concept has also been of great value in different imperial contexts as mobilization processes in centers of calculation have become inextricably linked to the global spread of European science, capitalism, and imperialism (Jöns, 2011).

Based on this conceptualization, this chapter links individual and collective travel behavior in the university by situating the “geographical biography” (Livingstone, 2003, p. 182) of the plant scientist and agriculturalist Sir Frank Engledow within the changing nature and geographies of all recorded imperial and international travel by Cambridge academics in order to trace some of the origins, dynamics, diversities, and impacts of related knowledge networks. This integrated comparative approach of macro- and microperspectives seeks to contribute new insights about the historical geographies of knowledge production to an emerging global history of science and scholarship that has hitherto prioritized biographical over structural accounts and rarely attempted a combination of both (for related debates, see Ogborn, 2000, 2008; Heffernan & Jöns, 2013; Taylor et al., 2008).

An integrated analysis of individual and collective academic travel also helps to assess the value of the archival data on all applications for leave of absence by Cambridge University Teaching Officers as they are recorded in the minute books of the university’s General Board (GB) from 1885–1886 to 1954–1955. These minutes contain information on each applicant and in most cases also on the reason, length, and destination of the planned leave of absence. As Cambridge academics

were free to travel during vacations, the data captures not all travels from Cambridge but those during full term time, research leaves of one to three terms, and all travels of more than 3 months because this was the length of the longest vacation during the summer.

The plant scientist and agriculturalist Sir Frank Engledow was chosen as a biographical case study because his career in Cambridge was more than anyone else's characterized by a close relationship between scientific research, imperial policy making, and colonial development. Engledow's academic career spanned more than seven decades, from his first enrollment at St. John's College in 1910 until his death in 1985, and resulted in most granted leaves of absence of over 1 month from 1885–1886 to 1954–1955. He mainly used these for inquiries on agriculture in the tropical empire, which included reporting to more than a dozen royal commissions (Bell, 1986). While his vital role for the renaissance of British agriculture has been discussed (Perkins, 1997), this study argues that Engledow is also an important but understudied figure in the British empire of knowledge production (Hodge, 2007).

Comparing the records on Sir Frank Engledow's leaves of absence with all of his academic journeys documented in St. John's College Library¹ shows that 10 out of 11 overseas journeys during his employment at the university up until 1955, the end of data recording for this study, are listed in the minute books (plus two planned journeys—one was not approved, the other did not take place). The additional journey was a trip to Assam in the Christmas vacation 1953–1954, which lasted 1 month and was thus shorter than the other journeys of 1.5–4.5 months. The leave of absence data is thus reliable in regard to journeys of over 1 month, while shorter trips, especially those to closer overseas destinations that Engledow did not undertake because of his focus on the tropics, have most likely not been captured adequately. The historical geographies of academic travel discussed in this chapter therefore focus on research leaves and overseas journeys of several months.

Capitalizing on the Empire

In the late nineteenth and early twentieth centuries, the University of Cambridge underwent substantial changes through growing numbers of students and university academics, new scientific laboratories and research institutes, and the introduction of research-based PhD degrees (1920). These innovations were accompanied by three university reforms, launched by the Royal Commissions of 1852, 1874, and 1922, which gradually professionalized research, teaching, and academic service

¹ The Engledow papers include 17 travel journals, a number of notebooks, and reports. His daughter Ruth Steketee (Eindhoven) kindly provided in-depth knowledge about her father's life and access to further papers, including the "blue diary," an annual notebook on the weather; political, professional, and family events; and his U.K. and overseas travels for the period 1909–1980. These private papers entered St. John's College Library in September 2014.

and thus transformed the ancient center of learning into a modern research university (Brooke, 1993).

From 1885 onward, professors and readers were required to apply for leave of absence from the university during those periods that exceeded the strictly defined rules of residence throughout full term time. The resulting records show that the volume of academic travel from Cambridge remained relatively low until the periodic research leave, or sabbatical, was introduced in 1926, which raised the annual number of applications for leave of absence from consistently less than 10 to 31 in 1927–1928 (Jöns, 2008, p. 346). A similar reform had been pioneered by some American universities, where regular sabbatical leave had first been introduced at Harvard in 1880 (Eells, 1962). Almost 50 years later, Cambridge academics were now also entitled to devote one term for every six of normal service to their research, which encouraged university academics across all disciplines to travel for their research and thus elevated travel to the key research technique (Heffernan & Jöns, 2013).

The considerable increase in academic travel from Cambridge after 1926 ended abruptly with the outbreak of World War II, when many academics enrolled in war service, but after 1945, the rapidly expanding community of Cambridge academics became markedly more mobile as a consequence of commercial air travel and the growing significance of overseas travel in the research process. Within 10 years, the number of annual applications for academic leave rose steadily from 30 (1945–1946) to 96 (1954–1955) and thus at a faster rate than the number of university academics (Jöns, 2008). Three-fourths of those awarded academic leave from 1885–1886 to 1954–1955 traveled overseas and thus globalized academic knowledge production in Cambridge.

About one fifth of all recorded overseas travels by Cambridge academics in the period 1885–1886 to 1954–1955 involved destinations in the British empire (22%, or 167 out of 751 journeys), defined here as British dominions, colonies and other possessions at the height of colonial expansion in 1914. Since most of these territories remained part of the Commonwealth of Nations after gaining independence, the following analysis sheds light on the changing meaning of the British overseas empire for academic travel in the early stages of decolonization.²

²Relevant territorial changes include the Dominion status of Canada (1867), Australia (1901), New Zealand (1907), Newfoundland (1907), and South Africa (1910) and the independence of Afghanistan (1919), Egypt (1922), and the Indian subcontinent (India, 1947; Pakistan, 1947; Burma, 1948; Ceylon, 1948). The macroanalysis ends before decolonization started in Africa (Sudan, 1956; Ghana, 1957), continued in Southeast Asia (Malaya, 1957), and peaked in the 1960s (Butlin, 2009).

Imperial Travels Until 1945

Up until 1945, imperial travel followed the overall pattern of academically motivated overseas journeys from Cambridge. A slow but gradual increase of travels was followed by a steep rise after the introduction of the research leave scheme in 1926 and a slight reduction in the decade dominated by World War II. From 1906–1915 to 1936–1945, the British empire received fairly equal shares of 27–29%, which reveals a steady commitment to the imperial project. By that time, however, most academic travel from Cambridge was already directed to the United States, where emerging research universities had fostered transatlantic exchange through invited lectures since the turn of the century and through visiting appointments since the late 1920s, when regular research leaves allowed more Cambridge academics to accept these lucrative posts (Table 10.1). Mainland Europe received a similar proportion of academic travelers as the British empire, even if this varied considerably between the decade affected by World War I (1916–1925: 11% versus 29%) and the subsequent one, in which European interactions reached its peak due to a growing

Table 10.1 Destinations of overseas academic leaves at the University of Cambridge by decade (in percentage of overseas academic leaves with one or more destinations)

Destination	Decade								N
	1886–1895	1896–1905	1906–1915	1916–1925	1926–1935	1936–1945	1946–1955	1886–1955	
(1) United States of America	40	58	41	50	29	36	40	38	289
(2) Continental Europe	20	25	27	11	34	28	34	32	240
(3) British Empire overseas (as of 1914)	40	25	27	29	27	28	19	22	167
(a) Dominions	0	67	67	75	26	37	40	39	65
(b) British India	100	0	17	25	26	37	23	26	44
(c) British Africa	0	33	17	0	20	7	31	23	38
(d) British West Indies	0	0	0	0	20	19	5	10	16
(e) British southeast Asia	0	0	0	0	14	4	2	5	8
(4) Other places	20	0	5	14	15	10	11	11	85
	Number of overseas academic leaves								
	5	12	22	28	129	98	457	751	751

Adapted from the minutes of the University of Cambridge General Board (GB), Min III.1 to Min III.7 and GB 160, Boxes 301–308

attractiveness of short-distance travel for conferences and lectures (1926–1935: 34 % versus 27 %).

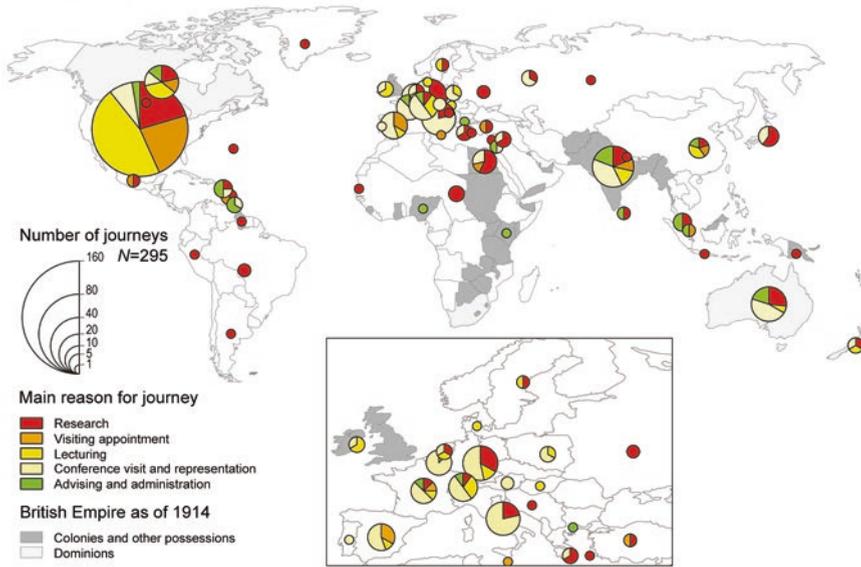
Different parts of the empire played very different roles in academic travel from Cambridge as these were visited to a different extent and for very different reasons, both of which changed over time (Fig. 10.1). In the two decades before the end of World War II, the relatively affluent Dominions and British India attracted not only most but also equal and growing shares of imperial travelers from Cambridge. Visits to British colonies in Africa, the West Indies, and Southeast Asia were rare and mainly focused on the decade 1926–1935 (Table 10.1). Imperial destinations were most often visited for research in the applied natural and technical sciences, for visiting posts and conferences, and for the provision of scientific expertise to imperial organizations, but the integration of different parts of the empire into academic circles differed in similar ways as their role in imperial trade networks (Pietsch, 2010).

Research travelers mostly visited imperial destinations for scientific fieldwork, often in connection with larger expeditions. For example, James Alfred Steers, Lecturer in Geography, joined an expedition of the Royal Geographical Society to the Australian Great Barrier Reef in 1928, whereas Edward Nevill Willmer, Lecturer in Physiology, took part in the Cambridge expedition to British Guiana in 1933 to investigate the fauna of local rivers and swamps (University of Cambridge General Board, 1928, 1933). In contrast to these dispersed fieldwork destinations, the few laboratory and theoretical scientists, who visited research institutions in the empire during the 1930s and 1940s, mainly went to established centers in Canada, Australia, and New Zealand that were able to afford the immense input of money, training, and machines required for highly specialized laboratory equipment and expertise.

Many fieldwork locations in the empire were easily accessible because of existing infrastructure or were required due to the thematic focus. Research travel thus rarely served specific imperial interests, an exception being the educational journey of Edward Granville Browne, the newly elected Sir Thomas Adams Professor of Arabic (1902), who went to Cairo in the Lent Term of 1903. Browne was keen to improve his Arabic language skills and “to obtain openings for some of our students who may be able to acquire a competent knowledge of Arabic” (Browne, 1902, p. 20) because this would be taken into account in the appointment to the London Civil Service. Imperial structures and networks were thus used for research travel if relevant to the research agenda in a particular field but, in similar ways as Ellis (chapter in this book) argues in regard to British academic networks from 1850 to 1914, rather than being determined by imperial ties and interests, research travel from Cambridge reached out beyond the confines of empire (Fig. 10.1a). It also shifted its geographical focus from imperial destinations in the decade 1926–1935 (36 %) to the United States in the decade 1936–1945 (57 %).

Conference travel from Cambridge mainly focused on existing European centers of knowledge production that provided the infrastructure, funds, and like-minded colleagues required for organizing such socially and academically important gatherings, but it also targeted some of the more affluent regions of empire such as India,

A. 1886-1945



B. 1946-1955

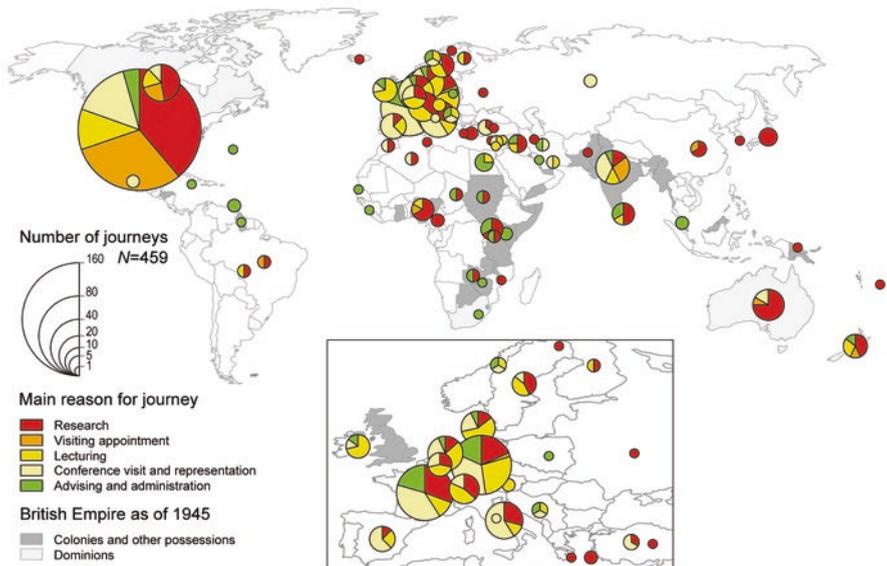


Fig. 10.1 Overseas academic leaves of Cambridge academics by type of work. Adapted from the minutes of the University of Cambridge General Board (GB) Min III.1 to Min III.7 and GB 160, Boxes 301–308 (Design by author)

Australia, and Canada, where large international conventions were either held by the British Association for the Advancement of Science or modeled after these meetings (Withers, 2010). Likewise, invited lectures by Cambridge academics concentrated on the Dominions and British India, while visiting posts were held at established institutions in different parts of the empire (e.g., Gleb Anrep, Cairo University, 1930; Max Born, Indian Institute of Science, Bangalore, 1935; W. A. Fell, Singapore Medical College, 1935; see University of Cambridge General Board, 1930, 1935).

In contrast to Symonds's (1986/1992) assumption about a prevailing disengagement with British politics, several Cambridge academics contributed to British imperial governance and economic revenue by providing their expertise in the context of mostly externally funded in situ inquiries that required academic travel. This analysis shows that from the 1920s onward, Cambridge expertise was sought by colonial organizations to support the creation and maintenance of a network of imperial institutions and to advice on government and corporate policies. Almost three-fourths of all overseas advisory work by Cambridge academics from 1886 to 1945 was located in the British empire (Table 10.2). Largest demand was for academics working in agriculture and forestry and thus in disciplines that had been employed systematically for exploiting the resources of the colonies since the eighteenth century (Vessuri, 1994, as cited in Butlin, 2009).

The 1930s did not only bring the Great Depression along but also strikes and riots throughout the empire and significant reforms of British colonial policy that Flint (1983) regarded as “the origins of decolonization” (p. 394). From this perspective, three events were directly responsible for the colonial reform movement that created a consensus for “state-managed colonial development” (Hodge, 2007, p. 18) and thus increased the need for scientific expertise in the 1940s and 1950s. Firstly, widespread riots in the West Indies since the mid-1930s “destroyed the long held axiom that colonial territories must live off their own resources on *laissez faire* principles” (Flint, 1983, p. 394). Secondly, the publication of Lord Hailey's African Survey in 1938 suggested that supporting the emergence of an English-speaking literate professional class of Africans through education would create a legitimate comprador strata that could eventually “inherit colonial sovereignty” (Flint, 1983, p. 400). Thirdly, Malcolm Macdonald was appointed as Secretary of State for the Colonies from 1938 to 1940. He was determined to replace indirect rule with a consistent British colonial policy and to promote, for the first time, self-government as its central long-term goal:

Even amongst the most backward races of Africa our main effort is to teach those peoples to stand always a little more securely on their own feet . . . the trend is towards the ultimate establishment of the various colonial communities as self-supporting and self-reliant members of a great commonwealth of free peoples and nations. (Malcolm Macdonald addressing the summer school on colonial administration at Oxford University on 27th June 1938, as quoted in Flint, 1983, p. 398)

Table 10.2 Destinations of overseas academic leaves at the University of Cambridge by type of academic work and decade (in percentage of overseas academic leaves with one or more destinations)

Destination	Type of work												Total
	Research		Visiting posts		Lecturing		Conferences		Advisory work		Total		
	1886–1945	1946–1955	1886–1945	1946–1955	1886–1945	1946–1955	1886–1945	1946–1955	1886–1945	1946–1955			
(1) United States of America	30	46	50	83	68	24	11	29	12	16	35	40	
(2) Continental Europe	22	26	13	1	17	59	58	52	12	30	29	34	
(3) British Empire overseas (as of 1914)	29	22	28	16	13	12	25	9	73	44	28	19	
(a) Dominions	39	53	22	55	70	50	45	44	21	5	38	40	
(b) British India	26	15	22	36	30	30	40	56	26	14	30	23	
(c) British Africa	17	35	22	9	0	20	10	0	21	55	14	31	
(d) British West Indies	17	0	22	0	0	0	10	0	21	18	15	5	
(e) British southeast Asia	9	0	11	0	0	0	0	0	16	9	7	2	
(4) Other places	27	15	9	3	4	8	7	11	7	14	12	11	
	79	156	32	69	76	85	81	97	26	50	294	457	

Adapted from the minutes of the University of Cambridge General Board (GB) Min III.1 to Min III.7 and GB 160, Boxes 301–308

Imperial Travels After 1945

The British colonial reform movement that flourished after the end of World War II exemplifies how scientific expertise was increasingly used at the eve of decolonization to reform colonial policies in times of crises (Secretary of State for the Colonies, 1945). Accordingly, the first of three main trends in academic travel from Cambridge during the post-1945 decade was a geographical shift of imperial travels from British India to British Africa (Table 10.1). Supporting Tilley's (2011) observation that "the African Survey played a decisive role in shaping research priorities in both Britain and colonial Africa" (p. 5), this postwar shift affected advisory work and research inquiries, the latter mainly aiming to study "exotic" flora and fauna in the African rain forest (Fig. 10.1b).

Reflecting the new emphasis on African empowerment through education, scientific experts from Cambridge supported the founding of new institutions for research and higher education, served as trustees, chairmen, and board members of existing institutions, gave invited lectures, and acted as external examiners for London degrees. The contribution of Frank G. Young, Sir William Dunn Professor of Biochemistry, to the commission on a higher college for Africans in the British Central African Territories in 1952, which subsequently became the University College of Rhodesia and Nyasaland, illustrates how Cambridge academics contributed to the new imperial agenda of local empowerment through the provision of tertiary education, even if this process, as Flint (1983) pointed out, paradoxically provided the University of London with "an educational colonial empire as part of the road to decolonization" (p. 403; see University of Cambridge General Board, 1952).

In the context of colonial reform planning, Cambridge expertise was employed for managing increasing conflicts and tensions in the African dependencies. This included Engledow's official inquiry into the agricultural development of Southern Rhodesia in 1948, which was discussed at the beginning of this essay, and a range of other crisis interventions that Cambridge academics undertook for the Colonial Office. For example, Frank Debenham, Professor of Geography, reported on the water resources of Northern Rhodesia and Nyasaland in 1946, whereas Mr. C. W. Guillebaud, Lecturer in Economics and Politics, served as an arbitrator in a dispute between the copper mining companies of Northern Rhodesia and the Union of African Mine Workers in 1953 (University of Cambridge General Board, 1945; 1953).

All these imperial interventions after 1945 were an integral part of the "bi-partisan policy of colonial planning and reform [that] had emerged, and would remain in effect until it foundered in Central African problems in the 1950s" (Flint, 1983, p. 409). According to Flint (1983), colonial reform eventually failed and had to be replaced by a policy of political decolonization for four main reasons. Firstly, the notion of planning was itself fundamentally imperialistic; secondly, the colonial service showed strong resistance toward the Africanization of administration, which the government in London had not foreseen; thirdly, related racism compromised

any sensible cooperation with the educated elite; and fourthly, postwar Britain lacked the financial resources that would have been necessary for implementing colonial empowerment in orderly evolutionary stages.

The second trend in the development of imperial travels from Cambridge in the post-1945 decade was a profound deepening of the uneven integration of different areas of empire into British academic networks. This resulted in a growing divide between the relatively affluent and well-connected Dominions and the resource-intensive but academically fairly disconnected colonies in Southeast Asia and the Caribbean (Table 10.2). After 1945, the Dominions attracted about half of the imperial travels from Cambridge for research, visiting posts and invited lectures respectively. This was encouraged by new research facilities and the availability of Commonwealth schemes and institutions that funded visiting academics from metropolitan centers of knowledge production in these prospering sites of empire.

Some of those Cambridge scientists, who were invited to Australia, New Zealand, and Canada, conveniently visited family and friends along their routes, thus reflecting longstanding networks in the “British academic world” (Pietsch, 2013), but more and more academic visitors in Canada combined their stays with touring attractive research facilities in the United States to keep up-to-date with latest developments in their fields. In sharp contrast to this, the new focus on Africa led to a very different kind of “empowerment” in British Southeast Asia and the West Indies because these became, apart from only six inquiries for advisory purposes over 10 years, entirely disconnected from Cambridge academics’ postwar interactions (Table 10.2). Academic research and advisory work also shifted away from postcolonial British India, but the Indian subcontinent remained a preferred destination for conference travel, visiting posts, and invited lectures because of its well-established universities that “had existed for 90 years before Independence” (Symonds, 1986/1992, p. 292).

The third trend saw an overall decline in the significance of imperial destinations for academic travel from Cambridge after World War II because of two developments. The first was a growing Americanization of research and visiting posts spearheaded by the expensive laboratory sciences that increasingly channeled academic flows toward powerful U.S. research universities and national research laboratories. From 1946 to 1955, 40% of all overseas academic travel from Cambridge was directed to the United States. The second development was an Europeanization of advisory work and invited lectures as a result of the high demand for expertise created by the reconstruction of a shattered post-war Europe. This new phase of European cooperation reduced the focus of advisory work on the British empire from 73% in the pre-1945 period to 44% in the post-1945 decade (Table 10.2).

Within the same time frame, the United States and mainland Europe raised their shares of Cambridge academic travelers from 35 to 40% and from 29 to 34% respectively, while the share of the British empire dropped from 28 to 19%. Visits to decolonized destinations differed from travels to colonized destinations through much less advisory work and visits by professors; fewer visits in the applied sciences with a complete retreat of the agricultural sciences; and slightly more visits for conferences, lecturing, and visiting posts, thus indicating a transition from the

use of Cambridge expertise for the support of imperial structures to the fostering of transnational academic exchange, as especially evident in the Dominions and British India. Despite the wider trend of withdrawal, most of the Dominions and those states that were independent by 1955 continued to mobilize expertise from Cambridge, but to a lesser extent.

Empowering the Empire

The nature of imperial advisory work and the underlying personal connections and networking practices can be exemplified by the extensive overseas travels of the agriculturalist Sir Frank Engledow, whose academic career in Cambridge peaked during the very period in which overseas travels proliferated. Between the start of his lectureship in 1926 and his retirement in 1957, Engledow made 13 applications for academic leave of absence to the General Board, 12 of which were approved. He took thus more academic leaves of over 1 month and traveled more frequently to imperial destinations than any of his Cambridge peers. The following biographical analysis situates Engledow's 19 overseas journeys from 1914 to 1962, each of which involved parts of the British empire, within the previously outlined collective travel patterns from the University of Cambridge to examine how he reinforced and changed these wider trends and contributed to imperial knowledge production.

Sir Frank Engledow was born on 20 August 1890 in Deptford, Kent, as the youngest of five children. Unlike most of his professorial colleagues at Cambridge, who were able to draw on private wealth, he came from a modest middle-class background. His father was a police sergeant, who had grown up in Norfolk, and his mother, who came from a farm in Essex, was in service before raising their five children (Bell, 1986). Engledow had attended Upland Council School, Bexleyheath, and Dartford School before his parents, who provided their children with educational opportunities they had lacked, supported his enrollment at University College London (UCL) in 1909 (Bell, 1986), when only 1.3% of an age cohort went to university (Jarusch, 1983).

After obtaining a BSc in mathematics with physics at UCL in 1910, Engledow entered St. John's College, Cambridge, where he received a BA in the natural sciences (1913). Subsequently, he started working at the Plant Breeding Institute (PBI) in the School of Agriculture with Professor Rowland Harry Biffen, Cambridge's first Professor of Agricultural Botany (1908–1936) and the PBI's founding director (1912–1936), who created a significant center for plant genetics and agricultural research in Cambridge (Bell, 1986; Hodge, 2007). Engledow's postgraduate studies led to three journal articles in 1914, one of which was coauthored by the British statistician Udney Yule, an important mentor and long-term friend, but this trajectory was interrupted by a 4.5-year-long overseas career in the military during World War I that subsequently shaped his academic career in profound ways.

Engledow sailed to India with The Queen's Own 5th Royal West Kent Regiment (5th RWK) in October 1914. He spent the subsequent 3 years in the north of British

India, where he suffered from typhoid (1915) and malaria (1917) but also began to document inquiries about agricultural production at the site of the British military headquarters in Rawalpindi (1916), especially in regard to wheat, sheep, dairy farms, and daily rations of Indian troops (Engledow, 1916). The 5th RKW Battalion sailed for Mesopotamia in December 1917, where Engledow became assistant director of agriculture to the Mesopotamian Expeditionary Force under the directorship of Geoffrey Evans (1918–1919) (Engledow, 1917). Geoffrey Evans's postwar career included positions in the Empire Cotton Growing Corporation and the Imperial College of Tropical Agriculture in Trinidad (ICTA), both of which sought Engledow's expertise in the subsequent decade.

In May 1919, Engledow returned to Cambridge, where he completed his MA in the natural sciences and became a Fellow of St. John's (1919–1985). On the invitation of Biffen, he returned to the PBI for research in crop breeding that sought to improve varieties of wheat and barley (Bell, 1986). Soon afterward he met Mildred Roper, a postgraduate student in botany from South Africa, who had arrived at Newnham College in 1919 and ended her academic pursuits in Cambridge's Botany School when marrying Engledow in March 1921 (Bell, 1986). Engledow's university lectureship in 1926 was granted to him after a series of important publications and a formative journey through the United States and Canada. This journey for "the stimulus and education of foreign travel" (Engledow 1925, p. 1) was funded by a "Travelling Research Fellowship in Plant Genetics" and resulted in a highly acclaimed report on North American agriculture for the British Ministry of Agriculture and Fisheries (Engledow, 1925).

Seven weeks of railway travel in the summer of 1924 through the United States and Canada, from New York via Washington DC–Chicago, IL–Minneapolis/St. Paul, MN–Toronto–Guelph–Ithaca, NY–Raleigh, NC– and Upper Wilmington, MD back to Washington DC and New York, acquainted Engledow with the latest agricultural practices and technological developments in the world's rising hegemonic power. He became conscious of "that close relation of American agricultural science to business which was everywhere noticeable" (Engledow, 1925, p. 5) and attended the fortnight of meetings and excursions of the British Association for the Advancement of Science in Toronto, appreciating that many "Dominion and American agriculturalists were present" (p. 8). Touring North America provided Engledow, like several other aspiring researchers from European universities in the twentieth century, with the necessary expert knowledge, personal networks, and intellectual credentials for a distinguished academic career.

After Engledow had been appointed University Lecturer in Agriculture in 1926, he gradually turned into a scientific advisor on agricultural policies in the tropical empire, where he aimed to implement economically viable and sustainable agricultural practices in regard to the three main cash export crops cotton, rubber, and tea (Fig. 10.2). This career change was most likely encouraged by his wartime companion Geoffrey Evans at a time when the Colonial Office, as Hodge (2007) discusses, built up a network of advisors, standing committees, central research stations, and postgraduate training facilities. Engledow first traveled to Nigeria and Ghana for 2 months in 1927–1928 because he had been asked "to make proposals for the

Empire Cotton Growing Corporation on cotton breeding and seeds supply for Nigeria” (Bell, 1986, p. 215), which coincided with Geoffrey Evans’s employment at the Empire Cotton Growing Corporation. In 1929, he inspected the Cotton Research Institute and the ICTA in Trinidad for the Empire Marketing Board, when Geoffrey Evans served as the ICTA’s principal (1927–1938). This clearly underlines the existence of closely knit, intersectoral imperial networks that in Engledow’s case can be traced back to his overseas military service in World War I.

Appointed Drapers’ Professor of Agriculture in 1930, Engledow undertook three important overseas journeys in the 1930s that cemented his role as one of the Colonial Office’s key advisors on tropical agriculture. He presided over two commissions of inquiry—one on the affairs of the Rubber Research Institute in Malaya (1933) and the other on the scientific development of the Indian Tea Association (1935–1936)—and was also a member of the Royal Commission on the West Indies (1938–1939). Engledow’s work for the Indian Tea Association entailed an extended tour of tea-growing areas in Assam, Ceylon, Sumatra, and Java that was marked by two innovations. The first was a visit to Batavia, a knowledge hub in Dutch-ruled Java, which was most likely encouraged by his Dutch host, Professor J. Boerema, and represented the only overseas location Engledow visited outside of British imperial territories after 1926 (Fig. 10.2). The second innovation was Engledow’s first airplane flight, on 1 January 1936, that took him from Batavia to Palembang as part of a 3-day journey to Calcutta with multiple stops. While in the air, he scribbled notes on the colorful KLM Royal Dutch Air Lines route map, commenting about the changing landscape and the pilot’s generous extra circles, one on starting in Medan “in honor of a former lady passenger who had turned up to see the plane” (Fig. 10.3a) and the other for an unsuccessful “elephant hunt” (Fig. 10.3b).

Two years after Engledow experienced these revolutionary changes in long-distance travel, he directly contributed to the imminent landmark shift in British colonial policy as a member of the Royal Commission on the West Indies chaired by Lord Moyne. The Moyne Commission was appointed on 5 August 1938 as the British government’s response to severe labor unrests and bloody disputes between workers and colonial forces in the West Indies (Whitham, 2002). Consisting of ten expert members—seven men and three women—and two male secretaries, the commission toured the British West Indies with the twofold aim of reporting on the colonies’ economic and social conditions and formulating policy recommendations. Living and traveling between the islands on Lord Moyne’s motor yacht *Rosaura* for 5 months, the royal commissioners became a public sensation and were frequently greeted by large crowds (Fig. 10.4). They heard formal evidence “in 26 centres from 370 witnesses or groups of witnesses” (Secretary of State for the Colonies, 1940, p. 8), including sugar workers, trade unionists, and representatives of various associations, and received 789 additional memoranda for consideration.

In their report, the commissioners revealed extremely poor living conditions for most Caribbeans that contrasted with the high living standards of European colonials (Fig. 10.5). They exposed striking deficiencies in regard to voting rights, social services, and private and public sector economies and criticized British colonial policy in the strongest terms (Moyne Commission, 1945). As an immediate response

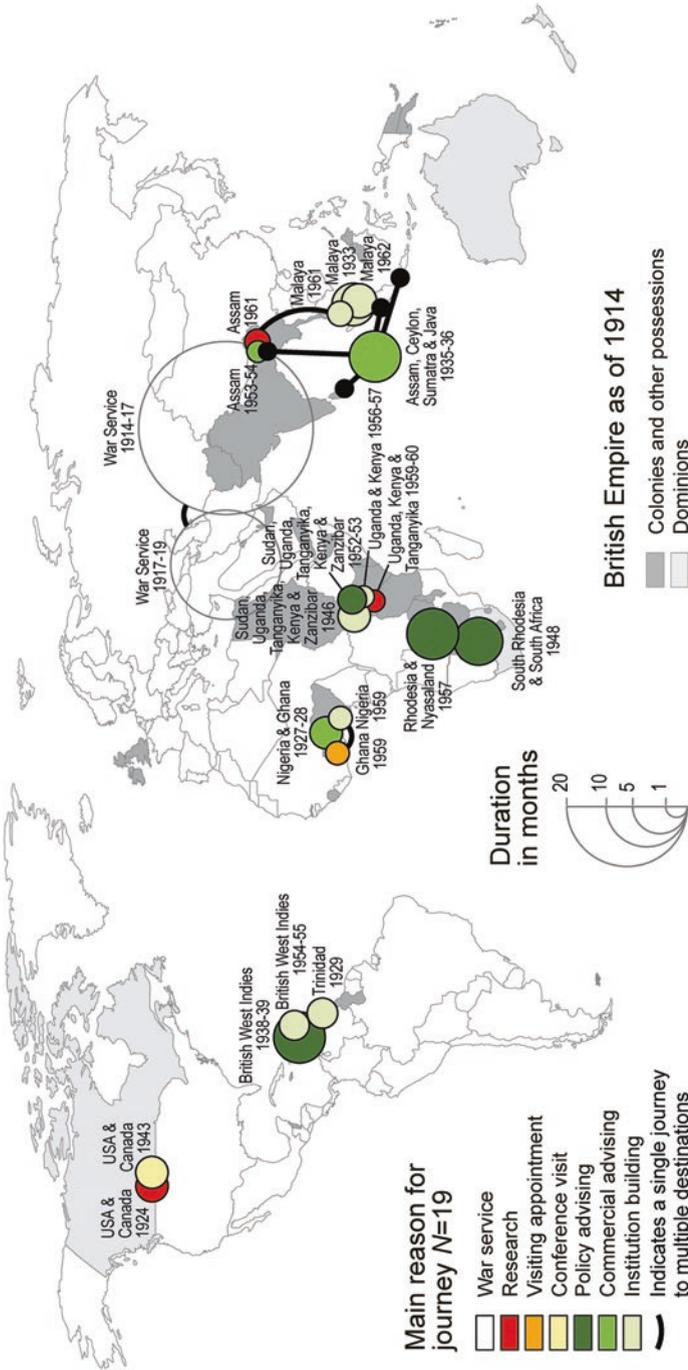
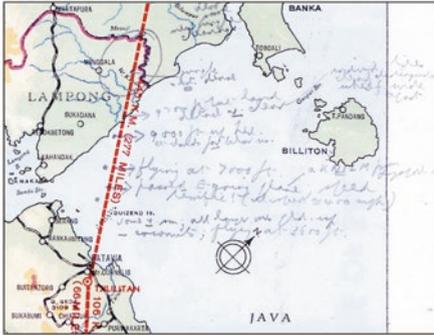
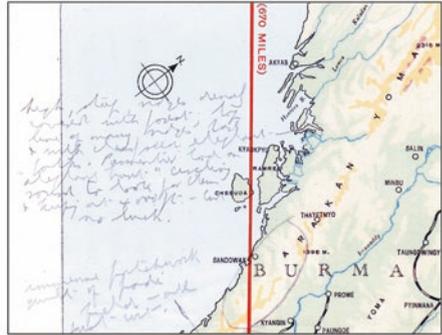


Fig. 10.2 Overseas journeys of Professor Sir Frank Leonard Engledow (1890–1985). Adapted from Bell, 1986; the minutes of the University of Cambridge General Board (see Fig. 10.1); and the Papers of F. L. Engledow, St. John’s College Library, University of Cambridge (Design by author)

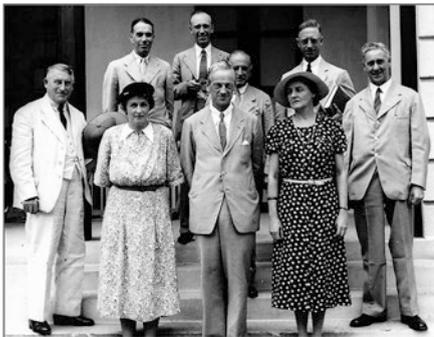


A. First leg: Batavia to Palembang, 01/01/36



B. Final leg: Rangoon to Calcutta, 03/01/36

Fig. 10.3 KLM route map with annotations made by Professor Engledow during his first airplane flight. Source: Engledow, 1936. Reprinted with permission



A. Professor Engledow, 2nd from right, with other commission members



B. The commission's landing at Portsmouth Dominica, 1939

Fig. 10.4 The Moyne Commission, 1938–1939. Source: Engledow, 1938–1939. Reprinted with permission



A. Hut with family who answered Engledow's food questions in Tortola



B. The British overseer's quarters at Blairmont Sugar Estate, British Guiana

Fig. 10.5 Fieldwork of the Moyne Commission, 1938–1939. Source: Engledow, 1938–1939. Reprinted with permission

to this colonial critique, the British government increased the funds available for colonial development and launched the Colonial Development and Welfare Act of 1940, but the commissioners' report of December 1939 was not released to the public until after the end of World War II, in July 1945, because the British government feared that the Axis powers would use it for anti-British propaganda (Lapping, 1985). The publication of the Moyne Commission's full report thus belatedly introduced a major change in British colonial expertise to other experts, policy makers, and the wider public, which might explain why the impact of Lord Hailey's African Survey on British colonial reform has hitherto received more scholarly attention.

The Moyne Commission's work also confirms Tilley's (2011) argument that late colonial scientific advisors both undermined and supported the cause of empire "by introducing new concepts, new ways of knowing, and new methods of understanding" (p. 25), because the royal commissioners strongly criticized the lack of public provision across all sectors of society in the West Indies, while at the same time supporting imperial rule and planning through efficiency-driven policy recommendations. Engledow's expertise, for example, reoriented the emphasis of colonial agricultural policy from export-oriented production toward more diverse and self-sufficient local food supply, but it still encouraged increased productivity and thus demanded the replacement of indigenous shifting cultivation by more intensive mixed rotational farming practices, which often turned out to be impractical because of the only gradually recognized, rapidly declining soil fertility in the tropics (Hodge, 2007).

This chapter therefore suggests that late colonial advisors such as Engledow represented a new generation of professional academic experts, who operated within the imperial agenda but were distinctively "post-Victorian imperialists" because they were caught up in striking ambivalences. Engledow's advisory work in the tropical empire, for example, was simultaneously based on a deep faith in a Christian god and a strong belief in the superiority of the Anglo-Saxon race; on humanitarian ethics that cared for "the peasant farmer living at subsistence level" (Bell, 1986, pp. 205–206) and scientific planning that sought to increase the economic revenue of plantation-owning white settlers; and on closely knit interpersonal networks and a genuine desire to improve agricultural production throughout the empire by means of organization, research, education, and training.

During World War II, Sir Frank Engledow's academic reputation continued to grow in Britain, where he took on a series of responsibilities in regard to domestic agricultural policy and strategy, such as the role of Ministry Liaison Officer of the War Agricultural Committee for the Midland counties in June 1940, the first time he advised on domestic agricultural policy (Engledow, 1940). In 1943, he attended the United Nations Conference on Food and Agriculture in Hot Springs, Virginia, United States, as a U.K. delegate and became a Founder Trustee of the Nuffield Foundation. In return for his distinguished services, Engledow was knighted in 1944 and elected a Fellow of the Royal Society in 1946 (Bell, 1986).

Immediately after World War II, Engledow returned overseas and contributed, like other Cambridge academics, to African empowerment through both education and colonial reform. In 1946, he was involved in selecting the site for the new East

African Agricultural and Forestry Research Organization at Muguga near Nairobi during the delegation's 2-month journey through Kenya, Uganda, Tanganyika, and Zanzibar (Hodge, 2007). Almost a decade after his commissioned evaluation of Southern Rhodesian agriculture (Engledow, 1949, 1950), Engledow attended the seventh degree day of the Gwebi College of Agriculture in Rhodesia on 17 October 1957, where he was honored for his contribution to the institution's foundation in 1950 (Certificate, 1957).

Engledow's overseas journeys after 1945 mainly reinforced the wider geographical shift of academic expertise to Africa. At these advanced stages of his professorial career, he did not participate in the trend of increasing academic travels to the United States and continental Europe but kept moving within the highly selective and exclusionary imperial networks that linked the British worlds of governance and academia (Hodge, 2007; Pietsch, 2013). These postwar journeys contributed in some ways to the growing disparities between different parts of empire because Engledow returned seven times to Africa, three times to Malaya, twice to India, and only once to the British West Indies. Following a recommendation of the Moyne Commission, Frank Stockdale had been appointed "first comptroller for the development and welfare in the West Indies" in 1940 (Hodge, 2007, p. 193), which had reduced the need for British academic expertise. When traveling to the West Indies in 1954–1955, Engledow thus mainly visited the ICTA in Trinidad that he had first inspected in 1929, under the directorship of his wartime companion Geoffrey Evans, and on whose governing bodies he had served in London for many years (Bell, 1986).

Engledow's postwar journeys also show that certain British colonial networks outlasted decolonization at least for some time because he traveled to India, Ghana, and Malaya after independence (Fig. 10.2). In 1953–1954, he chaired a commission of the India Tea Association to redo a small-scale version of the inquiry on the challenges of tea growing that he had undertaken under the auspices of the Colonial Office in 1935–1936 (Bell, 1986, p. 216). The important role of India's long established institutions of higher education and research for the formation of lasting post-colonial academic networks can also be exemplified by Engledow's PhD student, Benjamin Peary Pal, who had graduated from Rangoon University before undertaking doctoral research in Cambridge from 1929 to 1933. Pal later became a distinguished imperial economic botanist in India, who was appointed first director of the Indian Council of Agricultural Research in 1965 and elected a Fellow of the Royal Society in 1972 (Perkins, 1997).

Sir Frank Engledow became Emeritus Professor of Agriculture in 1957, 1 year after his wife died from cancer and decolonization began in British colonial Africa (Bell, 1986). His role as a visiting lecturer at Kumasi College of Technology in Ghana in spring 1959 shows how colonial expertise was also remobilized for the support of higher education in postcolonial Africa. At the end of the same year, he undertook what appears to be a farewell tour through colonial agricultural institutions in Uganda, Tanganyika, and Kenya. Engledow's final two overseas journeys, in 1961 and 1962, brought him once more to India, for research on tea, and to independent Malaya, where he still served on the Coordinating Advisory Committee at

the Rubber Research Institute in Kuala Lumpur (Bell, 1986). Diagnosed with hip arthritis in 1962, at the age of 72, Engledow stopped traveling overseas just as decolonization hit its prime time. After a final publication on tropical agriculture in the journal *Nature* (Engledow, 1961), he refocused his work back on the British homeland for the two decades to come.

Conclusions

This chapter has examined the role of imperial destinations for knowledge production in the University of Cambridge and the contributions of Cambridge academics to the governance and economic revenue of the British overseas empire from the 1920s to the 1960s. Whereas Symonds (1986/1992) remarked that “Cambridge appeared less interested in the Empire and its governance than Oxford” (p. 302), this study has illustrated how Cambridge academics across all disciplines, particularly in the applied natural and social sciences, used the British empire for mobilizing resources for academic knowledge production and provided expertise to imperial governments and institutions through often externally funded advisory work. This was especially possible after the introduction of regular research leaves in 1926 because these allowed Cambridge academics to undertake extended overseas journeys, a process that was only formalized in Oxford after 1954 (Heffernan & Jöns, 2013).

This study contributes seven main findings to the literatures on knowledge production, travel, and imperialism. Firstly, the analysis shows that circular imperial travels of Cambridge academics accounted for a similar share (1900–1930: 32%) as the imperial engagement of British academics who had undertaken study or work in the British empire prior to their professorial appointment at the University of Manchester (1900–1930: 30%; see Pietsch, 2010). As this also applies to imperial career mobility by Oxford matriculates from Balliol, Keble, and St. John’s Colleges, it appears that different forms of academic mobility were part of the same imperial networking practices (1918–1919 to 1937–1938: 19 versus 18%; the latter figure applies to jobs of at least 2 years, excluding military and diplomatic posts; see Symonds, 1986/1992).

Secondly, this research has underlined that Cambridge expertise was of particular importance to imperial organizations at the eve of decolonization because of a lack of scientific infrastructure and serious social conflicts in the colonies. Academic travels to both British India and British Africa peaked in the respective decade before decolonization, which resulted in a geographical shift of post-1945 advisory work toward British Africa that was reinforced by the impact of Lord Hailey’s African Survey on a growing interest in African affairs (Tilley, 2011).

Thirdly, existing disparities in the integration of different areas of empire into British academic networks intensified after 1945 due to shifting types of academic work. Increased travel to the Dominions for laboratory research and visiting posts and to British Africa for field research and advisory work coincided with the attrac-

tion of British India changing from research and expertise to visiting posts and conferences, whereas imperial destinations in Southeast Asia and the West Indies were nearly abandoned by Cambridge academics. This reinforced asymmetric power-relations between different parts of empire and thus confirms the existence of multiple, geographically distinct imperial knowledge networks that changed over time (Lambert & Lester, 2006).

Fourthly, this study has revealed that despite an increase of imperial travels in the decade after World War II, the relative significance of imperial destinations for academic travel from Cambridge decreased because of a reduced need for British expertise in decolonized states, a growing Americanization of research and visiting posts encouraged by powerful U.S. laboratory sciences, and a Europeanisation of advisory work and invited lectures in the context of postwar reconstruction. This suggests that decolonization was not merely the withdrawal of British political and military presence but also led to an adjustment of academic work away from the former colonies, even if the Dominions and the first independent states continued to draw on Cambridge expertise to some extent.

Fifthly, the juxtaposition of collective and individual travel behavior in the university confirmed that the growth of university-based science, research, and travel in the first half of the twentieth century gave rise to the figure of the modern academic expert (Hodge, 2007). This study has characterized senior colonial advisors in British universities such as the agriculturalist Professor Sir Frank Engledow as distinctively post-Victorian imperialists, whose contributions were shaped by an ambivalent positionality in the intersection of personal faith, colonial friendship networks, prevailing racial discourses, humanitarian ethics, as well as scientific planning and training. These emerging modern academic experts took empire for granted, while at the same time criticizing some of its basic features, which explains why their contributions to the new colonial reform policy of local empowerment through education in post-World War II colonies, somewhat paradoxically, paved the way for decolonization and national independence.

Sixthly, while previous studies stressed the pivotal role of the African Survey for a profound change of direction in British imperial policy after 1938 (Tilley, 2011), the interplay of macro- and microperspectives employed in this chapter suggests that the Moyne Commission on the West Indies (1938–1939), of which Engledow was a member, played an equally important role for the new colonial reform movement but has most likely received less scholarly attention because the publication of its controversial findings was delayed until after World War II (see also Flint, 1983). The historical geographies and impacts of the Moyne Commission therefore emerge as a fascinating subject for future research.

Finally, Professor Engledow's extensive overseas travels have verified the large emphasis placed on the acquisition of local knowledge in imperial advisory work from the 1920s to the 1960s (Hodge, 2007; Tilley, 2011). However, the particularly high frequency of his travels made him an exception in the University of Cambridge. This can partly be explained by his modest background that prevented him, the son of a police sergeant, from feeling a sense of belonging to the elitist Cambridge academic community. His regular escapes from Cambridge also required a strong

involvement with government work because in contrast to most of his academic peers, Engledow did not have the private means to finance such prolonged overseas travels himself (personal communication by Ruth Steketee, Eindhoven, 12 January 2013).

In conclusion, this chapter therefore argues that Engledow's largely government-funded, distinguished career as one of the Colonial Office's key advisors on tropical agriculture seems to be the logical, if contingent, outcome of several biographical coincidences, including his humble origins, his growing concern with agricultural production in Cambridge at a time when this became an important means for colonial development, and the personal companionship of Geoffrey Evans since military service that most likely encouraged the new emphasis on imperial advisory work in Engledow's early academic career. The important role that late colonial academic advisers such as Engledow played for imperial governance and the rise of a wider culture of expertise was very much indicative for the new professionalism of modern academic experts and is particularly evident in Hodge's (2007) observation that their intellectual legacy resonates in international development discourses up until today.

Acknowledgements I extend my sincere gratitude to Ruth Steketee-Engledow, the late Frank Steketee, Ady Steketee, Rients Rozendal, Mike Heffernan, Sarah Holloway, Kathryn McKee, Tamson Pietsch, the EPA editor Trevor Barnes, the anonymous EPA reviewers, and the technical editor of this volume, James Bell, for supporting this research. Material from the Engledow papers is reproduced by permission of the Master and Fellows of St. John's College, Cambridge. Documents from the Cambridge University Archives are quoted with kind permission of the Syndics of Cambridge University Library.

References

- Barnes, T. J. (2006). Geographical intelligence: American geographers and research and analysis in the Office of Strategic Services 1941–1945. *Journal of Historical Geography*, 32, 149–168. doi:[10.1016/j.jhg.2005.06.001](https://doi.org/10.1016/j.jhg.2005.06.001)
- Bell, G. D. H. (1986). Frank Leonard Engledow. *Biographical Memoirs of Fellows of the Royal Society*, 32, 189–219. doi:[10.1098/rsbm.1986.0007](https://doi.org/10.1098/rsbm.1986.0007)
- Bell, M., Butlin, R., & Heffernan, M. (Eds.). (1995). *Geography and imperialism, 1820–1940*. Manchester: Manchester University Press.
- Blunt, A., & McEwan, C. (2002). *Postcolonial geographies*. London: Continuum.
- Bravo, M. T. (1999). Ethnographic navigation and the geographical gift. In D. N. Livingstone & C. W. J. Withers (Eds.), *Geography and enlightenment* (pp. 199–235). Chicago: University of Chicago Press.
- Brooke, C. N. L. (1993). *A history of the University of Cambridge: Vol. 4, 1870–1990*. Cambridge: Cambridge University Press.
- Browne, E. G. (1902, November 19). *Cambridge University General Board meeting minutes*. (Min III.2, p. 20), Cambridge University Archives, Cambridge.
- Butlin, R. A. (2009). *Geographies of empire: European empires and colonies c.1880–1960*. Cambridge, UK: Cambridge University Press.
- Certificate (1957, October 17). *Certificate awarded Engledow by the Gwebi College of Agriculture*. Papers of F. L. Engledow (uncataloged). St. John's College Library, University of Cambridge, Cambridge.

- Charle, C. (2004). The intellectual networks of two leading universities: Paris and Berlin, 1890–1930. In C. Charle, J. Schriewer, & P. Wagner (Eds.), *Transnational intellectual networks: Forms of academic knowledge and the search for cultural identities* (pp. 401–450). Frankfurt: Campus.
- Craggs, R. (2011). ‘The long and dusty road’: Comex travel cultures and Commonwealth citizenship on the Asian Highway. *Cultural Geographies*, 18, 363–383. doi:10.1177/1474474010382074
- Craggs, R., & Wintle, C. (Eds.). (2016). *Cultures of decolonisation: Transnational productions and practices, 1945–70*. Manchester: Manchester University Press.
- De Certeau, M. (1986). *Heterologies: Discourse on the other* (B. Massumi, Trans.). Manchester: Manchester University Press.
- Driver, F. (2001). *Geography militant: Cultures of exploration and empire*. Oxford: Blackwell.
- Eells, W. C. (1962). The origin and early history of sabbatical leave. *AAUP (American Association of University Professors) Bulletin*, 48, 253–256. doi:10.2307/40222893
- Engledow, F. L. (1916). *Notebook on Engledow’s time in Rawalpindi*. Papers of F. L. Engledow (Box 3). St John’s College Library, University of Cambridge. Cambridge.
- Engledow, F. L. (1917). *Diary entry*. Papers of F. L. Engledow (uncataloged, blue diary). St John’s College Library, University of Cambridge. Cambridge.
- Engledow, F. L. (1925). *Report on a tour in North America, 14 July–12 September 1924, undertaken by means of a Travelling Research Fellowship in Plant Genetics awarded in 1924*. London: Ministry of Agriculture and Fisheries.
- Engledow, F. L. (1936). *KLM route map with annotations*. Papers of F. L. Engledow (uncataloged). St. John’s College Library, University of Cambridge, Cambridge.
- Engledow, F. L. (1938–1939). *Photographs on the Moyne Commission*. Papers of F. L. Engledow (uncataloged, photo album on the West Indies, 1938–1939). St. John’s College Library, University of Cambridge, Cambridge.
- Engledow, F. L. (1940). *Diary entry*. Papers of F. L. Engledow (uncataloged, blue diary). St. John’s College Library, University of Cambridge, Cambridge.
- Engledow, F. L. (1947). *Notebook*. Papers of F. L. Engledow (Box 2, notebook, Southern Rhodesia and South Africa, GI N-1 to N-18, Note 1, p. 4). St John’s College Library, University of Cambridge. Cambridge.
- Engledow, F. L. (1948). *Notebook*. Papers of F. L. Engledow (Box 2, notebook: Southern Rhodesia and South Africa, pp. 228–229). St John’s College Library, University of Cambridge. Cambridge.
- Engledow, F. L. (1949). *Report to the Minister of Agriculture and Lands on agricultural teaching, research and advisory work in Southern Rhodesia*. London: Government Stationary Office.
- Engledow, F. L. (1950). *Report to the Minister of Agriculture and Lands on the Agricultural Development of Southern Rhodesia*. London: Government Stationary Office.
- Engledow, F. L. (1961). Cotton-growing in Nigeria. *Nature*, 192, 1248–1249. doi:10.1038/1921248a0
- Flint, J. (1983). Planned decolonization and its failure in British Africa. *African Affairs*, 82, 389–411. Retrieved from <http://afraf.oxfordjournals.org/content/82/328/389.full.pdf+html>
- Godlewska, A., & Smith, N. (Eds.). (1994). *Geography and empire*. Oxford: Blackwell.
- Heffernan, M. (1994). A state scholarship: The political geography of French international science during the nineteenth century. *Transactions of the Institute of British Geographers*, 19, 21–45. doi:10.2307/622444
- Heffernan, M., & Jöns, H. (2007). Degrees of influence: The politics of honorary degrees in the Universities of Oxford and Cambridge, 1900–2000. *Minerva*, 45, 389–416. doi:10.1007/s11024-007-9065-8
- Heffernan, M., & Jöns, H. (2013). Research travel and disciplinary identities in the University of Cambridge, 1885–1955. *The British Journal for the History of Science*, 46, 255–286. doi:10.1017/S000708741200074X
- Hodge, J. M. (2007). *Triumph of the expert: Agrarian doctrines of development and the legacies of British colonialism*. Athens: Ohio University Press.
- Hodge, J. M. (2011). Science and empire: An overview on the historical scholarship. In B. M. Bennett & J. M. Hodge (Eds.), *Science and empire: Knowledge and networks of science across the British Empire, 1800–1970* (pp. 3–29). Basingstoke: Palgrave Macmillan.

- Jarusch, K. H. (1983). Higher education and social change: Some comparative perspectives. In K. H. Jarusch (Ed.), *The Transformation of higher learning 1860–1930* (pp. 9–36). Chicago: The University of Chicago Press.
- Jöns, H. (2008). Academic travel from Cambridge University and the formation of centres of knowledge, 1885–1954. *Journal of Historical Geography*, 34, 338–362. doi:10.1016/j.jhg.2007.11.006
- Jöns, H. (2011). Centre of calculation. In J. A. Agnew & D. N. Livingstone (Eds.), *The SAGE handbook of geographical knowledge* (pp. 158–170). London: Sage.
- Lambert, D., & Lester, A. (Eds.). (2006). *Colonial lives across the British Empire: Imperial careering in the long nineteenth century*. Cambridge, UK: Cambridge University Press.
- Lapping, B. (1985). *End of empire*. London: Granada.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Livingstone, D. N. (2003). *Putting science in its place: Geographies of scientific knowledge*. Chicago: Chicago University Press.
- Livingstone, D. N., & Withers, C. W. J. (Eds.). (2011). *Geographies of nineteenth-century science*. Chicago: University of Chicago Press.
- Moyne Commission. (1945). *West India Royal Commission Report*. Cmd. 6607. London: H. M. Stationary Office.
- McEwan, C. (2000). *Gender, geography and empire: Victorian women travellers in West Africa*. Aldershot: Ashgate.
- Meusburger, P., & Schuch, T. (Eds.). (2012). *Wissenschaftsatlas of Heidelberg University: Spatio-temporal relations of academic knowledge production*. Knittlingen: Bibliotheca Palatina.
- Meusburger, P., Livingstone, D. N., & Jöns, H. (Eds.). (2010). *Geographies of science*. Knowledge and Space: Vol. 3. Dordrecht: Springer.
- Ogborn, M. (2000). Historical geographies of globalisation, c. 1500–1800. In B. Graham & C. Nash (Eds.), *Modern historical geographies* (pp. 43–69). Harlow: Pearson.
- Ogborn, M. (2008). *Global lives: Britain and the world, 1550–1800*. Cambridge, UK: Cambridge University Press.
- Perkins, J. H. (1997). *Geopolitics and the green revolution: Wheat, genes, and the Cold War*. Oxford: Oxford University Press.
- Pietsch, T. (2010). Wandering scholars? Academic mobility and the British world, 1850–1940. *Journal of Historical Geography*, 36, 377–387. doi:10.1016/j.jhg.2010.03.002
- Pietsch, T. (2013). *Empire of scholars: Universities, networks and the British academic world, 1850–1939*. Manchester: Manchester University Press.
- Raj, K. (2010). *Relocating modern science: Circulation and the construction of knowledge in South Asia and Europe, 1650–1900*. Basingstoke: Palgrave Macmillan.
- Said, E. W. (1978). *Orientalism: Western conceptions of the Orient*. London: Penguin Books.
- Secretary of State for the Colonies (1940). *West India Royal Commission 1938–39: Recommendations*. Cmd. 6174. London: H. M. Stationary Office.
- Secretary of State for the Colonies (1945). *West India Royal Commission 1938–39: Statement of action taken on the recommendations*. Cmd. 6656. London: H. M. Stationary Office.
- Stuchtey, B. (2005). *Science across the European empires, 1800–1950*. Oxford: Oxford University Press.
- Symonds, R. (1992). *Oxford and empire: The last lost cause?* Oxford: Oxford University Press. (Original work published in 1986)
- Taylor, P. J., Hoyler, M., & Evans, D. M. (2008). A geohistorical study of ‘the rise of modern science’: Mapping scientific practice through urban networks, 1500–1900. *Minerva*, 46, 391–410. doi:10.1007/s11024-008-9109-8
- Tilley, H. (2011). *Africa as a living laboratory: Empire, development, and the problem of scientific knowledge, 1870–1950*. Chicago: The University of Chicago Press.
- University of Cambridge General Board (GB) (1882–1955). *Meeting Minutes* (Min III.1 to Min.7 and GB 160, Boxes 301–308). Cambridge University Archives, Cambridge.

- University of Cambridge General Board (1928, February 29). *Meeting Minutes* (Min III.6, p. 35). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (1930, May 21). *Meeting Minutes* (Min III.6, p. 97). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (1933, February 8). *Meeting Minutes* (Min III.7, p. 40). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (1935, February 13). *Meeting Minutes* (Min III.7, p. 83). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (GB) (1945, October 31). *Meeting Minutes* (GB 160, Box 303, p. 32). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (GB) (1952, October 8). *Meeting Minutes* (GB 160, Box 307, p. 9). Cambridge University Archives, Cambridge.
- University of Cambridge General Board (GB) (1953, January 14). *Meeting Minutes* (GB 160, Box 307, p. 88). Cambridge University Archives, Cambridge.
- Whitham, C. (2002). *Bitter rehearsal: British and American planning for a post-war West Indies*. Westport: Praeger.
- Withers, C. W. J. (2010). *Geography and science in Britain, 1831–1939: A study of the British association for the advancement of science*. Manchester: Manchester University Press.

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Chapter 11

Geneva, 1919–1945: The Spatialities of Public Internationalism and Global Networks

Madeleine Herren

From the “Spirit of Geneva” to the Spatial Representation of Public Internationalism

In 1942, a mysterious man knocked on the doors of several international organizations located in Switzerland to interview their secretaries and directors. As the German spy hidden behind the initial *Oe*, he was better known within the community of international organizations as Herbert Oelschlägel, secretary of the International Bureau of Associations of Manufacturers, Wholesalers, and Retailers of Jewellery, Gold, and Silver Ware. This organization was founded in 1926 and had a seat in the Netherlands (Herren, 2009; Herren & Zala, 2002; League of Nations, 1938, p. 356) and an entry in the *Handbook of International Organizations*, a League of Nations publication (LONSEA, International Bureau n.d.-c).

Interestingly, the international jewelry organization was important enough to find the interest of national socialist officials, who not only placed a spy in the secretary’s position but also even allowed him the spending of scarce foreign currency and the application for a rare exit visa during World War II. Although the presence of spies in neutral countries is nothing new, finding one masked as secretary of an international organization is remarkable. Oelschlägel’s excursion to Geneva was based on an understanding of international organizations less as single institutions but as a network, coherent even under wartime conditions, and attributed to specific places.

A German spy working systematically through the addresses of all international organizations challenges the understanding of Geneva as an international meeting point whose importance increased as the seat of the League of Nations after World War I and dwindled away with the political tensions leading to World War II. This

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history of decline corresponded to a contemporary discourse that translated an already existing debate about the *esprit de Genève* into the spatial, urban version of a programmatic, League-of-Nations-driven understanding of international relations based on idealistic concepts. This “spirit of Geneva” was attributed to the city after World War I by a variety of agencies with far-distant aims, for instance, the Geneva tourist office, philosophers from venerable Geneva families (e.g., de Traz, 1929), foreign journalists and politicians (e.g., Eduard Benes), and the League of Nations, which, as the forerunner of the United Nations (UN), had its main seat at the shore of lake Geneva.

To historians using discourse analysis, the spirit of Geneva appears as a specific narrative, based on at least two different, and sometimes intertwined spatialities after World War I. First, there is a strong focus on local traditions. A proud and impenetrable circle of venerable Geneva families had adapted Calvinist internationalism to secular international relations by supporting the foundation of the International Committee of the Red Cross in 1863 and its legal basis with the signature of the Geneva convention in 1864. These international activities left their mark in the old city, and in the *salle de la réformation*, where the General Assembly of the League of Nations met for a limited time. Second, the spirit of Geneva materialized in the Palais des Nations, the seat of the League of Nations. Opened in the late 1930s, the building evoked ambivalent and emotional reactions, and celebrating its modern functional style, the “gleaming wood, and glass, and metal” (Slocombe, 1938, p. 328), became a sign of decline in the light of the obvious political tensions that substantially weakened the League of Nations. At this time, the spirit of Geneva was perceived critically. The well-known British journalist to the Daily Herald, George Slocombe, grappled with the fact that Geneva had not at all the character of a cosmopolitan capital. He called Geneva in 1938 “a third rate European city of little international importance. It was a small town in a small state, and not even its capital. Nothing happened there” (Slocombe, 1938, p. 52). Although things changed gradually as time went by, with more than two hundred journalists ultimately listed in the Geneva directory of 1937, Slocombe had good reasons to stay with his diagnosis of parallel lives:

For seventeen years the several thousand foreigners of culture and distinction associated with the various international movements with headquarters in Geneva have lived on the fringe of a small, dull, and conservative society which at first affected to ignore their very existence and later made clumsy and transparent attempts to create social relations with them. (Slocombe, 1938, p. 43)

Indeed, the usual infrastructure of a capital with diplomatic quarters was missing, and the situation became even more difficult because an international administration of this size challenged established ideas about well-known (diplomatic) representation. As Slocombe explained, the League’s secretariat was the center of a microcosm based on expert knowledge covering all topics imaginable, from currency problems to narcotic drug trafficking, with a research department and a library available. But the idea of a “super-state . . . governed by scientists” (Slocombe, 1938, p. 324) remained a utopian project without traces in the real city from this

point of view. While the spirit of Geneva remains fragile and its explanatory capacities ambivalent, the obvious function of the city as a global meeting point provides a model or laboratory of how a global society tested the invention of an international space, including, but also overstepping and challenging diplomatic representation.

The two approaches—the contemporary discourse about the spirit of Geneva and its spatial manifestations—are only rarely connected to each other. Usually, Geneva’s international character remains embedded in a discursive concept, fleshing out the contemporary debate on internationalism, a concept developed in the late nineteenth century and reformulated after World War I. The scholarly interest in internationalism has coincided with analyzing transnational entanglements and non-state actors in the international system. In the newest publications, internationalism and nationalism are represented not as mutually exclusive, but as intertwined phenomena (Sluga, 2013). This approach contributes to another strand in recent historiographical debates, namely the interest of global history in the close interferences of local and global aspects. Combining these two discourses, I elucidate the traces internationalism left behind in Geneva’s urban landscape.

Looking behind programmatic internationalist concepts, I am interested in the shaping of global meeting places that found spatial expression in a diversity of places—in hotels, bars, and restaurants; in the many buildings of international organizations that interested Oelschlägel; in international research facilities; in an urban landscape characterized by fast connections across national borders—but, astonishingly enough, without quarters with a specific national character. There was no little Italy or little China in Geneva.

In this chapter, I connect the previously underestimated scholarly interest in internationalism with the development of Geneva’s local urban landscape in the 1930s. Internationalism is considered the local manifestation of a global public sphere and investigated in its spatial conditions. In my understanding, the spatial expression of internationalism is not limited to the institutions of international organizations and international congresses, to their production of events and texts. In lieu thereof, what I call *public internationalism* encompasses the analytical potential of discourse analysis.

In this chapter, I investigate the traces the 1930s internationalism imprinted on the urban landscape with the aim of elaborating on the question of whether the local spatial conditions existed for the development of a global public sphere, a discussion of relevance for democracy debates beyond the nation state (Nash, 2014). The methodological approach chosen in this chapter relies on networks. Although used in historiography in a more pragmatic understanding than actor-network theory suggests, the focus on networks allows combining social relations in connection with related materialities. It accentuates primarily the importance of a dynamic exchange across borders.

The findings in this chapter are based on data generated by the database League of Nations Search Engine (LONSEA, League of Nations, n.d.-a). This analytical tool combines data compiled by the League of Nations on two different occasions, namely information collected from international organizations for the publication of

the above-mentioned *Handbook of International Organizations*, which provides the names of those acting as representatives, directors, and secretaries of international organizations, and personal data collected by the League's secretariat between 1920 and 1946 for all persons on the payroll of the League, independent of their status or length of employment. In addition, LONSEA shows in the case of Geneva the location of international organizations and the persons involved. Instead of merely linking institutions with people, this twofold approach investigates the spatial dimensions of networks on a social level, presuming, therefore, space as a semantic concept (Meusburger, 2008, p. 42). Thus, in this chapter I investigate whether the presumption of public internationalism goes beyond the verification of places where international organizations had their seats. Moreover, I examine whether the spirit of Geneva turned into a sort of social coherence, in which the permeability of public spheres and the missing borders between institutionalized international contacts fostered social contacts. Knowing the working places and personal addresses of people employed by international organizations, what can be learned about the persons involved by investigating their spatial location? In addition, what are the consequences of adding a spatial dimension to networks in comparison with the findings provided by the institutional histories of international organizations and the ongoing debates on cosmopolitans and expatriates? Is it evident whether the people and institutions involved defined themselves as a community by producing, sharing, and spreading common knowledge?

Although Geneva remains the main example and although the city probably presented a unique laboratory of public internationalism after World War I, this approach concentrates on the spatial manifestation of internationalism. For this investigation, internationalism is limited to international organizations connected to the League of Nations and restricted to persons working for these organizations. Although of unquestioned importance, urban planning and specific local politics stand outside these considerations. Geneva and the League of Nations are therefore both examples and testing fields for a theoretical problem with far-reaching methodological consequences. If an attempt is made to overcome the limits of discourse analysis by investigating border-crossing networks, how resilient are the findings? In the case of international organizations founded between the late nineteenth century and the 1930s, coherence beyond the handling of different topics can be found in the often formally established obligation of the executive organs to transfer information between the adhering members (Herren, 2009; Murphy, 1994). It seems, therefore, obvious to understand international organizations as institutional forms that fit into the new technical possibilities provided by the telegraph and the development of other communication technologies. Combining the two histories of international organizations and communication technologies, the approach underlying the study described in this chapter has to deal with development and modernization. Can it be said, that by using new, efficient, and transgressing communication and management technologies, international organizations achieved a significance in the era of globalization similar to that resulting from the construction of railroads in the era of industrialization? Or, less ambitiously, that investigating the spread of information by international organizations may help to understand

how globally available knowledge gained the character of raw material, which then could be processed in pieces of fast-delivered information.

Recent research, however, is rather reluctant in applying well-established narratives of modernization pointing out that communication technology does more than just shrinking distances and that information transfer always implies the development of an infrastructure going beyond the simple installation of telegraph poles (Wenzlhuemer, 2010). And because debates on modernity have taken a critical distance to evolutionary ways of development, I do agree with the rather cautious voices who doubt that networks connecting knowledge and information transfer automatically follow the narrative of modernization (Meusburger, 2008).

Leaving development strategies and referring to a more antithetical argumentation, there are good reasons to discuss the flow of transboundary information in the light of the nineteenth and twentieth centuries' most important master narrative, the concept and idea of the nation. Following this perspective, nationalized knowledge needed shaping and translation into a form that ensured transfer across borders to fulfill the requirements of increasing societal mobility and the needs of a world market. This procedure of adaptation referred to different conceptual frames. One is intellectual cooperation based on shared cultural and educational values; another refers to the global spread of similar governmental structures (e.g., the republic) or societal ordering principles (working classes); a third comprises technical cooperation including an agreement on shared standards. All categories are concepts influenced by their specific historical context and therefore underwent substantial change. Just recently, scholarly attention started to discuss *standardization* as the new paradigm of how to reach global compatibility (Murphy & Yates, 2011). This example shows clearly that finding a form that allows locally shaped knowledge to travel globally also implies social change. Or to say it more clearly: The concept of a *global world* needs a cosmopolitan society with meeting points and bargaining routines on the one hand, and appropriate methodological tools for their analysis on the other. With the example of Geneva, although it is limited in spatial and temporal reach, I therefore allocate a territorial quality to networks, asking what kind of international *contact zones* existed, and whether evidence can be found that people involved met in a way overstepping the simple statement that they were members of certain international organizations or international civil servants.

In the following section I discuss the League of Nations' spatial presence in Geneva in the 1930s and the public accessibility of the buildings associated with the League. Furthermore, premises serving as seats of international organizations or as their administrators' and civil servants' residences will provide the reference points for tracing global connectivities and meeting points. Therefore, the institutional history of international organizations is overstepped and a contemporary global mind map is drawn. Understanding space as social construct and individuals as global actors, the question is whether the line of argument remains stuck in investigating the small elite of diplomats and rich cosmopolitans. On these grounds, the less well-paid employees—the typists and translators, the people responsible for the infrastructure globalization is based on—are methodologically also considered. I will describe this lower-ranking group as “subaltern diplomats,” using a concept that is

at the core of an ongoing research project at Heidelberg University, “Subaltern Diplomacy 1930–1960,” which is investigating the existence of a specific form of subaltern diplomacy. Do the “little people” contribute to the development of a global civil society, and do they shape the global space intermingling private domiciles, activities, and business environments?

“Inhabité”—Controversies About the International Space or How Public Internationalism Translated into Space

In 1937, everybody on this planet in reach of a newspaper faced global entanglement at its worst and its best. When the world’s fair opened its doors in Paris, the clash of global panoramas was enormous, from the encounter of fascist, national socialist, and Stalinist architectural nationalism to Picasso’s famous painting *Guernica*. The Sino-Japanese War and the Japanese invasion of Nanjing shed a grim light onto a conflict with a global impact that already had begun to surpass the dimension of a local conflict.

The session of the League of Nations’ General Assembly in September of the same year can be read as another aspect of global entanglements mentioned above. Newspapers from Singapore to Paris celebrated the moment when the General Assembly of the League of Nations met for the first time in the newly opened assembly hall in the Palais des Nations. For the first time, this global community had found an adequate meeting point, big enough for all members, equipped with the newest microphones and interpreters’ boxes, but even more importantly with space offered to a global public.

Translating the concept of *open diplomacy*, the League was and remained a governmental organization with states as members. However, the architecture of the newly opened Palais des Nations presented a specific and elaborate spatial layout, where the public was given access and had the opportunity to contact members in an informal way. Unthinkable for traditional diplomatic deliberations, this approach translated into spatial evidence, for instance into an assembly hall with tribunes and comfortable lobbies with sofas. Moreover, supported by the secretariat’s information section, established flows of information also underwent a *spatial turn*. The *Journal des Nations* (Geneva 1931–1940), the League’s own newspaper, spread gossip by a column apparently written by a “barman.” Even in the year 1939, the headline guided the reader to the Palais, promising the newest gossip under the title “on potine au Bar de la S.d.N.” or “Get your Gossip at the League of Nations Bar” (*Journal des Nations*, 1939).

Interestingly, the innovative spatial layout of the Palais des Nations did indeed have a bar placed in such a way that almost all members of delegation, staff, journalists, and visitors had to pass through it. Besides the bar as a meeting point accessible to an international public, additional spatial evidence confirms the very existence of

such a global civil society in Geneva. At least in September, when the League's Assembly met, Geneva became crowded, and tourist guides warned about fully booked hotels (Baedeker, 1938). Moreover, and with more temporal consistency, the League had attracted a variety of international organizations, whose numbers of offices and representatives had increased—even during the years of crisis (League of Nations, 1938). Indeed, international organizations had changed the city's face in a way not limited to the League's buildings and had contributed to the rise of Geneva's population to 124,293 inhabitants within just 282 km² (*Annuaire Genevois*, 1937, p. 1897).

For a first overview, LONSEA shows the presence of a variety of organizations in Geneva. A concentration of humanitarian organizations and institutions of pacifism and international relations seems obvious (LONSEA, organisations, n.d.-b). The database reveals the long-lasting influence of pacifist and humanitarian traditions established before World War I and centered around the International Committee of the Red Cross. Moreover, the increase in the number of organizations in the 1920s confirms the impact of the League of Nations, which also induced non-governmental organizations (NGO) to transfer their seats to Geneva.

At first glance, the spatial placement of these organizations follows the patterns expected. With the opening of the Palais des Nations, non-governmental organizations devoted to the aims of the League transferred their offices to the former seat of the League's secretariat, Palais Wilson. In the late 1930s therefore, besides the League, a civil society had at least a coherence that was not necessarily thematic but spatial and included a considerable variety of different fields of knowledge. Palais Wilson, a former hotel and now the seat of the United Nations' refugee agency, the Office of the UN High Commissioner for Refugees, housed, for example, representatives of the World Alliance for International Friendship and the International Social Insurance Conference. Here, the Young Men's Christian Association met representatives of the International Broadcasting Union, the World Calendar Association, and the Esperantists. Although only the federation of the international semi-official and private institutions established at Geneva aimed to bring together these worlds of internationalism, a concentration of global expertise shared the same address in proximity to the glamorous quarters at the shore of Lake Geneva.

With regard to the circulation of knowledge, these locations suggest disturbingly multifaceted patterns of interpretation. Even for a dynamic and global twenty-first century with considerable interest in non-governmental organizations, Palais Wilson rarely finds a counterpart, namely an NGO building of comparable size, in the contemporary world. The transfer of the offices from the secretaries' homes to an office building appears as a process of professionalization on the one hand, and as a disentanglement of civil society and experts on the other. Indeed, the *Annuaire Genevois*, the city's official directory, discloses the address of Palais Wilson—51 Quai Wilson—as “inhabité”—unoccupied (*Annuaire Genevois*, 1937, p. 469). Besides their concentration in a huge office building with a spectacular view, the organizations transferred to Palais Wilson shared a European profile. The opening of the European Cultural Centre in 1950 at this place (The European Cultural Centre,

1953) thus continued a development that had already started in the late 1930s, when the organizations that selected to transfer their seats to Palais Wilson had global membership but a Western-oriented universal profile. Where, then, were the extra-European and explicitly global organizations? Can it be inferred from a Palais Wilson with a rather Eurocentric profile that extra-European organizations disappeared—or does the lack of their presence in an uninhabited office building indicate an even closer entanglement with a supportive civil society? In the following section I take a closer look at the separation of work and living spaces and ask where the many international civil servants lived and who—in the case of truly global organizations, rather than European international ones—the neighbors were. Of course, spatial closeness does not necessarily imply a transfer of knowledge and it cannot be assumed that people and organizations living in the same house shared their thoughts or even met in the staircase; however, biographical studies of such individuals suggest—as will later be seen—that this was most likely the case, facilitated by the spatial proximity of Geneva's international organizations.

Tracing Spatial Contexts of Global Organizations

The architects of the Palais des Nations considered and implemented meeting points and gave room to modern communication technologies. No wonder that a spacious parking lot provided space for opulent cars in the front of the building. Nevertheless, the city's official directory shows that these apparently mobile international civil servants preferred to work and to live in the quarters around these office buildings as well. For the late 1930s there was an unexpected closeness between European and non-European organizations, between governmental diplomatic representation and civil, non-governmental organizations. Although the presumption of a circulation of global knowledge needs examination in each case, the focus on global-local conjunctions at face value connect international topics in a way rather overlooked until now.

In the following paragraph, I approach spatial connectivity from three different perspectives, examining (a) the neighborhood and spatial placement of global organizations, (b) the porosity of borders separating the private lives of internationalists and international institutions, and (c) the way in which the spatial connectivity resulted in networks that overstepped the institutional and personal frameworks of the actors involved.

An intellectual sightseeing beginning at Palais Wilson reveals that the building and its environment remained a focal point of global contacts even after the transfer of the League to Rue de Lausanne. From street number 39–43, all buildings at Quai Wilson presented a mixture of private and official residencies (*Annuaire Genevois*, 1937, pp. 468–469). The consulates of Great Britain and Japan and the official representation of Romania worked next door to the “délégations auprès de la S.D.N.,” representing Iran, Ireland, and Portugal. In these cases spatial closeness mattered and rules of contact were formed on a negotiable basis. From this point of view, in

1937 Geneva was far distant from today's delimitations, where exterritorial sovereign rights are clearly visible and international organizations separated by control posts and barbed wire from the city's territory. In the past, different varieties of delegations filled the gap between the official diplomatic representations in Bern and local consulates. Even more interestingly, newly invented institutions of official national representation at the League overstepped the spatial invisibility of non-sovereign entities. As delegations at the League or the International Labour Organization (ILO), dominions such as Canada had their own, at least diplomatic-like offices. At Quai Wilson, indeed the institutional and personal connectivity between formal and informal institutions found its spatial expression, which facilitated access to information not available otherwise.

In number 41, where most of the diplomatic representatives had their offices, the list of inhabitants also shows the private address of Massimo Pilotti. He was a well-known international lawyer, a member of the Academy of International Law in The Hague, and First President of the Court of Appeal in Trieste, Italy (Notes in Brief, 1939, p. 61). He was in close contact to circles and organizations of international law and the protection of intellectual property, and later became one of the leading figures of the European Court of Justice. Before he left Geneva at the end of the year 1937 for political reasons, he worked as the League's under-secretary general in charge of the section that cultivated the connections between the League and the international organizations (LONSEA, Pilotti, n.d.-d). His concerns at work were literally not far from his private rooms, with the address also being home to an international organization in the form of the Union Internationale des Etudiants and its secretary Alexander Hedden. Furthermore, colleagues in similar functions worked next door. At number 43, with Thomas Frank Johnson (LONSEA, Johnson, n.d.-e), the secretary general of the Nansen International Office for Refugees, the Geneva directory shows another of those well-connected personalities, while LONSEA discloses his dense connections to the League, where he worked as an international civil servant before his appointment as secretary general of the Nansen office.

In the cases mentioned, the spatial coincidence discloses contacts missed by institutional or professional networks. The spatial dimension of globalization helps to formulate new hypotheses on the basis of knowledge transfer. Apparently, formal diplomatic representation and the members of an international civil society were—at least spatially—closer connected to each other than rules and opportunities of institutional contacts would suggest.

In the case of Massimo Pilotti's disturbingly ambivalent activities, a spatial approach helps to ask whether this person operated one of the channels needed for transforming information on a global level. This figure's presumed function as Mussolini's contact to the League, and his embarrassing celebration of the Italian conquest of Ethiopia in Geneva (Salvemini, 1953, p. 448) gain an additional profile with regard to a *glocal* context.¹ The spatial perspective suggests rather an increase

¹ Journals mentioned the presence of Pilotti and of "nombreux fonctionnaires italiens de la S.d.N. et du B.I.T" among those who celebrated (Les Italiens de Genève fêtent la prise d'Addis-Abeba, 1936).

of interest in such entangled connections in the preparation of the Italian withdrawal from the League in December 1937.

Indeed, although in a very benevolent way, in his pivotal League of Nations History, Francis Walters confirmed the importance of these informal connections especially in periods of increasing political tensions. Walters, who agreed that his precursor Pilotti “had made his peace with fascism,” placed him at the center of fascist attention: “. . . he was watched and spied upon by the numerous fascists who frequented Geneva as delegates, as consular officers, or propagandists, and who sought to win the approval of the men in power in Rome by parading their dislike for the League” (Walters, 1952, p. 558). As one who probably prepared a legal discourse on how Ethiopia could be expelled from the League, Pilotti was extremely well placed in proximity to Palais Wilson.

Religious and Philosophical Networks: Global Knowledge from Other than Diplomatic Perspectives?

Is spatial connectivity to be understood as a crude coincidence—or as the confirmation of close connections among Western elites? Does the discovery of proximity just confirm a certain process of adaptation, a process instigating the organized international civil society to wrap global knowledge in a diplomatic-like form of communication determined by a European understanding of international rules? Or does a spatial approach to global knowledge also consider alternative forms of transboundary contacts?

The search for extra-European organizations in Geneva confirms the previous findings in an unexpected way. All those civil groups with a global instead of a European agenda were not situated in a less advantageous position in Geneva. Not far away from Quai Wilson, and at a similarly expensive address at 46 Quai Gustave Ador, one of the city’s most beautiful buildings, the “Maison royale,” discloses an interesting and unexpected combination of inhabitants in 1937. Here, at walking distance to Palais Wilson, the directory of Geneva lists the official address of the Turkish consulate, while the League of Nations’ *Handbook of International Organizations* locates the international headquarters of the Sufi Movement (League of Nations, 1938, p. 94) in the same building. A look at the building’s other inhabitants increases the impression of a spatial meeting point underestimated until now, with it being the site of a remarkable combination of extra-European networks with a religious focus in an at least semi-official setting.

In the context of religious internationalism, the Sufi Movement occupies a crucial position. This order of universal religiosity based on Islam brought together disciples from different religious backgrounds. Established in 1923 in Geneva, the movement developed into an esoteric circle frequented by European and American followers, an open-minded organization with only the positions of spiritual leaders connected to Islamic faith. Similar to other (Western) religious movements with an

Asian background (e.g., the Theosophical Society), the Sufi Movement chose not a spiritual but a secular institutional form and appeared as an international organization.

The principle *form follows function* also worked for other than aesthetic questions, because in the 1920s and 1930s the movement chose the legal form of an association, not an order or a religious community. Sufi literature and autobiographical sources of the movement's leaders highlighted the choice of Geneva as transcendental manifestation of universalism. In this reading, the founder of the Sufi Movement was guided by transcendental powers to Geneva with the reason to build the spiritual counterpart to the League, a function confirmed by the fact that the seat was located across the lake opposite the Palais des Nations (for the relations between the Sufi Movement and the League of Nations see Inayat-Khan, 2006). Claimed as a unique feature and as a political contribution of the movement by its followers, the spatial situation allows differentiation and shows a highly ambivalent situation. In the same house lived Pierre Bouscharain, an international civil servant and a member of the League's Opium section (LONSEA, Bouscharain, n.d.-f). Working in a field closely connected to Asia, he also published on internationalism in a religious context.² Connections between religious international organizations, experts in international drug control, and Asian networks are not at the center of academic attention in today's research and, again, it is unknown whether Bouscharain was an open-hearted person who liked a chat with his Sufi neighbors, or someone who preferred privacy and a strict separation between work and leisure hours. However, the spatial conjunctions are worth investigating, all the more because the Geneva directory discloses additional information about the Maison royale—where a representative of the Cuban consulate underlined the diplomatic character of number 46—or, at least, reveals an additional element by which official contacts translate into informal personal cooperation. Moreover, the directory shows five Japanese inhabitants, whose functions are described as “Délégation du gouvernement japonais au conseil d'administration B.I.T” (*Annuaire Genevois*, 1937, p. 223). This apparently featureless information illuminates the rather secret and enclosed life of Japanese representation after this state's dramatic withdrawal from the League of Nations in 1933.

Even in 1937, there were still many places where the former interest in Geneva's internationalism remained active or at least had some discrete traces. The examples presented above disclose the combination of diplomacy and religion as rather underestimated carriers of global knowledge. In the case of Geneva, there are two aspects to recognize. Religious networks presented a way to underline differentiation and exclusion of other religious communities, but they also gained an explicit international and even diplomatic dimension. Especially in the 1930s, when Geneva celebrated the 4th centenary of Calvin's reformation, the awareness of religious

²For example, he was a discussant at the Camp International de la Jeunesse, organized by the Alliance universelle pour l'Amitié Internationale par les Eglises (see Ricœur, 1933, p. 128) and published *L'Esprit international dans l'individu* in 1932 (Bouscharain, 1932).

internationalism increased and gained additional platforms and meeting points. These organizations clustered in the old city around Rue Calvin, again presenting strong interferences with other networks, in this case focusing on different international youth movements and student organizations. At Rue Calvin, the Methodist Church possessed landed property at number 12, the address of its German and Italian branches and the church's organization for young women (*Annuaire Genevois*, 1937, p. 65). Next door, at numbers 13 and 14, the organizations for Christian students were registered, neighboring the International Migration Service. Initiated by the Young Women's Christian Organization (League of Nations, 1938, p. 72), the *Annuaire* listed as this institution's responsible person Suzanne Ferrière (*Annuaire Genevois*, 1937, p. 65), a member of the International Committee of the Red Cross, and a frequent participant in the Swiss delegation for the League of Nations (see Suzanne Ferrière, 1970). Following the street in the other direction, a cosmopolitan walker had the chance to pick up the newest books from the Dante Alighieri Library before visiting the Maison Internationale des Etudiants at 9 Rue Calvin (*Annuaire Genevois*, 1937, p. 65). This organization developed within the well-known tradition of the Cité Universitaire in Paris and the international students' houses in the United States. In Geneva, however, the Maison Internationale fostered an "oriental" profile and merged higher education, philosophy, and religion under the umbrella of the League of Nations institutions in such a way that the claimed apolitical approach became a political profile.

The most remarkable feature of this innovative approach was not so much the romantic descriptions of colorful saris but the considerable representation of Geneva's Indian, Japanese, and Chinese communities in the late 1930s. In July 1936, the Maison Internationale offered a lunch to the members of the League's Commission of Intellectual Cooperation. This event brought together diplomats, internationalists, the newly elected rector of Geneva University William Rappard, and the Indian philosopher S. Radhakrishnan, later president of India (Maison internationale des étudiants, 1936). In April 1937, the Maison Internationale organized a Japanese dinner. Although well covered by the local press (*L'Orient et l'Occident se rencontrent*, 1937), the historiographical added value of the event goes beyond the well-established Orient-meets-Occident metaphor (Said, 1978).

The spatial surrounding at the center of Christian international organizations is even more interesting in the view of the contemporary political context, because the Japanese delegate at the BIT and the Chinese minister participated long after the withdrawal of Japan from the League of Nations and up until just a few months before the atrocities of Nanjing.³ The spatial approach therefore critically interrogates the historiographical presumptions of incidents, turning points, and breaks, or at least reflects about timelines and how developments overlap on a global scale.

The withdrawal of Japan gives an interesting example of how the decision to stop membership rather fostered than diminished varieties of contact zones, even on a

³For example, the Maison Internationale des Etudiants at 9 Rue Calvin, provided such a "contact zone" (*L'Orient et l'Occident se rencontrent*, 1937).

diplomatic level. Besides the Japanese consulate at Quai Wilson, and the officials listed at Quai Gustave Ador, there was an additional seat of the Japanese representation accredited to the International Labour Office, at Route de Florissant 47 B (*Annuaire Genevois*, 1937, p. 1212). Global knowledge flows continued, but their historical value has remained beyond established modes of interpretation.

Translating Agencies

The examples discussed above throw light on elites, consular representatives, international civil servants, and section members well established in the League's secretariat. As mentioned above, global knowledge transfer requires appropriate forms and also infrastructure. Many clerks, interpreters, secretaries, and drivers, all working for different international organizations, made the world of Geneva's internationalism go round—although this fact is not mentioned at all in reflections about the historical value or the political importance of international civil society. Are these subaltern diplomats part of the picture and do they guarantee the infrastructure mentioned above? With established historiographical methods, these people are difficult to recognize. They rarely wrote pamphlets, they usually had left their families and peers, and their subaltern position often did not match their origin and educational background. Does a spatial approach reveal information other than that obtained by one analyzing cosmopolitans by investigating their different backgrounds?

They lived within walking distance of their offices, sharing with their colleagues in the executive suite the spatial opportunity of transgressing the boundary between work and leisure. Some examples from the League of Nations' personnel files might illustrate the question of who had access to urban zones distinguished by a dense exchange of border-crossing information.⁴ Tamara Goetze, first a stenographer and later a secretary in the Minorities section of the League of Nations, lived just across the corner from the old League of Nations building. The Chinese Li Dzeh-djen, a temporary employee in the information section, had his private address at Rue Charles-Bonnet, next door to the German consulate, the Bureau International de la Paix, and the Geneva Association for the League of Nations, and just around the corner from the residence of the Finnish permanent delegation to the League. Not far away from this address, at Rue Micheli du Crest, lived the Indian Tarini Prasad Sinha, a short-term employee in the League's Opium section. Of course, further debates need additional examples; however, there is an interesting spatial cohesion, not only between international organizations of different kinds, but also with regard to those working for these organizations.

⁴ An extended investigation of these files is part of an ongoing research project. For first results see: Herren (2013).

Conclusion

In this chapter, I have discussed the merging of two historicities, one telling the history of international organizations, the other focusing on border-crossing communication and information transfer. Taking the example of Geneva after World War I, the coincidence of international organizations and knowledge is expressed in the spatial dimension. Contrary to the usual approach underlining urban internationalism as the city's ideological profile and as an expression of the *spirit of Geneva*, the question is who is the neighbor, and how can personal networks be derived from spatial closeness. In this chapter, I have shown that, at least in the 1930s, global knowledge transfer was related to spatial proximity and therefore to connections difficult to trace with traditional methodological tools usually introduced for the understanding of transboundary networks in historical research. A spatial contextualization of global knowledge brought insights into a characteristic of Geneva overlooked until now. Because Geneva was not the capital where diplomatic representations gained their well-known profile as extraterritorial space distant from civil society, the city's spatial connectivity developed especially well and was probably supported by semi-official contacts, which fostered the prosperity of a global civil society. A spatial approach, however, questions whether the example of Geneva goes beyond the specificities of this city, and whether international organizations and their personnel are useful examples for analyzing the development of global spaces and an international civil society in an urban context more generally. Although there is no need to claim a golden past, a look at today's situation reveals a stark contrast. The places described as *non habité* have increased, barbed wire protects the entry of the United Nations, the blue plates of UN relief organizations have become a sign for crisis regions, and the place for addressing civil purposes is now outside the doors and not at the bar. The decreasing porosity might provide better local protection but questions a democratic transfer of knowledge on a global scale.

References

- Annuaire du commerce Genevois et Annuaire Genevois réunis* (1937). Geneva, Switzerland: Chapalay & Mottier.
- Baedeker, K. (1938). Geneva and its environs. In *Switzerland, together with Chamonix and the Italian lakes: Handbook for travellers* (pp. 282–297). Leipzig, Germany: Karl Baedeker.
- Bouscharain, P. (1932). *L'Esprit international dans l'individu, l'Etat, l'Eglise* [The international spirit in individuals, the state, the church]. Paris: Éditions "Je Sers."
- de Traz, R. (1929). *L'esprit de Genève* [The spirit of Geneva]. Paris: B. Grasset.
- The European Cultural Centre and its activities. *The World Today*, 9, 360–367. Retrieved from <http://www.jstor.org/stable/40392656>

- Herren, M. (2009). *Internationale Organisationen seit 2009: Eine Globalgeschichte der internationalen Ordnung* [International organizations since 2009: A global history of international order]. Darmstadt: WBG.
- Herren, M. (2013). Between territoriality, performativity, and transcultural entanglement (1920–39): A typology of transboundary lives. *Comparativ*, 23, 100–123.
- Herren, M., & Zala, S. (2002). *Netzwerk Aussenpolitik* [Network foreign policy]. Zürich: Chronos.
- Inayat-Khan, Z. (2006). *A hybrid Sufi order at the crossroads of modernity: The Sufi Order and Sufi Movement of Pir-o-Murshid Inayat Khan*. (Doctoral dissertation). Duke University, Durham.
- League of Nations (1938). *Handbook of International Organizations (associations, bureaux, committees, etc.)*. Geneva.
- Les Italiens de Genève fêtent la prise d'Addis-Abeba (1936, May 7) [The Italians of Geneva celebrate the capture of Addis Ababa]. *Journal de Genève* (Geneva), p. 4. Retrieved from http://www.letempsarchives.ch/page/JDG_1936_05_07/4/article/6225619/Les%20Italiens%20de%20Gen%C3%A8ve%20f%C3%AAtent%20la%20prise%20d%E2%80%99Addis-Abeba
- LONSEA (n.d.-a). League of Nations Search Engine. Retrieved from <http://www.lonsea.de>.
- LONSEA (n.d.-b). Search “Organizations.” Retrieved from http://www.lonsea.de/pub/search_org?s=3523
- LONSEA (n.d.-c). Search “International Bureau of Associations of Manufacturers, Wholesalers and Retailers of Jewellery, Gold and Silver Ware.” Retrieved from <http://www.lonsea.de/pub/org/1087>
- LONSEA (n.d.-d). Search “Massimo Pilotti.” Retrieved from <http://www.lonsea.de/pub/person/5116>
- LONSEA (n.d.-e). Search “Thomas Frank Johnson.” Retrieved from <http://www.lonsea.de/pub/person/5307>
- LONSEA (n.d.-f). Search “Pierre Bouscharain.” Retrieved from <http://www.lonsea.de/pub/person/11596>
- L'Orient et l'Occident se rencontrent [The meeting of the Orient and the West] (1937, April 8). *Journal de Genève* (Geneva), p. 4.
- Maison internationale des étudiants (1936, July 26). *Journal de Genève* (Geneva), p. 5.
- Meusburger, P. (2008). The nexus of knowledge and space. In P. Meusburger, M. Welker, & E. Wunder (Eds.), *Clashes of knowledge: Orthodoxies and heterodoxies in science and religion* (pp. 35–90). Knowledge and Space: Vol. 1. Dordrecht: Springer.
- Murphy, C. (1994). *International Organization and industrial change, global governance since 1850*. Oxford: Oxford University Press.
- Murphy, C., & Yates, J. (2011). ISO 26000, Alternative standards, and the ‘Social Movement of Engineers’ involved with standard-setting. In S. Ponte, P. Gibbon, & J. Vestergaard (Eds.), *Governing through Standards* (pp. 159–183), London: Palgrave Macmillan.
- Nash, K. (Ed.). (2014). *Transnationalizing the public sphere*. Cambridge, UK: Polity Press.
- Notes in Brief. *World Affairs*, 102, 61.
- Riccer, P. (1933). Nouvelles: Camp international de la jeunesse [News: The international youth camp]. *Journal de la jeune fille*, 128. Retrieved from <http://gallica.bnf.fr/ark:/12148/bpt6k58256715/f1.image.langDE>
- Said, E. W. (1978). *Orientalism: Western conceptions of the Orient*. London: Penguin Books.
- Salvemini, G. (1953). *Prelude to World War II*. London: Gollancz.
- Slocombe, G. (1938). *A mirror to Geneva: Its growth, grandeur and decay*. New York: H. Holt.
- Sluga, G. (2013). *Internationalism in the age of nationalism*. Philadelphia: University of Pennsylvania Press.
- Société des Nations. (1931–1940). *Journal des Nations*. Vol. 1939.
- Subaltern Diplomacy A13. *Subaltern Diplomacy 1930–1960*. Retrieved from <http://www.asia-europe.uni-heidelberg.de/en/research/a-governance-administration/a13-subaltern-diplomacy.html>

- Suzanne Ferrière: La vie genevoise [Suzanne Ferrière: The life in Geneva]. (1970, March 17). *Journal de Genève* (Geneva), p. 14. Retrieved from http://www.letempsarchives.ch/page/JDG_1970_03_17/14/article/6791694/Suzanne%20Ferri%C3%A8re
- Walters, F. P. (1952). *A history of the League of Nations* (Vol. 2). London: Oxford University Press.
- Wenzlhuemer, R. (2010). Global communication: Telecommunication and global flows of information in the late 19th and early 20th century. [Special Issue] *Historical Social Research/Historische Sozialforschung*, 35, 7.

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Chapter 12

The Spatial Mobility of Corporate Knowledge: Expatriation, Global Talent, and the World City

Jonathan V. Beaverstock

Expatriation, and other forms of labor mobility that cross international borders within and between firms is a crucial organizational strategy for the spatial mobility of knowledge in the world economy. At the organizational level, firms deploy their knowledge-rich, managerial, and expert human capital to circulate both tacit and explicit (codified) knowledge between subsidiaries, clients, and suppliers; to develop the organization; and to service existing and new clients outside of the home country. Expatriation is a process that stretches tacit knowledge across time and space (Beaverstock, 2004; Faulconbridge, 2008) because of the importance of “being (there)” (Gertler, 2003) to manage, engage in the production system, and service clients in co-location. Far from being on the wane in these times of advanced information technology and communication, expatriation is a strategic mechanism for a firm to deliver knowledge, skills, expertise, and experience to a particular point in space and time (e.g., an office, subsidiary, or gas extraction field) (Beaverstock, 2004; Edström & Galbraith, 1977; Millar & Salt, 2009; PricewaterhouseCoopers, 2010a; Scullion & Collings, 2006).

Expatriation is a vital global organizational strategy for knowledge-intensive professional services in sectors such as accountancy, consulting, and law in which the delivery of knowledge, tailor-made solutions, and value is embodied in the employee, especially if the reputation and credentials of the firm rests on the success of the professional employee-client relationship (Beaverstock, 2004; Faulconbridge, 2008; Jones, 2008). Beyond the firm, expatriation feeds into the competitiveness of cities and regions acting as a conduit to replenish knowledge, skills, and know-how in local labor markets. Indeed, many world city boosterists and commentators suggest that attracting and retaining global talent is a significant factor of production in the success of a world city in the network society (Beaverstock, 2010; Castells, 1996; Florida, 2002; Wigley, 2008).

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The contribution of this chapter is to advance the theoretical and empirical understanding of contemporary forms of expatriation as an organizational strategy for the spatial mobility of knowledge and as a global process that enhances the competitiveness of the world city in an age of highly integrated, global information, communication, and telecommunication (ICT) systems. Accordingly, the rest of this chapter is divided into seven parts. Following this introduction, parts two, three, and four focus on explaining the significant concepts that underpin the strategy of expatriation as a physical medium of knowledge creation, transfer, and exchange within organizations and between different spatial contexts. In part two, I examine the structural organization of firms and their mechanisms for creating, sharing, and exchanging knowledge within the multilocation organization, drawing primarily on the work of transnational management theorists, Bartlett and Ghoshal (1998). Part three is a review of human resource perspectives that explain the organizational strategy of expatriation and their role in the firm's global knowledge management system. I look in part four at the agency of place, the world city, in concentrating and reproducing knowledge management within the network society (Castells, 1996) and enhancing the expatriate's spatial knowledge networks and career paths (Beaverstock, 2005, 2010). In parts five and six I introduce case studies of expatriation within global accountancy firms and discuss the agency of foreign workers in the competitiveness of London's financial district (Beaverstock, 2007a, 2010; Beaverstock & Hall, 2012). I conclude in part seven and argue that expatriation will continue to be a significant form of knowledge development, transfer, and exchange within organizations, and an essential driver for spatial economic development and competitiveness.

The Firm, International Business Strategy, and Knowledge Management

Increasingly, the resource of knowledge (e.g., the traits of high-value-added professionalism, expertise, skills, and intelligence, whether in the established professions, research and development [R&D], medicine, science or engineering), is often a sticky, tacit competence embodied in human capital (Gertler, 2003; Lowendahl, 1997). The management of that knowledge, on a global scale, has become a key strategy (and challenge) for firms (Schuler, Jackson, & Tarique, 2011; Scullion, Collings, & Caligiuri, 2010; Whelan, Collings, & Donnelian, 2010). It is now readily acknowledged that transnational firms organize their assets, labor, interests, and client and supplier relationships in dynamic and complex networks that span world regions in many different commodity and value chains (Dicken, 2011). Simultaneously, firms are *transnational communities*, a collective of complex interrelationships and amalgamations of employees of all nationalities, status, and skill-sets, with the transnational corporation (TNC) being a

...thick web of communication possibilities vertically and horizontally...[where]...
[m]anagers' careers would be varied and involve movement across different subsidiaries as

well as into head office. Senior management would reflect a wider group of nationalities and experiences than in the multinational enterprise. Learning would be dispersed, often disorganized but usually multi-directional in terms of its effect. (Morgan, 2001, p. 120)

However, in order to get a more refined and structural explanation of how knowledge is created and shared between a firm’s international subsidiaries, at a conceptual level, one can draw on the writings of two eminent management theorists, Christopher Bartlett and Sumantra Ghoshal, in their widely acclaimed *Managing Across Borders: The Transnational Solution* (1998). Bartlett and Ghoshal (1998) provide a conceptual model to analyze how corporate knowledge, both tacit and codified, is developed and disseminated within the international multilocal firm which can provide a framework to account for the strategy of firms that engage in global staffing and expatriation.

Bartlett and Ghoshal (1998) suggest that a core competence of the multilocal firm is the “development and diffusion of knowledge” (p. 75) within the organization in order to efficiently manage assets, capabilities, and operations across borders (Table 12.1). According to the authors’ four-pronged organizational typology of the structure of the firm managing across borders—multinational, global, international, and transnational—each of them manages its organizational characteristics differently. If one focuses on the “development and diffusion of knowledge,” it is possible to observe a linear progression in the sharing of knowledge, from a multinational structure, in which knowledge is “developed and retained in each unit.” to a transnational structure, in which knowledge is “developed jointly and shared worldwide” (Bartlett & Ghoshal, 1998, p. 75; Table 12.1). As I have noted elsewhere (Beaverstock, 2004), the key attribute of knowledge development

Table 12.1 Organizational characteristics of the transnational firm

Organizational characteristics	Multinational	Global	International	Transnational
Configuration of assets and capabilities	Decentralized and nationally self-sufficient	Centralized and globally scaled	Sources of core competences centralized, others decentralized	Dispersed, interdependent, and specialized
Role of overseas operations	Sensing and exploiting local opportunities and strategies	Implementing parent company competencies	Adapting and leveraging parent company	Differentiated contributions by national units to integrated, worldwide operations
Development and diffusion of knowledge	Knowledge developed and retained within each unit	Knowledge developed and retained at the core	Knowledge developed at the center and transferred to overseas units	Knowledge developed jointly and shared worldwide

Adapted from Bartlett & Ghoshal (1998, p. 5)

and diffusion in transnational firms is that knowledge is circulated both vertically (up and down between headquarters and subsidiaries) and horizontally (laterally between subsidiaries) among all units of the firm. Transnational firms are integrated networks spanning cross-border activities, sustained by communication and mobility between different subsidiaries and the head office (Beaverstock, 2007a, p. 411)

In a similar vein to Bartlett and Ghoshal (1998), Nohria and Ghoshal (1997, p. 4) define the firm as a “differentiated network” reflecting the network structure of the organization made up of a multitude of linkages, chains, and relationships: (a) the *local* linkages within each national subsidiary; (b) the linkages between headquarters and the subsidiaries; and (c) the linkages between headquarters and the subsidiaries themselves”, with the latter, unlike (b), also including linkages between the subsidiaries.

There is now sufficient evidence to suggest that firms manage their knowledge development and diffusion through complex systems of knowledge management that draw upon a combination of physical and virtual dissemination and exchange, regardless of whether they exhibit Bartlett and Ghoshal’s (1998) international or transnational organizational characteristics (Faulconbridge, 2008; Mellahi, Frynas, & Finlay, 2005). Firms are relational entities with sophisticated knowledge management systems to develop, share, and exchange explicit and codified knowledge through electronic transmission and virtual proximity using efficient and confidential transmission systems and ICT, including videoconferencing software and, latterly, intra-firm social networking systems. But if one considers the development, diffusion, and exchange of tacit knowledge, which is often very sticky and embodied in the experience, competences, expertise, skills, and learning capacities of an individual, the most efficient—and possibly cost-effective—mechanism to transfer those embodied attributes cross-border from subsidiary A to subsidiary B is to move the individual physically through, for example, business travel (Faulconbridge, Beaverstock, Derudder, & Witlox, 2009) or an international assignment (Brewster & Scullion, 1997; Collings, McDonnell, Gunnigle, & Lavelle, 2010; Scullion & Collings, 2006).

Moreover, the advent of the transnational form of the contemporary firm has created the conditions for the development of a globally functioning, international division of highly skilled executive, established professional and managerial, and high-value scientific labor (in fields such as medicine, technology, R&D, and engineering). This global labor market is inherently reproduced through local labor markets, but importantly also through the burgeoning number of international assignments and other types of cross-border hypermobile work (for example, those involved in regular business travel, short-term rotations, and fly-in and fly-out time-specific contract work) present in many industrial sectors of the world economy, such as aerospace and mineral extraction (Millar & Salt, 2009), professional services (Beaverstock, 2004; Faulconbridge, 2008; Jones, 2010), executive education (Hall, 2009), banking and financial services (Beaverstock & Hall, 2012), high technology (Harvey, 2008), and IT and R&D (Mahroum, 2000; Saxenian, 2007). In order to examine further the significance of inter- and intra-firm international assignments as a mechanism for knowledge management and exchange within and

between firms, it is important to draw on the International Human Resource Management (IHRM) discipline and to discuss the organizational strategy of expatriation and global staffing systems.

Expatriation, Global Talent, and Knowledge Exchange

Irrespective of significant advancements in global ICT, TNCs use international assignments as a fundamental internationalization strategy to transfer and exchange knowledge, expertise, and learning to and among foreign subsidiaries or other forms of global investment. These international assignments are synonymous with the organizational label expatriation (Brewster, 1991; Tung, 1988). In the discipline of business studies an entirely new branch of management science with the apt name of International Human Resource Management (IHRM) developed in the late 1960s to focus on this segment of a firm's internal labor market. The crux of this new field is the organizational strategies posited to explain why TNCs use expatriates rather than locally recruited staff in their foreign subsidiaries, whether these are mineral/energy extraction sites in the BRICS (Brazil, Russia, India, China, and South Africa) economies, manufacturing plants in Southeast Asia, or offices in world cities.

The TNC strategy to deploy expatriates in lieu of local, or home country nationals, is at the center of debates in contemporary IHRM (Black, Gregerson, Mendenhall, & Stroh, 1999; Tung, 1988). Almost 50 years ago, Edström and Galbraith's (1977) seminal research on international assignments set the benchmark for clarifying why TNCs transfer staff between their subsidiaries as a way to strategically utilize their human resource capital. Edström and Galbraith (1977) recognized that the TNC adopted international assignments as an integral strategy for managing its professional and managerial employees and scientific and expert staff within the firm's portfolio of foreign investments and, therefore, in the confines of its international internal labor market. They suggested that TNCs specifically used international assignments for three main strategic purposes:

1. as a direct mechanism to fill positions and vacancies in foreign locations facing a lack of locally recruitable, qualified staff
2. as part of their internal global management development program to enhance the experience, skills, and competences of junior and mid-rank managers and professionals—irrespective of the supply of locally qualified managers in the host location; and
3. as a way to develop the global organization in regard to corporate strategy, command and control systems, and the sharing of best practice, learning, and knowledge.

Edström and Galbraith's (1977) study of the rationale for the international transfer of managers within TNCs to fill positions and to develop managers as well as the firm still resonates strongly with contemporary analyses of expatriation (Collings et al., 2010) and, more latterly, scholarship on firms' global staffing regimes and global talent management (Scullion & Collings, 2006).

In Collings and Scullion's (2006) review of global staffing and expatriation, they synthesized the findings of other contemporary IHRM scholars in order to interrogate further Edström and Galbraith's (1977) writings on the foundations of international assignments within TNCs. For example, drawing on Sparrow, Brewster, and Harris's (2004) research on globalizing human resource management, they note that the TNCs' organizational strategy for sending staff on an international assignment is sixfold: for career development; to establish an international cadre of managers; to fill local vacancies resulting from a lack of qualified home-country nationals; to transfer expertise; to manage and control foreign assets; and to control global strategy and policy. Furthermore, Collings and Scullion (2006) disaggregate the purpose of expatriation into two conceptual frames (after Evans, Pucik, & Barsoux, 2002). First, they are demand-driven assignments, which resonates with the organizational requirement to fill vacancies, manage new investments, or solve problems in situ because of a dearth of locally qualified home country nationals. Second, they are learning-driven assignments intended to drive individual career development and serve as a mechanism to transfer, share, and exchange knowledge between the expatriate and home country nationals. Most empirical studies of the social characteristics of corporate-transferee expatriates from the United States, Europe, and Japan derived from research by scholars of IHRM indicate these workers are predominantly male, with men holding an average of 85 % of such positions across all industrial sectors, as much as 95 % in construction and engineering, and a relatively low 70 % in not-for-profit and charity employment (Shortland, 2009).¹

From the early 2000s, the business discourse surrounding TNCs and international assignments has shifted away from expatriation, to understanding the global staffing of organizations as talent management or talent mobility (Tarique & Schuler, 2009). Long before Florida (2002) revisited the subject of talent, the root of its meaning and representation was brought onto the social sciences stage by the pioneers of creativity and space (e.g., Meusburger, Funke & Wunder, 2009), but it is in the realm of business and management studies that globally nomadic, professional, managerial, or very expert scientific workers are referred to as global talent. For example, in 2000 PricewaterhouseCoopers (2000a, 2000b) reported on expatriates in the discourse of traditional international assignments, focusing on their business rationale, global compensation packages, and predicted futures. A decade on, PricewaterhouseCoopers (2010a) published a new framework on international assignments focused on *Talent mobility 2020*, which is not out of sync with other global consulting firms (for example, Deloitte's [2012] report on *The Global Talent Challenge* or The Corporation of London's [2011] study of *Access to Global Talent*). The longevity of expatriation as an organizational strategy currently stems from its usefulness in the global management of intellectual capital in high value occupations and skills, reflecting the intensifying shift away from multinational firm struc-

¹Research on expatriates in subjects such as their household formation, employment, identity, gender, ethnicity, sexuality, community formation, and mobility also has gathered significant interest across the social sciences disciplines, including human geography, sociology, and, of course, migration studies (e.g., Fechter & Walsh, 2012; Smith & Favell, 2006).

tures (i.e., the dissemination of knowledge primarily from the corporate headquarters to subsidiaries) to the transnational mode, or the sharing and exchange of knowledge and staffing between all units of the firm (described by Bartlett & Ghoshal [1998] as the transnational form of the firm). As PricewaterhouseCoopers (2010a) notes:

Assignments in the past were typically categorised by organisations as being either short-term or long-term. Today we see many more varied requirements from businesses and assignees and alignment with the organisation's talent management objectives. Along with short-term and long-term assignments, we have frequent travellers, commuters, intra-regional, and virtual secondments to customers and supplier sites, as well as various assignee and talent types, such as executive, skill set and project-based, developmental, and employee initiated, all creating a need for robust global assignment policy framework. (p. 16)

PricewaterhouseCoopers (2010a, p. 6) predicts that the average number of international assignments worldwide at 900 companies listed in its sample database will have grown 50 % from 2009 levels by 2020 to approximately 400,000. Significantly, PricewaterhouseCoopers suggests that much of this growth in global mobility will be generated by and in the emerging markets, as more skilled employees from these countries enter the global talent pool. Therefore, expatriation as an organizational strategy is an increasingly important facet of the TNC's portfolio of global talent mobility (Beaverstock, 2010; Faulconbridge et al., 2009; Millar & Salt, 2009). The role of international assignments reflect on the one hand the requirements of the firm to be competitive in a highly globalized world, both in terms of business systems and location, and on the other, the expectations of talent to have high-value-added, mobile careers enhancing promotion prospects, personal remuneration, and a cosmopolitan sense of well-being (Beaverstock, 2011; Beaverstock & Hall, 2012). But it must be acknowledged that more assignees will necessitate "more business travel, more virtual tools, and especially more quick, short-term, and commuter assignments" (PricewaterhouseCoopers, 2010a, p. 4).

World Cities, Expatriation, and the Spatial Mobility of Knowledge

Invariably, in the manufacturing and service sectors of the world economy, the organizational structure and location of the firm provides an overwhelmingly urban working and living experience for the expatriate. Expatriates are city dwellers throughout the globe. But there is a growing body of evidence to suggest their agency, practice, and performativity are crucial processes accounting for the geo-economic sustainability, competitiveness, and relationalities of world cities (Beaverstock, 1994, 2011; Ewers, 2007; Friedmann, 1986; Sassen, 2001a, 2006). Indeed, many commentators have discussed the role of highly skilled international migrants (Beaverstock, 1994, 2005, 2007b), "transnational elites" (Friedmann & Wolff, 1982), the "new international professionals" (Sassen, 2001b), and "dominant

managerial elites” (Castells, 1996) in the making of world cities and their complex intercity relations and networks. In many ways, organizational processes of expatriation, talent management, and global staffing are nourishing the knowledge bases of world cities, providing a continuous throughflow of talent into these places that secures them high rankings in the many commercial, highly influential global urban hierarchies, such as Z/Yen’s Global Financial Center Index 11 (2012), Mastercard’s (2008) Worldwide Centers of Commerce Index, or the Mercer Group’s (2011) Quality of Living Worldwide City rankings.

The expatriate, like home country elites, is pulled into world cities and their organizational networks through intra- or inter-company transfers initiated by the firm or potential employer, or through other migratory paths, such as those of *free-movers*, or European Union (EU) citizens able to migrate at will throughout the EU single market (Favell, 2008). The structural position of world cities in the *new international division of labor* (Cohen, 1981; Hymer, 1972; Friedmann, 1986) ensures that their spatial economies have unprecedented “global reach” and “command and control” (Sassen, 2001a) derived from high concentrations of corporate headquarters; significant agglomeration economies (clusters) in international finance, professional services, media, and education; health service, medicine, biotechnology, R&D, and creative and cultural industries; cutting-edge information technology and communication; and state-of-the-art infrastructure (Cook, Pandit, Beaverstock, Taylor, & Pain, 2007; Olds, 2007; Sassen, 2006). The firms in these high-value world city economies, whether TNCs or small and medium-sized enterprises in manufacturing or services, create the unprecedented conditions driving demand for highly skilled labor that are articulated in a globally functioning, spatial division of labor (Beaverstock & Boardwell, 2000). Moreover, during the last 40 years or so, the growth of the producer service “complex” in world cities (Sassen, 2006), particularly in those of the Global North—London, New York, Chicago, Boston, Los Angeles, Paris, Frankfurt, Brussels, Madrid, and Amsterdam—have shaped the circumstances for brisk labor market demand in sectors such as advertising, banking, financial services, professional services (accounting, consulting, legal, real estate), and information technology (City of London, 2011). But the growth of the producer complex has not been limited to European and North American cities. For example, in Singapore approximately one million jobs were created in the service sector between 1991 and 2008, of which a third (some 320 thousand) were in financial and professional services, such as accounting, legal, and real estate (Ministry of Manpower, 2009). Similar structural changes are occurring in Moscow (Kolossoff, Vendina, & O’Loughlin, 2002), Hong Kong (Meyer, 2000), Shanghai (Lai, 2009), and Mumbai (Patel, 2007).

World city economies are important structural agents in the spatial mobility of knowledge. Their internal structure, global reach, and economic authority, which are manifested in complex intra- and inter-city networks, are perpetuated through the high-value, knowledge-rich labor force attracted to work and live in these places (Beaverstock, 2005). Essentially, world cities are the global melting pots for highly talented workers of all nationalities, both internal and international, who fill vacancies and labor market demand in the high-value-added, knowledge-intensive complexes of the city (whether in finance, professional services, creative industries, the

media, or R&D). The bottom line is that expatriation and other forms of mobility such as business travel are key organizational strategies to deliver skills and expertise and to learn at the point of demand, often through the medium of face-to-face interaction. “Face-time” remains a very efficient and valued mechanism to exchange tacit knowledge over time and space, in working environments that depend on direct interaction with clients to ensure quality of service and leadership as well as to deliver tailor-made solutions, problem solving, and complex management systems (Beaverstock, 2007a, 2007b; Faulconbridge, 2008; Jones, 2008).

Finally, it is also important to acknowledge that world cities have significant agency in enhancing an expatriate’s career aspirations, wealth creation, and living experience (Beaverstock, 2005). Spatial career paths facilitate the accumulation and exchange of knowledge and learning within and between different employers and world city postings and living experiences. Expatriate career paths are a conduit in which knowledge is created and consumed in world city networks, particularly in an expatriate’s everyday life experiences and transnational spaces (work, home, social spaces, etc.). The everyday, world-city life-worlds of expatriates supplying knowledge-intensive skills and competencies to the workplace and in “transnational social spaces” (Smith, 1999, p. 120) through “ephemeral networks and practices” (Beaverstock, 2011, p. 711) reproduce specific epistemic communities, whose life courses significantly enhance careers and the accumulation of financial, social, and cultural capital.

Global Staffing and Expatriation in Professional Service Firms

In the international service economy, the World Trade Organization acknowledges that people can deliver services to clients across borders through physical movement. This is an integral part of the General Agreement on Trade in Services (defined as GATS Mode 4) (Organization for Economic Cooperation and Development [OECD], 2003). In professional services, which encompass knowledge-intensive, often tailor-made and highly idiosyncratic services built on reputation and established credentials, the liberalization of trade in “natural persons” (GATS Mode 4) is essential for the firm to circulate knowledge and expertise across borders, embodied in the tacit professionalism and expertise of the archetypal “professions” like architects, accountants, or lawyers (Greenwood & Lachman, 1996; Morris & Empson, 1998; Lowendal, Revang, & Fosstenlokken, 2001). The key asset of a service firm (PSF) is the knowledge capacity of its labor force of both managers and professionals, with capital accumulated, clients courted and serviced, and revenues and profits ultimately accrued through the performance of this workforce and its successful interaction with the client. Morris and Empson (1998) suggest that a PSF is “an organization that trades mainly on the knowledge of its human capital, that is, its employees and the producer-owners, to develop and deliver intangible solutions to client problems” (p. 610). Thus, in PSFs, one of the most efficient mechanisms to

deliver knowledge, including the tacit form embodied and stuck to established professionals, is through the physical movement of such professionals from the firm to the client or within the global structure of the firm (Lowendahl, 1997). PSFs supply tailor-made knowledge and expertise to their clients and suppliers and maintain internal organizational control through co-location using personal interaction, expatriation, and hypermobility (Beaverstock, 2007a, 2007b; Faulconbridge, 2008; Faulconbridge, Beaverstock, Taylor, & Nativel, 2011; Jones, 2008; Nachum, 1999).

Global accounting firms continue to use international assignments and other forms of corporate mobility to deliver knowledge and expertise between their international offices and firm-client relations. Over the last decade or so, global accounting has been dominated by the “Big Four”—PricewaterhouseCoopers (PwC), Deloitte, Ernst & Young, and KPMG International—with respect to the ranking of fee income and the size of professional employment (Table 12.2). In 2010, combined, each of the Big Four employed almost half a million professional staff (partners and lawyers) in an average of 149 countries. Global accounting firms require a wholly-owned presence in each market to be able to deliver their service in co-location with the client (Dunning, 1993; Hanlon, 1994; Greenwood, Rose, Brown, Cooper, & Hinings, 1999). Accordingly, these firms provide their major services—audit and assurance, corporate finance, consultancy, and insolvency (theCityUK, 2012)—through direct, on-site contact with the client, supported by an infrastructure of specialist financial products, IT software, and legal closure (certificated qualifications and membership of chartered institutes). Partners and qualified staff with relevant specializations liaise on a constant basis with clients and co-suppliers

Table 12.2 Top ten International Accountancy Networks, 2011 (Ranked by annual total income in \$m)

International network organization	Headquarters	Annual		Member		Professional staff
		Income (\$m)	Countries	firms	Partners	
1. Deloitte	New York	26,578	150	53	9538	129,219
2. Pricewaterhouse Coopers	London	26,569	154		8625	122,967
3. Ernst & Young	London	21,255	142		8602	103,393
4. KPMG	Amsterdam	20,630	150		7921	105,147
5. BDO	Brussels	5284	119	96	4111	34,811
6. RSM International	London	3878	83	92	3113	23,490
7. Grant Thornton International	London	3673	100	96	2511	30,000
8. Baker Tilley International	London	3070	120	150	2600	25,000
9. Crowe Horwath International	New York	2779	108	150	3519	19,537
10. PKF International	London	2449	125	168	2198	15,292

Source: compiled from Accountancy Age (2011) (www.accountancyage.com)

Note. \$m = millions of dollars

(e.g., law firms) to acquire new business, execute contracts, and deliver tailor-made services, with this work occurring in project teams with other professional services when called for by a particular business project.

The prevalence of global staffing regimes, international assignments, or other forms of mobility in the Big Four accounting firms and other smaller global firms is a normalized organizational strategy for knowledge exchange, transfer, and learning within the firm-client relationship (Beaverstock, 2007a; Hanlon, 1999). All of the Big Four have global mobility programs to fill vacancies that cannot be staffed with available local home country labor; to support management development programs for all career structures and grades within the firm; and to enhance the corporate culture of the global firm or partnership structure (Table 12.3).

PricewaterhouseCooper's (2010b) strategic approach to global mobility and leadership aptly summarizes the organizational role of international assignments in the global firms:

Moving our talent people to different locations around the world to match client and business needs is key to enabling us to offer the right expertise at the right time. An experience abroad develops the global business skills and international experience of our people... We continue to invest heavily in our global mobility programme. In FY [fiscal year] 2010, we added another 1,600 new participants to our secondment programme, up from 1,400 in FY 2009. (p. 52)

Deloitte's (2010) *Annual Review* champions its commitment to global mobility for its professional staff, emphasizing that mobility is all about, "moving the right people with the right skills to the right places at the right time to meet the needs of the business, clients, talent and marketplace—is a competitive imperative... Mobility opens minds, and can open opportunities" (p. 7). Beyond the Big Four, 2010 data from the U.K. accountancy professional bodies indicates that of the 424,003 qualified members, 28% were resident outside of the United Kingdom (119,720), an increase of 43% (36,339) from 2002, when 83,381 members were residing outside of the United Kingdom (theCityUK, 2012).

At the organizational level, global professional services firms are very much akin to Bartlett and Ghoshal's (1998) global and transnational organization, in which

Table 12.3 Global mobility in the Big Four accounting firms

Firm	Program	New global assignments	
		Fiscal Year 2010	Fiscal Year 2009
Pricewaterhouse Coopers	Global Mobility Program	1630	1426
	Long-term assignments	(945)	(713)
	Short-term assignments	(658)	(713)
Deloitte	International Mobility Program	3800	2500+
KPMG	Global Opportunities Program	2150	N.A.
Ernst & Young	Global Exchange Program	N.A.	N.A.

Source: Firm websites

Note. NA=Not known

Table 12.4 Dimensions of transfer policies in transnational professional service firms

Dimensions	Reasons for transfer		
	Fill positions	Develop managers	Develop organization
Relative numbers	Many	Many	Many
Specialities transferred	Fee-earning	Fee-earning	Fee-earning
Location of host	All countries	All countries	All countries
Direction of flow	Between subsidiaries and between headquarters and subsidiaries	Between subsidiaries and between headquarters and subsidiaries	Between subsidiaries and between headquarters and subsidiaries
Age of assignee	Throughout career	Young to middle	Throughout career
Frequency	Many moves	Several moves	Many moves
Nationality of assignee	All nationalities	All nationalities	All nationalities
Personnel information system	Extensive lists of candidates monitored by personnel in all offices	Extensive lists of candidates monitored by personnel in all offices	Extensive lists of candidates monitored by personnel in all offices
Power of personnel department	Strong	Strong	Strong
Strategic placement and distribution	Extensive	Extensive	Extensive

Adapted from Edstrom and Galbraith (1977, p. 253).

knowledge is shared among all subsidiaries and units of the organization. Beaverstock's (2004, 2007a, 2007b) recent analyses of expatriation within global accounting, legal, and investment banks reworked Edström and Galbraith's (1977) initial dimensions of international assignee transfer policies within organizations specifically to theorize the use of international assignments in professional services to fill positions, develop managers, and evolve the organization (Table 12.4).

Global Talent in London's Financial District

London's financial district, composed of the City of London and, since the late 1980s, Canary Wharf, has been a magnet for expatriates in banking, finance, and professional services since the end of the twentieth century following the influx of U.S., European, and Japanese banks (Michie, 2000). At the onset of the decade of the 2010s, London is the premier global financial center, ahead of New York, Singapore, and Hong Kong (Z/Yen, 2012). London's competitiveness rests on its ability to attract major U.S., European, and Asian global financial institutions; the

quality of its financial environment and regulation; and, importantly, its ability to attract and retain an international, talented labor force in fierce competition with other leading financial centers (Beaverstock, 2010; Cook et al., 2007; Jones, 2010; Z/Yen, 2012). London has a truly deep international talent pool of elite foreign workers of all nationalities from the European Economic Area (EEA) and non-EEA countries (City of London, 2011; Wigley, 2008).

The nature and function of occupations in London's financial district are very knowledge intensive and essentially cannot be supplanted by information technology or mass recruitment from the local, regional, or national labor market. As research has shown elsewhere (Beaverstock, 1994, 2007b; Jones, 2010; Thrift, 1994), these jobs are highly prized and require a specific set of explicit and tacit knowledge bases, which often require experience working in other financial centers or directly with global clients in secondment arrangements. The cornerstone of these high-value banking and financial services jobs is the ability to work in situ, with a leading process for knowledge exchange and transfer remaining face-to-face contact (Amin & Thrift, 1992; Thrift, 1994). Consequently, a significant driver of the competitiveness and complementarity of London as a global financial center is the continual supply of elite, expatriate labor that comes to work in its burgeoning global banks, financial institutions, and professional services firms. Many of those workers coming into London from outside of the EEA enter as inter-company transfers (ICTs) for specific time periods to fill vacancies, for training, to develop their professional and management skills in formal programs, and to enhance the global culture of the firm (Beaverstock & Hall, 2012).

Prior to 2009, the United Kingdom Border Agency released data on work permits for non-EEA nationals. Between 2000 and 2008, a total of 58,911 work permits were issued to non-EEA nationals in financial services (Salt, 2010). Given the structure of the United Kingdom's economy, a very large proportion of them would have entered as ICTs to work and reside in London. The London Borough of the Corporation of London (its constituency boundary is the City of London) estimated that in 2009 approximately a quarter (75,000) of the City's 300,000 banking, financial, and professional services workers were foreign (Aldrick, 2009), in other words, expatriates from both EEA and non-EEA destinations. Using the Corporation of London's 25% ratio of foreign workers to total employment in City jobs, Beaverstock and Hall (2012) calculated possible numbers of expatriates in London's financial district (The City of London and Canary Wharf) in any given year since the early 2000s (Table 12.5). Thus, in 2007, at the height of the boom, there may have been as many as 104,000 foreign workers (expatriates) employed in the City of London and Canary Wharf. But these approximations could be too low because they may fail to acknowledge those hypermobile workers typical of the City's international labor market (characterized by, e.g., longer-term business travel, short-term rotations of less than 1 year, and business commuting, Falconbridge et al., 2009).

Table 12.5 Estimation of foreign workers in city-related jobs in the City of London and Canary Wharf, 2000–2011

Year	City related jobs ^a	Estimated foreign workers (25% ^b of city-related jobs)
2000	345,000	86,250
2001	350,000	87,500
2002	332,000	83,000
2003	344,000	86,000
2004	370,000	92,500
2005	379,000	94,750
2006	401,000	100,250
2007	417,000	104,250
2008	401,000	100,250
2009	338,000	84,500
2010	315,000 ^c	78,750
2011	288,000 ^c	72,000

^aEstimate of City-type jobs, including banking, financial intermediation, insurance and pension funds, legal, accountancy, and business consultancy (Centre for Economics and Business Research [CEBR], 2011; The Corporation of London *City Stat Shots* [various], and *City Research Focus* [various])

^bThe Corporation of London estimated that 25% of the 300,000 City-jobs in 2009 were filled by foreign workers (Aldrick, 2009)

^cEstimate by City of London of City-jobs only (i.e., excluding Canary Wharf) (CEBR, 2011)

Conclusions

In this chapter, I have argued that expatriation, also more commonly known as international assignments, remains a key strategy for a firm to transfer and exchange knowledge between subsidiaries and clients alike, irrespective of rapid improvements in ICT and travel. TNCs that engage in international production through foreign direct investment, whether in mineral extraction, manufacturing plant, or office networks, explicitly use expatriation and other modes of corporate mobilities as an organizational strategy to deepen, broaden, and enlarge intrinsic and generic knowledge within the firm. But gone are the days of one way flows of knowledge and people between the headquarters and subservient, knowledge-poor subsidiaries. As Bartlett and Ghoshal (1998) and others (e.g., Morgan, 2001), have quite rightfully acknowledged, contemporary firms are highly transnational in scope, with knowledge being shared among all subsidiaries and people flowing in multiple directions for learning, knowledge transfer and exchange, and the sharing of best practice, whether in management systems or for the rolling out of corporate policy and strategy. In the knowledge-intensive sectors of the economy, which encompass banking, finance, accounting, and legal services, as well as other activities such as advertising, the arts, and even elite sports, expatriation and corporate mobilities are a key *modus operandi* of the TNC, because idiosyncratic knowledge, skills, expertise, and competences are embodied in the individual worker, a function that can seldom be

accomplished by ICT or other forms of technological transmission. As an organizational strategy, expatriation still facilitates the colocation, or immediate proximity of the knowledge-rich employee, of whatever nationality, to the specific client or work colleague to deliver, transfer, or exchange knowledge, which is often in tacit form and sticky. As the study of global accounting firms has shown, international assignments remain a major strategy by which a firm can engage with its clientele and build the knowledge capacity of its worldwide labor force, which is increasingly labeled global talent. Moreover, expatriation and other forms of corporate mobility have become a vital component of firms' global talent management and global staffing regimes.

Secondly, it is important to acknowledge that world cities are the nodes in society where knowledge is created, co-produced, and circulated within and between firms in similar sectors and agglomeration economies, or clusters. Many leading theorists acknowledge that world cities have economic agency through their command and control functions and global reach (Sassen, 2001b, 2006), with such agency being orchestrated through the strategic operations and everyday decision-making of boardroom executives, fee-earning professionals, and expert scientific labor. Importantly, the composition of this highly skilled labor market is global in scope, composed of both home country nationals and expatriates, who are at the forefront of knowledge production, transfer, and exchange. Indeed, as I have suggested, the world city's incumbent knowledge economy is continually being nourished by the labor processes of very highly qualified and experienced individuals of all nationalities who bring a degree of depth to the city's global talent pool. World cities are the places where global talent pools are created, sustained, and, for the very successful cities, such as London, New York, Hong Kong, and Singapore, nurtured and developed. Without such internationally focused and spatialized labor markets being reproduced through expatriation and corporate mobilities, the spatial mobility of both tacit and codified knowledge would circulate very inefficiently between firms and cities, because they are simply just *not* "being (there)" (Gertler, 2003).

As to the future, the management and capture of global talent is going to be highly competitive for both firms and cities. At the organizational level, corporate mobilities will consist of an array of global talent systems, from expatriation to the hypermobilities of *flexipatriation* with its business travel and commuting. Firms' human resource policies will respond more to clients demands for more globally flexible professionals and talented labor to deliver tailor-made solutions and expertise. With respect to world cities, competition to "win the war for talent" (Beaverstock & Hall, 2012) will become rife as cities try to outbid each other with metrics such as high rankings in quality of life indices, remuneration, and sustainability to secure talent to create economic growth and stimulus through highly efficient production and consumption systems.

References

- Accountancy Age. (2011). *Top 35 International networks, associations and alliances for 2011*. <http://www.accountancyage.com/aa/analysis/1776670/top-accounting-networks-associations-2009>
- Aldrick, P. (2009, December 20). Foreign bankers threaten to quit UK in row over bonuses. *The Telegraph*, <http://www.telegraph.co.uk/finance/newsbysector/banksandfinance/6853080/Foreign-bankers-threaten-to-quit-UK-in-row-over-bonuses.html>
- Amin, A., & Thrift, N. (1992). Neo-Marshallian nodes in global networks. *International Journal of Urban and Regional Research*, 16, 571–587. doi:10.1111/j.1468-2427.1992.tb00197.x
- Bartlett, C. A., & Ghoshal, S. (1998). *Managing across borders: The transnational solution* (2nd ed.). London: Random House.
- Beaverstock, J. V. (1994). Re-thinking skilled international labour migration: World cities and banking organisations. *Geoforum*, 25, 323–338. doi:10.1016/0016-7185(94)90034-5
- Beaverstock, J. V. (2004). ‘Managing across borders’: Knowledge management and expatriation in professional service legal firms. *Journal of Economic Geography*, 4, 157–179. doi:10.1093/jeg/4.2.157
- Beaverstock, J. V. (2005). Transnational elites in the city: British highly-skilled inter-company transferees in New York City’s financial district. *Journal of Ethnic and Migration Studies*, 31, 245–268. doi:10.1080/1369183042000339918
- Beaverstock, J. V. (2007a). Transnational work: Global professional labour markets in professional service accounting firms. In J. Bryson & P. Daniels (Eds.), *The handbook of service industries* (pp. 409–431). Cheltenham: Edward Elgar.
- Beaverstock, J. V. (2007b). World city networks ‘from below’: International mobility and inter-city relations in the global investment banking industry. In P. J. Taylor, B. Derudder, P. Saey, & F. Witlox (Eds.), *Cities in globalization: Practices, policies and theories* (pp. 52–71). London: Routledge.
- Beaverstock, J. V. (2010). Immigration and the UK labour market in financial services: A commentary. In M. Ruhs & B. Anderson (Eds.), *Who needs migrant workers? Labour shortages, immigration, and public policy* (pp. 290–294). Oxford, UK: Oxford University Press.
- Beaverstock, J. V. (2011). Serving British expatriate ‘talent’ in Singapore: Exploring ordinary transnationalism and the role of the ‘expatriate’ club.’ *Journal of Ethnic and Migration Studies*, 37, 709–728. doi:10.1080/1369183X.2011.559714
- Beaverstock, J. V., & Boardwell, J. T. (2000). Negotiating globalization, transnational corporations and global city financial centres in transient migration studies. *Applied Geography*, 20, 277–304. doi:10.1016/S0143-6228(00)00009-6
- Beaverstock, J. V., & Hall, S. (2012). Competing for talent: Global mobility, immigration and the City of London’s labour market. *Cambridge Journal of Regions, Economy & Society*, 5, 271–288. doi:10.1093/cjres/rss005
- Black, J. S., Gregersen, H. B., Mendenhall, M. E., & Stroh, L. K. (1999). *Globalizing people through international assignments*. Reading: Addison-Wesley.
- Brewster, C. (1991). *The management of expatriates*. London: Kogan Page.
- Brewster, C., & Scullion, H. (1997). A review and agenda for expatriate HRM. *Human Resource Management Journal*, 7, 32–41. doi:10.1111/j.1748-8583.1997.tb00424.x
- Castells, M. (1996). *The rise of the network society: The information age: Economy, society, and culture, Vol. 1*. Oxford: Blackwell.
- CEBR (2011) Despite fall in bonuses in 2010/11, growth in City workers’ pay packets continues to outpace the rest of the UK. News release. 26th April 2011
- Cohen, R. (1981). The new international division of labour, multinational corporations and urban hierarchy. In M. Dear & A. J. Scott (Eds.), *Urbanization and urban planning in capitalist society* (pp. 287–319). London: Methuen.

- Collings, D. G., McDonnell, A., Gunnigle, P., & Lavelle, J. (2010). Swimming against the tide: Outwards staffing flows from multinational subsidiaries. *Human Resource Management, 49*, 575–598. doi:10.1002/hrm.20374
- Collings, D. G., & Scullion, H. (2006). Strategic motivations for international transfers: Why do MNCs use expatriates? In H. Scullion & D. G. Collings (Eds.), *Global staffing* (pp. 39–56). London: Routledge.
- Cook, G. A. S., Pandit, N. R., Beaverstock, J. V., Taylor, P. J., & Pain, K. (2007). The role of location in knowledge creation and diffusion: Evidence of centripetal and centrifugal forces in the City of London financial services agglomeration. *Environment and Planning A, 39*, 1325–1345. doi:10.1068/a37380
- City of London (2011). *Access to global talent: The impact of migration limits on UK financial and professional business services*. Retrieved from http://nfib.police.uk/NR/rdonlyres/58175A36-F7BD-4DD2-8DF8-9D3E95B0D894/0/BC_RS_AccessoGlobalTalent_FINAL.pdf
- Corporation of London (various). *City Stat Shots*. London: The Corporation of London.
- Corporation of London (various). *City Research Focus*. London: The Corporation of London.
- Deloitte (2010). *Deloitte 2010 annual review: Reaching new heights, as one*. Retrieved from <http://annualreport.deloitte.co.uk/2010/>
- Deloitte (2012). *The global talent challenge: Getting new people in new jobs in new places*. Retrieved from http://www.deloitte.com/view/en_GB/uk/services/consulting/human-capital/0297716ac1b4310VgnVCM1000001a56f00aRCRD.htm
- Dicken, P. (2011). *Global Shift: Mapping the changing contours of the world economy* (6th ed.). London: Sage. (Original work published 1986)
- Dunning, J. H. (1993). *The globalization of business: The challenge of the 1990s*. London: Routledge.
- Edström, A., & Galbraith, J. (1977). Transfer of managers as a coordination and control strategy in multinational corporations. *Administrative Science Quarterly, 22*, 248–263.
- Evans, P., Pucik, P., & Barsoux, J. L. (2002). *The global challenge: Frameworks for international human resource management*. New York: McGraw-Hill.
- Ewers, M. C. (2007). Migrants, markets and multinationals: Competition among world cities for the highly skilled. *GeoJournal, 68*, 119–130. doi:10.1007/s10708-007-9077-9
- Faulconbridge, J. (2008). Managing the transnational law firm: A relational analysis of professional systems, embedded actors and time-space sensitive governance. *Economic Geography, 84*, 185–210. doi:10.2139/ssrn.1155053
- Faulconbridge, J. R., Beaverstock, J. V., Derudder, B., & Witlox F. (2009). Corporate ecologies of business travel in professional service firms: Working towards a research agenda. *European Urban and Regional Studies, 16*, 295–308. doi:10.1177/0969776409104694
- Faulconbridge, J. R., Beaverstock, J. V., Taylor, P. J., & Nativel, C. (2011). *The globalization of advertising: Agencies, cities and spaces of creativity*. London: Routledge.
- Favell, A. (2008). *Eurostars and Eurocities: Free movement and mobility in an integrating Europe*. Malden, MA: Blackwell.
- Fechter, A. M., & Walsh, K. (Eds.). (2012). *The new expatriates. Post-colonial approaches to mobile professionals*. London: Routledge
- Florida, R. L. (2002). *The rise of the creative class*. New York: Basic Books.
- Friedmann, J. (1986). The world city hypothesis. *Development and Change, 17*, 69–83.
- Friedmann, J., & Wolff, G. (1982). World city formation: An agenda for research and action. *International Journal of Urban and Regional Research, 6*, 309–344. doi:10.1111/j.1468-2427.1982.tb00384.x
- Gertler, M. S. (2003). Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *Journal of Economic Geography, 3*, 75–99. doi:10.1093/jeg/3.1.75
- Greenwood, R., & Lachman, R. (1996). Change as an underlying theme in professional service organizations: An introduction. *Organization Studies, 17*, 563–572. doi:10.1177/017084069601700401

- Greenwood, R., Rose, T., Brown, J. L., Cooper, D. J., & Hinings, B. (1999). The global management of professional services: The example of accounting. In S. R. Clegg, E. Ibarra-Colado & L. Bueno-Rodriguez (Eds.), *Global management: Universal theories and local realities* (pp. 265–269). London: Sage.
- Hall, S. (2009). Financialised elites and the changing nature of finance capitalism: Investment bankers in London's financial district. *Competition and Change*, 13, 173–189.
- Hanlon, G. (1994). *The commercialisation of accountancy—Flexible accumulation and the transformation of the service class*. London: Palgrave MacMillan.
- Hanlon, G. (1999). International professional labour markets and the narratives of accountants. *Critical Perspectives on Accounting*, 10, 199–221. doi:10.1006/cpac.1997.0212
- Harvey, W. S. (2008). Strong or weak ties: British and Indian expatriate scientists finding jobs in Boston. *Global Networks*, 8, 453–473.
- Hymer, S. (1972). The multinational corporation and the law of uneven development. In N. Jagdish & J. Bhagwati (Eds.), *Economics and the world order from the 1970s to the 1990s* (pp. 113–140). New York: Collier-Macmillan.
- Jones, A. (2008). The rise of global work. *Transactions of the Institute of British Geographers*, 33, 12–26. doi:10.1111/j.1475-5661.2007.00284.x
- Jones, A. (2010). Immigration and the UK labour market in financial services: A case of conflicting policy challenges? In M. Ruhs & B. Anderson (Eds.), *Who needs migrant workers? Labour shortages, immigration, and public policy* (pp. 259–289). Oxford: Oxford University Press. doi:10.1093/acprof:oso/9780199580590.003.0009
- Kolosso, V., Vendina, O., & O'Loughlin, J. (2002). Moscow as an emergent world city: International links, business developments, and entrepreneurial city. *Eurasian Geography and Economics*, 43, 170–196. doi:10.2747/1538-7216.43.3.170
- Lai, K. P. Y. (2009). Global cities in competition? A qualitative analysis of Shanghai, Beijing and Hong Kong as financial centres. *GaWC Research Bulletin 313*. Retrieved from www.lboro.ac.uk/gawc/rb/rb313.html.
- Lowendahl, B. R. (1997). *Strategic management of professional service firms*. Copenhagen: Copenhagen Business School Press.
- Lowendahl, B., Revang, O., & Fosstenlokken, S. N. (2001). Knowledge and value creation in professional service firms: A framework for analysis. *Human Relations*, 54, 911–931. doi:10.1177/0018726701547006
- Mahroum, S. (2000). Highly skilled globetrotters: Mapping the international migration of human capital. *R&D Management*, 30, 23–32. doi:10.1111/1467-9310.00154
- Mastercard Worldwide (2008). Worldwide centers of commerce index. Retrieved from http://www.mastercard.com/us/company/en/insights/pdfs/2008/MCWW_WCoC-Report_2008.pdf
- Mellahi, K., Frynas, J. G., & Finlay, P. (2005). *Global strategic management*. New York: Oxford University Press.
- Mercer Group (2011). *2011 quality of living worldwide city rankings—Mercer survey*. Retrieved from http://allianceau.com/pics/advant/2011_Mercer.pdf
- Meusburger, P., Funke, J., & Wunder, E. (Eds.). (2009). *Milieus of creativity. An interdisciplinary approach to spatiality of creativity*. Knowledge and Space: Vol. 2. Dordrecht: Springer.
- Meyer, D. R. (2000). *Hong Kong as a global metropolis*. Cambridge, UK: Cambridge University Press.
- Michie, R. C. (Ed.) (2000). *The development of London as a financial centre: Volume 1: 1700–1850*. London: Tauris.
- Millar, J., & Salt, J. (2009). Portfolios of mobility: The movement of expertise in transnational corporations in two sectors— aerospace and extractive industries. *Global Networks*, 8, 25–50. doi:10.1111/j.1471-0374.2008.00184.x
- Ministry of Manpower (2009). *Data extracted from the Annual Employment Change by Industry*. Retrieved from <http://stats.mom.gov.sg/Pages/ExploreStatisticsPublications.aspx#PublicationSearch?topic=employment>

- Morgan, G. (2001). Transnational communities and business systems. *Global Networks*, 1, 113–130. doi:[10.1111/1471-0374.00008](https://doi.org/10.1111/1471-0374.00008)
- Morris, T., & Empson, L. (1998). Organisation and expertise: An exploration of knowledge bases and the management of accounting and consulting firms. *Accounting, Organizations and Society*, 23, 609–624. doi:[10.1016/S0361-3682\(98\)00032-4](https://doi.org/10.1016/S0361-3682(98)00032-4)
- Nachum, L. (1999). *The origins of the international competitiveness of firms: The impact of location and ownership in professional service industries*. Cheltenham: Edward Elgar.
- Nohria, N., & Ghoshal, S. (1997). *The differentiated network: Organizing multinational corporations for value creation*. San Francisco: Jossey-Bass.
- Organisation for Economic Co-operation and Development (2003). Service providers on the move: Labour mobility and the WTO General Agreement on Trade in Services. *Policy Brief Paper*, August 2003. Retrieved from <http://www.oecd.org/trade/services-trade/8890089.pdf>
- Olds, K. (2007). Global assemblage: Singapore, foreign universities, and the construction of a “global education hub”. *World Development*, 35, 959–975. doi:[10.1016/j.worlddev.2006.05.014](https://doi.org/10.1016/j.worlddev.2006.05.014)
- Patel, S. (2007). Mumbai: The mega-city of a poor country. In K. Segbers (Ed.), *The making of global city regions* (pp. 64–84). Baltimore: John Hopkins University Press.
- PricewaterhouseCoopers (2000a). *Managing a virtual world: Key trends 2000/2001*. London: PricewaterhouseCoopers.
- PricewaterhouseCoopers (2000b). *International Assignments, European Policy and Practice: Key Trends 1999–2000*. London: PricewaterhouseCoopers.
- PricewaterhouseCoopers (2010a). *Talent mobility 2020: The next generation of international assignments*. Retrieved from <http://www.pwc.com/gx/en/managing-tomorrows-people/future-of-work/pdf/talent-mobility-2020.pdf>
- PricewaterhouseCoopers (2010b). *Building relationships, creating value: Global annual review 2010*. Retrieved from <https://www.pwc.com/ec/es/publicaciones/assets/pdf/global-annual-review-2010.pdf>
- Salt, J. (2010). *International migration and the United Kingdom: Report to SOPEMI* (available from the author, Migration Research Unit, University College, London).
- Sassen, S. (2001a). Cracked castings: Notes towards an analytics for studying transnational processes. In L. Pries (Ed.), *New transnational social spaces* (pp. 187–207). London: Routledge.
- Sassen, S. (2001b). *The Global City*. Princeton, Princeton University Press.
- Sassen, S. (2006). *Cities in a world economy* (4th ed.). Thousand Oaks: Pine Forge Press.
- Saxenian, A. (2007). *The new Argonauts: Regional advantage in a global economy*. Cambridge, MA: Harvard University Press.
- Schuler, R. S., Jackson, S. E., & Tarique, I. (2011). Global talent management and global talent challenges: Strategic opportunities for IRHM. *Journal of World Business*, 46, 506–516. doi:[10.1016/j.jwb.2010.10.011](https://doi.org/10.1016/j.jwb.2010.10.011)
- Scullion, H., & Collings, D. G. (Eds.). (2006). *Global staffing*. London: Routledge.
- Scullion, H., Collings, D. G., & Caligiuri, P. (2010). Global talent management. *Journal of World Business*, 45, 105–108.
- Shortland, S. (2009). Gender diversity in expatriation. Evaluating theoretical perspectives. *Gender in Management: An International Journal*, 24, 365–386. <http://dx.doi.org/10.1108/17542410910968814>
- Smith, M. P. (1999). Transnationalism and the city. In R. A. Beauregard & S. Body-Gendrot (Eds.), *The urban movement: Cosmopolitan essays on the late 20th century city* (pp. 119–139). Thousand Oaks: Sage.
- Smith, M. P., & Favell, A. (Eds.). (2006). *The human face of global mobility*. New Brunswick: Transactions
- Sparrow, P., Brewster, C., & Harris, H. (2004). *Globalizing human resource management*. London: Routledge.
- Tarique, I., & Schuler, R. S. (2009). Global talent management: Literature review, integrative framework, and suggestions for further research. *Journal of World Business*, 45, 122–133.

- theCityUK (2012). *Accounting*. Retrieved from <http://www.thecityuk.com/research/our-work/reports-list/>
- Thrift, N. J. (1994). On the social and cultural determinants of international financial centres: The case of the City of London. In S. Corbridge, R. L. M. & N. J. Thrift (Eds.), *Money, power and space* (pp. 327–355). Oxford: Blackwell.
- Tung, R. L. (1988). *The new expatriates: Managing human resources abroad*. Cambridge, MA: Ballinger.
- Whelan, E., Collings, D. G., & Donnelian, B. (2010). Managing talent in knowledge-intensive settings. *Journal of Knowledge Management*, 14, 488–504.
- Wigley, R. (2008). *London: Winning in a changing world: Review of the competitiveness of London's financial centre*. London: Merrill Lynch Europe.
- Z/Yen (2012). *The Global Financial Centres Index 11*. Retrieved from <http://www.zyen.com/PDF/GFCI%2011.pdf>

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Chapter 13

Formal Education as a Facilitator of Migration and Integration: A Case Study of Nigerian University Graduates

Melanie Mbah

In this chapter I examine the triple nexus of education, migration, and integration. I analyze how formal tertiary education facilitates emigration and integration. My research draws on 65 semi-structured interviews with highly skilled¹ Nigerian migrants in the three destination countries of Germany, the United Kingdom, and the United States. Furthermore, in combination with data from a web-survey I conducted with Nigerian university graduates from three Nigerian universities, a complex picture emerges illustrating this triple nexus. Educational attainment in Nigeria can be interpreted as taking a person one step closer to the overall aim of migration. Choosing Nigeria as a case study had four main reasons. The country has (a) the biggest population in Africa, (b) a large number of tertiary education institutions with many graduates, (c) high and still-rising numbers of highly skilled migrants, and (d) an important political and economic role in West Africa. Nigeria is intertwined in the West African migration system, both as a receiving and a sending country. A better understanding of Nigerian migration patterns also means more knowledge about West African migration patterns in general.

Taking a cultural perspective on migration, it can be interpreted in the Nigerian setting as something one is expected to achieve as it is a part of the Nigerian culture. More than 20 years ago Tony Fielding (1992) made an important statement that

This paper is based on findings of my PhD thesis, *Brain Drain aus Entwicklungsländern? Migrationsmotive und -prozesse Hochqualifizierter am Beispiel von Nigeria*. (Brain Drain from Developing Countries? Migration Motivations and Processes of Highly Skilled Nigerian University Graduates), Karlsruhe, 2014.

¹Highly skilled Nigerian migrants are defined as people with a first university degree who have been living outside their country of origin for at least 1 year.

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“migration tends to expose one’s personality; it expresses one’s loyalties and reveals one’s values and attachments often previously hidden. It is a statement of an individual’s world-view, and is, therefore, an extremely cultural event” (p. 201). Fielding is pointing out that migration is part of a culture, and cultures influence migration processes differently. The role of culture in migration decisions can be viewed in two ways. First, places with strong place-identities produce low out migration and high return migration. Second, conformity with the dominant culture plays a significant role. This means that in places where conformity is high, low migration rates can be identified, and vice versa (Fielding, 1992, pp. 203–204). Furthermore, “how the migration is experienced depends on both the cultural characteristics of the migrant and the cultural context of the migration decision” (Fielding, 1992, p. 205). Cohen and Sirkeci (2011) widen Fielding’s approach of cultural migration into cultures of migration. With this, they consider migration as culturally framed and socially defined. For this reason Cohen and Sirkeci (2011, pp. 10–19) argue that migrants usually have a plan beforehand; migration, therefore, is strategically planned and the migration process itself underlies a subjective rationality based on expectations of positive outcomes. Migrants are, of course, social actors “framed by traditional beliefs, cultural expectations, and social practices” (Cohen & Sirkeci, 2011, p. 14) and the sociospatial setting plays a crucial role as well. They conclude that:

individuals have nearly limitless needs and wants but only limited means through which to satisfy them. In this situation migration becomes an important avenue toward satisfying those wants—not all of them, but certainly more than might be possible without migration. (p. 19)

Drawing on this latter point, I argue that formal education is one of the facilitating means for migration. Education is highly valued in Nigeria because it is understood as a means of satisfying people’s needs and wants. It is often unable to fulfil those expectations and ends up having the effect of creating another desire: the one for migration, which many consider an answer to their needs.

Within the nexus of education, migration, and integration, I (a) highlight the Nigerian migration history to integrate it into a cultural perspective of migration; (b) focus on emigration patterns of highly skilled Nigerian migrants to understand better their motivations and how migration is actually realized; (c) explain integration as a complex process dependent on structural forces and individual abilities; and (d) introduce a new migration model for West Africa that reflects the migrant’s point of view. I argue that migration is a continuum in space and time leading to several outcomes that can be explained with the concepts of *brain drain*, *brain waste*, and *brain circulation*.

Methodology and Data

The findings are based on my analysis of: (a) 65 semi-structured interviews I conducted with highly skilled Nigerian migrants in Germany, the United Kingdom, and the United States in 2011 and 2012, and (b) a web-survey of alumni from

three Nigerian universities (Ibadan, Jos, and Port Harcourt) I carried out in 2010–2011.

My analysis of the web-survey of 244 participants (from a database of 2874 alumni) provided detailed information about the interviewees' educational and socioeconomic backgrounds and other matters such as their occupational careers and international experience. The gender distribution of the participants was 70 % male and 30 % female. A majority of participants were between 26 and 45 years old and about 60 % of them were married and had family. About 10 % of the participants had international experience, either in the form of study leaves or work experience.

The age distribution of the interviewees in the semi-structured interviews ranged from 25 to 64 years, with most being between 30 and 50 years old. I interviewed 25 women and 40 men. The minimum amount of time spent in the destination country at the time of the interviews was 1 year and the maximum was 31 years.

All of the interviews were conducted face-to-face, except for one telephone interview. The interviews were recorded and transcribed completely, to miss no important detail. The length of the interviews ranged from 30 min to 2 h. This variation in length depended on where they were conducted, whether in public (e.g., cafés or work places) or in private spaces (e.g., homes or cars). This also greatly influenced the atmosphere of the interview. Of course, interviewer effects had to be considered and were avoided as much as possible.

The analysis of the interview transcriptions was made in two main steps. First, sections of the transcriptions were categorized in codings to obtain a proper picture of the central issues mentioned. Second, a variety of types were identified and verified several times regarding their inner cohesion and outer distinction. The six types identified were then entered into a time-space continuum, which served as the basis of an actor-centered migration model representing the migrants' perspective on the migration process. This approach helped to reveal which structural opportunities and constraints migrants face when trying to integrate themselves into the host societies. Quotations as well as narrations of migrants' biographies are used in the following sections to gain a better understanding of the migrants' point of view. Anonymity is guaranteed by the usage of pseudonyms for all interviewee names.

Nigerian Migration History: Migration as a Cultural Event?

The cultural perspective can be projected onto Nigerian migration patterns because of Nigeria's extensive migration history, including immigration and internal migration, as well as emigration. In many ways, Nigeria is typical of West African migration patterns; after its independence from the United Kingdom in 1960, it initially suffered an exodus of the highly skilled, induced by both British and Nigerian politics. As a British colony the country inherited the British educational system. Efforts to achieve development through education in the early years of independence produced many secondary school graduates who could neither be absorbed by the

Nigerian economy nor find space in tertiary education institutions. Therefore, many Nigerians and nationals of other West African countries chose to migrate to the former colonial powers or to the United States. National policy also fostered these migration streams, with the former colonial powers often having liberal visa programs, and the Nigerian government implementing several educational programs to educate Nigerians abroad (Adepoju, 1985, 1995; Makinwa-Adebusoye, 1992). Those former developments are still affecting today's migration patterns, with the United Kingdom, for example, being the first migration choice for Nigerians if their migration is educationally driven. During colonial times British rule created highly mobile populations. In addition to the widespread rural-urban and north-south movements in response to climate conditions and economic differences, a second and opposite south-north stream, comprised mainly of Igbo² people, emerged because of an educational south-north gradient and the need for educated administrative staff in the north (Swindell, 1995). The artificial separation of members belonging to the same ethnic group as a result of the border demarcation fostered undocumented migration between neighboring countries, a problem that persists to this day (Makinwa-Adebusoye, 1992). Another important cause was the Biafran War between 1967 and 1970, which induced internal as well as international migration streams (Falola, 1999; Swindell, 1995).

Migration, both domestic and international, is thus a longstanding part of Nigerian culture. It developed from internal, nomadic movements into rural-urban mobilities and continues with international migration driven primarily by economic and educational considerations to other (West) African countries and destinations abroad (mainly the United Kingdom and the United States). Nowadays there are many different forms of movements, ranging from emigration to back-and-forth moves, remigration, and re-emigration. In the case of the Cape Verde Islands, Carling and Akesson (2009, pp. 123, 132–140) attested a *migration ideology* shaped through large-scale labor emigration flows between the 1960s and 1970s. Migration is now a part of Cape Verdeans' everyday lives because it has such a pervasive influence in their society, with many Cape Verdeans receiving phone calls and remittances from migrants abroad, as well as experiencing houses being built by migrants. This migration ideology, or migration culture, applies in other cases as well, such as Nigeria or, for instance, Uganda (e.g., Binaisa, 2009), Ghana (e.g., Nieswand, 2014; Smith, 2015), Mexico (e.g., Goldring, 2001), or Asian countries such as Bangladesh (e.g., Dannecker, 2009), Indonesia, and China (e.g., Xiang & Lindquist, 2014). Additional to this migration culture, push and pull factors may have a formative influence on images migrants have of countries abroad. Those push and pull factors refer to the political, economic, and educational situation in the countries of origin and destination that can lead to an image of "greener pastures" abroad.

²Nigeria has more than 250 ethnicities. The Igbo is one of the three main ethnic groups (Hausa, Igbo, and Yoruba).

Emigration as Culturally Underpinned and Realized Through Education

My understanding of emigration as being culturally underpinned means that my research is located within the cultural optic of migration research (Cohen & Sirkeci, 2011; Fielding, 1992). The notion of culture is, therefore, shaping migration aspirations (Carling, 2014; Carling et al., 2013; Efionayi & Pigué, 2011). I also draw on concepts focusing on networks as being crucial to migration decisions (Choldin, 1999; Fawcett, 1989; Kennedy & Roudometof, 2002; Larsen, Urry, & Axhausen, 2006; Mitchell, 2000; Tilly, 2007). Carling (2002) identified involuntary immobility as one important pattern of today's migration. He argues for a separate analysis of the aspiration and the ability to migrate and introduced an aspiration-ability model. In my case study, the ability to migrate has already been proved, but what facilitated the ability to migrate can be clarified. It remains to be analyzed whether the aspirations can be interpreted as cultural in the sense of imaginaries leading to the migration aspirations of societies and how aspirations come into existence. Carling (2014) acknowledges that desires for migration are "a fundamental aspect of society that affects its life and development" (p. 5). He therefore proposes a new model of migration decisions. Migration aspirations comprise both the desire and the capability (or lack thereof) to move, which may result in mobility or immobility. If the goal has not been achieved or the opposite of what has been wanted is realized, Carling speaks of repression rather than realization (Carling, 2014). This same concept supports the development of my migration model. While Mitchell (2000) and others argue for networks as the most important variable fostering migration decisions, I argue that the media and narratives of migrants and return-migrants have developed a special image of greener pastures abroad and continue to nourish it. This myth leads to such an overwhelming desire for migration that contradictory information is not adequately considered in the process of migration decisions.

Considering that a migration desire without migration ability cannot lead to a migration decision, there is a need to examine other determinants. Some important facilitators of migration are, among others, access to networks (kin or business) and formal education (Castells, 2000; Choldin, 1999; Hardwick, 2008; King, 2012; Larsen et al., 2006; Mitchell, 2000; Tilly, 2007). Moreover, my findings show that visa requirements, in particular, can be very challenging to most seeking to leave a country, confirming the influence of structural factors. A closer look at the literature on decision-making processes of migrants shows that they are quite complex, and that the models explaining them tend to be abstract (Cebula, 1979; DaVanzo, 1981; Gardner, 1981; Parnwell, 1993; Wolpert, 1965). Goldin, Cameron, and Balarajan (2009, pp. 97–120) identified three levels of decision-making, namely the individual, the societal, and the national influences. These levels attest to the complexity of migration decisions and the importance of not overemphasizing any single one in particular. Hence, I argue for a complexity of migration decisions in which images and imagination play a crucial role, as do other factors such as networks and economic, political, or educational circumstances. Literature focusing on networks as

part of a newer explanatory concept in migration studies argues that networks are social ties determining the individual's opportunities to act (Hardwick, 2008; Mitchell, 2000). Networks, therefore, foster migration decisions, because they make migration processes less risky and costly, thus generating chain migration (Portes & DeWind, 2004). My contribution in this chapter to the issue of networks is to view them from a different perspective, less as decision-makers and more as facilitators to implement a decision already made. Therefore, both education and networks are important facilitators of migration.

Why do I come to this conclusion? In my analysis of the web-survey I observed a multifaceted picture of migration aspirations and facilitators. Large family networks work as a push factor for migration in that they may be an asset in terms of financial, social capital, or accommodation issues, both in Nigeria and abroad, that eases educational attainment and migration. Furthermore, large families may depend on migration to generate higher household income to satisfy their own needs in their country of origin. Education facilitates migration because it is easier to access migration channels with a university degree. First, a graduate with a first degree seems to have a better chance of obtaining a student visa to study abroad. Second, students at universities gain access to diverse networks and groups, as well as to ideas and knowledge, which may motivate them more to go abroad to study. Third, those who choose a career in science need to acquire international experience to be competitive in the job market. A majority (76%) of those alumni already living abroad when the web-survey was conducted (2010–2011) stated that educational attainment was their main motivation. This was also true for alumni who lived in Nigeria but had international experience. A minority had been abroad for holidays and very few of those who had spent time outside of Nigeria indicated having international work experience. Educational attainment abroad, therefore, has added importance for Nigerian migrants and former migrants.

Taking the standpoint that migration is a cultural matter, the findings of my study show that a rather naïve image of life abroad quite often leads to migration decisions. Migrants often follow the routes of former migrants. Prospective migrants are, therefore, more concerned with the question of how to enter the migration process than what kind of outcome migration will have or how to influence the outcome. Accordingly, Nigerian migration history has induced a culture of migration expressed in the belief that abroad is paradisiacal. Narratives of highly skilled Nigerian migrants indicate that images are created not only through migrants, but through the media as well. John, who had been living in Germany for over 15 years, underlined the importance of media, in combination with narratives of migrants, in influencing the images generated and the aspirations to leave the country:

[Y]ou see all the beautiful things...in movies,...and they tell you yes it's basically the thing you see on the movie and life is good, everything is wonderful here and the rest of it. Of course, you want to be part of it.

This one-sided image of destination countries is accompanied by an expectation of going to the United Kingdom for studies and returning to be immediately absorbed into the Nigerian labor market. Susan, for example, who had been living

in the United Kingdom for 3 years at the time of the interview, came to study and had recently finished her master's degree. She had experienced people who had left Nigeria for further education and returned to Nigeria being more competitive than Nigerians who have not been abroad:

Actually the idea of studying abroad...came from my previous background because I did have my internship with Chevron Nigeria Limited...I found that some of my bosses actually studied abroad and then they came back to Nigeria to work.

The examples above reflect the image of the country of origin "as underdeveloped space" (Akesson & Baaz Eriksson, 2015, p. 23) and the migrants as being "more developed and advanced" (p. 23) after acquiring western university education and having been migrants in a developed country. The positive image of abroad is so deeply rooted that even strong foundations of trust may not convince prospective migrants of the opposite. This is shown by the statement of Dennis, whose parents had lived in the United Kingdom previously, and who, himself, has been living in the United Kingdom for more than 10 years:

You believe that life is better here [in the United Kingdom]. You believe that you can earn a better living here.... My parents were here in [the] seventies but you don't want to believe [them: his parents] because what you see on TV, you watch CNN, you watch movies, and with those the picture that is painted is wonderful, better than what you have in Neija at that point in time...so I was more likely to believe my peers, my friends who had traveled but they never gave us the true picture but even if they did, we would still have some doubts as in then "why are you there, why haven't you run back?"

The image of greener pastures is fed and preserved by migrants who feel forced to appear to be successful people, even if they are not. The role of one who has made it is also attractive to the migrants because of the accompanying gain in status. The following quote from Michael, who was living in the United States, describes this very vividly:

In Nigeria everybody, if you come from here [the United States], everybody is like "ooh"! They respect you, they fear you, they follow you around [and] you feel big!...Everybody wants to stay in line and talk to me...so we, that are there [before emigration], we thought it is going for him, if I can go over there it will go for me.

Fostering the migration decision is the image of greener pastures, a perception that generates aspirations and desires for migration and spawns a culture of migration in which the question becomes how to leave the country rather than if or why to leave the country. As George, who had been living in Germany for more than 19 years, put it: "If you can leave, you know just leave,...God will be with you."

Migrants search for facilitators to aid their entry into the migration process, but do not examine, for instance, what a foreign system really looks like and how they will adjust to it. The question raised in this section is: How do highly skilled Nigerian migrants carry out their migration decision? Which factors—facilitators as well as constraints—can be identified?

The threshold approach of van der Velde and van Naerssen (2015) focuses on all dimensions of the decision-making process at the personal and structural levels, including those "affecting whether, when and where to migrate" (p. 6). In their

approach, the personal level also comprises social networks and the level of information available. The structural level considers the socioeconomic and political situation. They identified three thresholds: the mental threshold (the mindset of people to become a migrant), the locational threshold (familiarity with the destination country), and the trajectory threshold (route to the destination country) (van der Velde & van Naerssen, 2015). My findings support this thresholds approach on three accounts. First, the mental threshold is regarded as the imagination leading to the aspiration for migration. Second, the locational threshold comes into play through the role of networks. My findings indicate that networks do play a role when potential migrants are actively looking for possibilities to leave the country and are big facilitators in the realization of that dream. Third, the trajectory threshold takes into account the possibility that certain factors in a particular migrant's life may outweigh other trajectories; for example, if a certain individual is less able to connect to networks than another. The most important facilitator for highly skilled Nigerian migrants in this regard is university education, because it allows them to apply for a student visa, which seems easier to obtain than other types of visas. Some students in the United Kingdom told me, for example, that they had planned their migration for a long time and even saved money to pay the university fees in the United Kingdom. Nonetheless, not everyone who faces difficulties in the country of origin or simply aspires to migrate has the resources and capability to do so. Other factors such as networks and sociospatial contexts play a role in having access to migration. In this regard Smith's (2015) description of a Ghanaian prospective migrant who migrated to the Netherlands indicates that networks, as well as coincidence, play a crucial role. That particular migrant had an uncle, a man of influence with a huge network, who helped him obtain a visa and financed his flight. Such "big men" are gatekeepers to resources and networks (e.g., Utas, 2012). There might be a hidden rationality behind the myth of greener pastures that is created mainly through images. The existence of migration facilitators, such as education, dual citizenship, green card or marriage offers, and financial assets, strengthen the idea of migration as a relevant solution.

Integration Between Structural Forces and Individual Abilities: Migration as a Continuum in Space and Time

The above argument of a culture of migration now leads to the following question: How does the aspiration of highly skilled Nigerians to migrate affect the Nigerian educational system? With this inquiry I aim to challenge the rather negative perspective on brain drain, taking into account more positive interpretations of brain circulation. I argue—in spite of a certain extent of brain drain—for a type of brain circulation that could be supported through specific policy programs and progress in the quality of education in Nigeria itself. Most graduates leave the country after completion of a bachelor's degree in order to gain an international degree (master's

or PhD). This rather low level of tertiary education on the part of migrants can therefore not really be interpreted as brain drain. The focus should lie on the question of what happens to those who emigrated to further their education abroad with the intention of returning after graduation. The findings show that most highly skilled Nigerian migrants face difficulties furthering their education abroad, starting with the issue of getting their degrees accredited by the host country's educational system. This accreditation process requires either re-examination, which takes time and can be quite expensive as well, or starting over, which means repeating their university education from scratch. Neither of these possibilities is attractive from a migrant's point of view. The quantitative data provides some evidence of the extent to which Nigerian graduates are involved in migration and what motivations they have. As stated above, 10 % of the alumni³ migrated, but the data also covers return migrants and non-migrants on short-term stays abroad.

The analysis of the qualitative data revealed a typology of the highly skilled Nigerian migrants that may be linked to certain knowledge flows, namely brain waste, brain drain, and brain gain or brain circulation (e.g., Salt & Findlay, 1989; Chikanda, 2007; Lee & Kim, 2010; Pecoraro, 2013). Out of the 65 interviews, six types of migrants were identified: student migrants, privileged migrants, establisher migrants, dependent migrants, integrated migrants, and transmigrants. Student migrants typically are in the country of destination for a few years (1–5 years), are actively involved in education, send no remittances (indeed they are likely to be receiving remittances from Nigeria), and are willing to return after graduation, or after some work experience, if conditions in the home country are right. Privileged migrants are involved in different fields, including education, but may also be employed. For them migration is easier to access because they already possess a residency permit for the country of destination through their familiar relations. That advantage, as well as their larger and often more well-established networks, gives them better access to the labor market in the destination countries. Moreover, those traveling to the United Kingdom whose parents are return migrants have better language skills, another benefit for labor market integration. They send no or only small amounts of money to their country of origin, either because most of their family members are abroad or because their family members in Nigeria are well off and they do not actively plan their return. Their length of stay in the country of destination varies, with some of them, therefore, visiting Nigeria only periodically, which means less than every 3 years. The third type, the establisher migrant, is struggling to integrate into the host society, mainly doing menial jobs, trying to succeed, but facing various setbacks or failures. Establishers have responsibilities in both societies (Nigeria and the host country). They send remittances to Nigeria, although they have to take care of family members in the country of destination as well. They do not plan to return because they do not have the means to do so. Dependent migrants are those highly skilled Nigerian migrants who did not decide on their own to migrate; rather they married a Nigerian who already lived in the country of

³Alumni are here Nigerians who hold a university degree (first or more) from one of the three Nigerian universities (Ibadan, Jos, Port Harcourt).

destination. Their everyday lives are often centered around the family, and they may have children born shortly after immigration or even prior to it. The fifth type is the integrated migrant. They are well integrated into the host society, meaning they have well-paid jobs in the tertiary or quaternary sector. They have family in both societies and thus responsibilities to take care of in both countries, including sending remittances. Integrated migrants make visits to Nigeria either regularly (once a year) or periodically (less than every 3 years). Whether they will return permanently to Nigeria in the future is unclear because they feel at home in both countries. The last type of migrant is the transmigrant. These migrants are highly mobile, with travel being their most important characteristic. Visits to Nigeria are made not only regularly, but in fact quite frequently, meaning more than once a year. Keeping in contact with people in both countries is part of this type of migrant's everyday life because they are often involved in typical migrant entrepreneurship. They also face responsibilities in both societies but find it easier to fulfill them because of their close contacts with people in both the destination and source countries. The status of transmigration means having fulfilled the aim of being part of both cultures without losing one's sense of identity or home.

Based on these types, I argue for a conceptualization of migration as a dynamic process with several possible trajectories, depending on the individual's development and preferences, which evolve over time and space. The types, too, therefore must be regarded as non-static affiliations that change along with a migrant's experiences, preferences, and choices. For a better understanding, I base my argumentation on the example of a biography of a migrant, James, who migrated to the United Kingdom in 2004 (Fig. 13.1), 2 years after completing his first degree in Nigeria. He was born in the United Kingdom and lived part of his childhood there. His parents returned to Nigeria when he was in his first year of secondary school, in 1989, when he was 12 years old. His migration was first as a dependent type and then as a privileged type. I mention the former type from the first phase of the life cycle and his early childhood, in spite of that period not having been part of an independent migration process, because it did influence his migration biography. Both of his parents had studied in the United Kingdom but then decided to return to Nigeria: first just his father, who worked in Nigeria as a banker, and later the whole family. James recounted that it had always been clear to him that he would re-emigrate to the United Kingdom one day. After finishing his bachelor's degree, he did his National Youth Service Corps in Nigeria with Chevron, an experience that reinforced his wish to emigrate to the United Kingdom all the more. Although he was privileged in the sense that he already had British citizenship and relatives in the United Kingdom who backed him financially, he struggled finding a job. It took him 1 year to find a job, but he finally found work as a "custody officer" (his own term). He went on to finish his master's degree with the hope of finding a better job in the United Kingdom, although he had in the meantime managed to acquire property for himself and his nuclear family (showing that he was becoming an integrated type). He continued to communicate with people in Nigeria, visited Nigeria on a regular basis, and established a migrant entrepreneurship initiative (as he attempted to develop into a transmigrant). His parents and some of his siblings were in Nigeria;

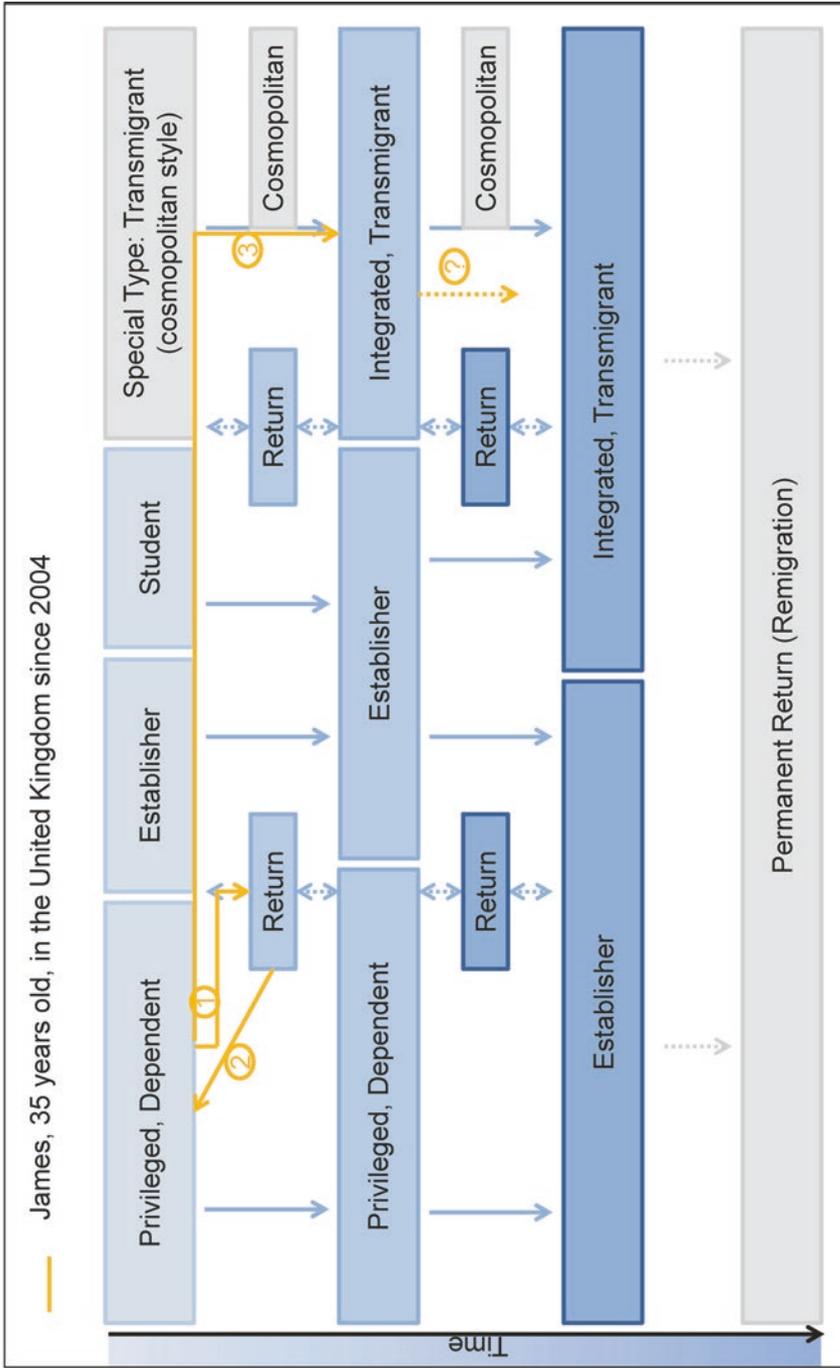


Fig. 13.1 Migration as a spatiotemporal continuum (Design by author)

his brother and other relatives were in the United Kingdom, as were his nuclear family of his wife and two children. He did not know if and when he wanted to return, because it was initially important to him to let his children grow up in the United Kingdom so that they would receive a Western standard of education. According to this narrative, it appeared that he would either continue to tend toward being the integrated type or would become a transmigrant in the future.

In summary, the proposed model of a spatiotemporal migration continuum shows (a) that individuals develop over time and can therefore change from one type of migrant to another. There are four classic initial types: the student, the privileged, the establisher, and the dependent migrant. Three of these types do not appear to endure throughout the entire migration biography, namely the student, privileged, and dependent migrant types, because individuals join the labor market after residing for differing periods of time in the destination country, depending on the sociospatial context.

(b) Return is not necessarily permanent, but can involve short-term stays as well as periodic visits, with re-emigration after some time becoming a consideration. (c) Migration can involve several countries: at least two, the source and the destination country. (d) Migration can start and continue at various points in life, for instance, as a child, as a student, during work life, and as a retiree. And (e) decision-making during the migration process depends on the current life-cycle phase of the migrant and is influenced by temporal and various sociospatial contexts, as well as by personal preferences, that can either be seen as factors of opportunity or of constraint.

Furthermore, I argue that the six types have different developmental effects with respect to the level of transnationalism and a person's self-identity. Transnationalism is performed in various ways through, for example, visits, communication (phone, email, etc.), and money transfers. The self-identity and emotional belonging regarding where home is depends very much on two factors: first, time spent in the host society, and second, integration into the host society. Migrants can have hybrid identities and regard more than one place as home (see also Ralph & Staeheli, 2011). Referring to my argumentation regarding the six types, it is possible (following Faist, 2008) to categorize those types according to three possible knowledge flows (brain drain, brain waste, and brain gain or circulation) that are taken as synonyms for development pathways (Fig. 13.2).

Brain drain stands for a loss of knowledge from the source country's perspective. This applies to migrants who are highly skilled (holding a bachelor's, master's or higher degree) and emigrate—perhaps after collecting some work experience—to another country, losing every link of exchange with the country of origin. The knowledge these migrants acquired in the country of origin now contributes to the development and competitiveness of the country of destination. This is particularly true because highly skilled migrants are regarded as human capital, a fact that helps

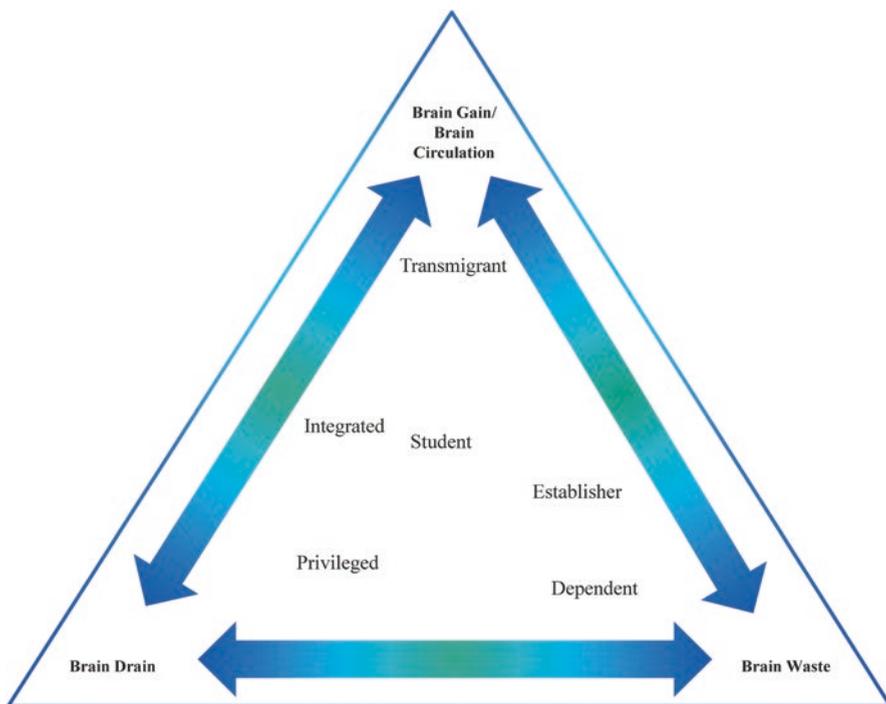


Fig. 13.2 Developmental impacts of migrants in reference to different knowledge flows (Design by author)

them integrate into the labor market of the host society and also guarantees the successful utilization of their acquired skills (see also Chikanda, 2007; Rizzica, 2008).

Brain waste is more than just a loss of knowledge, because acquired skills and knowledge remain completely unused in the country of origin, as well as in the country of destination. Brain waste thus means a deskilling of the migrant labor force in host societies (Faist, 2008; Fosslund, 2013; Pecoraro, 2013).

In contrast to these knowledge flows that are rather negative from the source country’s perspective, brain gain and brain circulation are represented as win-win-win situations. The host country gains human capital, both the home and host society economies experience a positive impact resulting from circulatory knowledge flows, and the migrants themselves also benefit (Salt & Findlay, 1989; Findlay,

1995; Jöns, 2009; Lee & Kim, 2010). The country of destination may also see increased tax income. Remittances to the country of origin supplement its national income. They might also induce development by encouraging higher educational attendance rates and the establishment of small-scale businesses, with new ideas arising from entrepreneurship possibly creating new jobs and income and encouraging a specific societal culture. The migrant benefits from circulatory migration processes in that he or she gains in status, maintains contacts in both countries, develops a hybrid identity, may own two or more homes, and comes to regard transnational activities as self-fulfillment. Transnationalism includes or, at least, promotes brain circulation, which is a process that can support economic development in source countries as Ho (2011), Jöns, Mavroudi, and Heffernan (2015), Larner (2007) and Saxenian (2006) have argued. Some of the migrant types identified here, for instance, the transmigrant, the integrated migrant, and the student migrant, can be located in the spectrum of brain gain or brain circulation. In Fig. 13.2 other migrant types are located closer to the angles marking negatively connoted knowledge flows such as brain drain (the privileged migrant type) or brain waste (the dependent and establisher migrant types).

Simplistic definitions and understandings of knowledge flows are highly contested because migration is viewed as rather multidirectional and complex. Simple contiguities are negotiable and are not suitable for depicting and explaining the nexus between migration and development. Akesson and Baaz Eriksson (2015) argue that policies focusing on brain drain neglect issues of racism and discrimination in the countries of destination that often lead to a downgrading of skills of African migrants. The authors postulate that migrants are also unable to easily transfer skills and knowledge acquired in countries of destination back to their countries of origin to contribute to development there. They see a failure of a bottom-up concept in both cases and a need for a change in policies. In considering Akesson and Baaz Eriksson's (2015) argumentation, I surmise that highly skilled Nigerian migrants do face racism and discrimination, which often lead to a downgrading of skills, but in contrast to the authors' view, I argue that this process of downgrading does not mean that migrants inevitably remain in miserable economic or social situations. Depending on the time spent in the host society, on their socio-spatial context and individual capacities, highly skilled migrants are able to get good employment and develop a professional career, as well as contribute to the economic and social development of the origin society.

Moreover, I argue that a focus on economic benefits that can be described as short-term effects is not suitable for evaluating knowledge flows involving highly skilled Nigerian migrants. Instead, social and cultural capital must also be included in the concepts of brain drain, brain waste, and brain gain or brain circulation. As Binaisa (2009), and more specifically Levitt (1998, p. 933), defines social remittances as "normative structures, systems of practice and social capital", I argue that these social remittances have to be included in concepts of knowledge flows.

I define those developmental effects not only as economic, but also in terms of cultural and social capital. This means that long-term processes, for example, changes of cultural meanings and societal behaviors resulting from new information, and the influence of different ways of life introduced by returning migrants (long and short-term returns), play a crucial role in such knowledge flows but are not well quantifiable. Jöns (2009) has shown this effect in the context of transnational knowledge networks through the example of circular academic mobility to Germany.

The six types in my typology of highly skilled Nigerian migrants can be sorted into a dynamic system of knowledge flows, as I have illustrated in Fig. 13.2. In that diagram the closer a particular type is to an angle of the triangle, the closer its association with the corresponding knowledge flow is considered to be. Individuals of the types located further away from the angles of the triangle cannot be regarded as expressing one specific knowledge flow. This affiliation may remain so until those individuals change their trajectory as part of dynamic migration processes. Migrants are part of migration processes as long as they continue to move, both in terms of crossing borders and in terms of changing their migrant type. The direction and level of development flows may change over time, depending on how individuals' actions and preferences change.

In this section, I emphasized the dynamic quality of migration processes and linked that aspect to knowledge flows impacting both source and destination countries. A migrant's individual level of development was also considered. Accordingly, migration can proceed along a spatiotemporal continuum, with several potential outcomes contingent on the trajectories taken by individual migrants. These outcomes are not static and evolve in response to the migrants' ongoing development. I was able to classify these into six types of highly skilled migrants on the basis of a case study involving Nigerian university graduates.

Migration Culturally Underpinned and Educationally Materialized: A Migration Model of Highly Skilled Nigerians

The migration processes described above can be summarized in a migration model presenting the migrant's perspective. I retain an actor-oriented view outlining the structural and individual opportunities and constraints that migrants face. The case study of Nigerian university graduates thus enables a broader understanding of migration processes. The migration trajectory model informed by the migrant's perspective (see Fig. 13.3) describes how the migration process is experienced by highly skilled Nigerian migrants. It takes into account the entire process of migration, describing the reasons for emigration, the decision-making, and actual migration; the aims and hopes of the migrant; and the opportunities and constraints they meet while in the integration process. The model also accounts for a shift of aims that can result from the situational context in the country of destination, from the

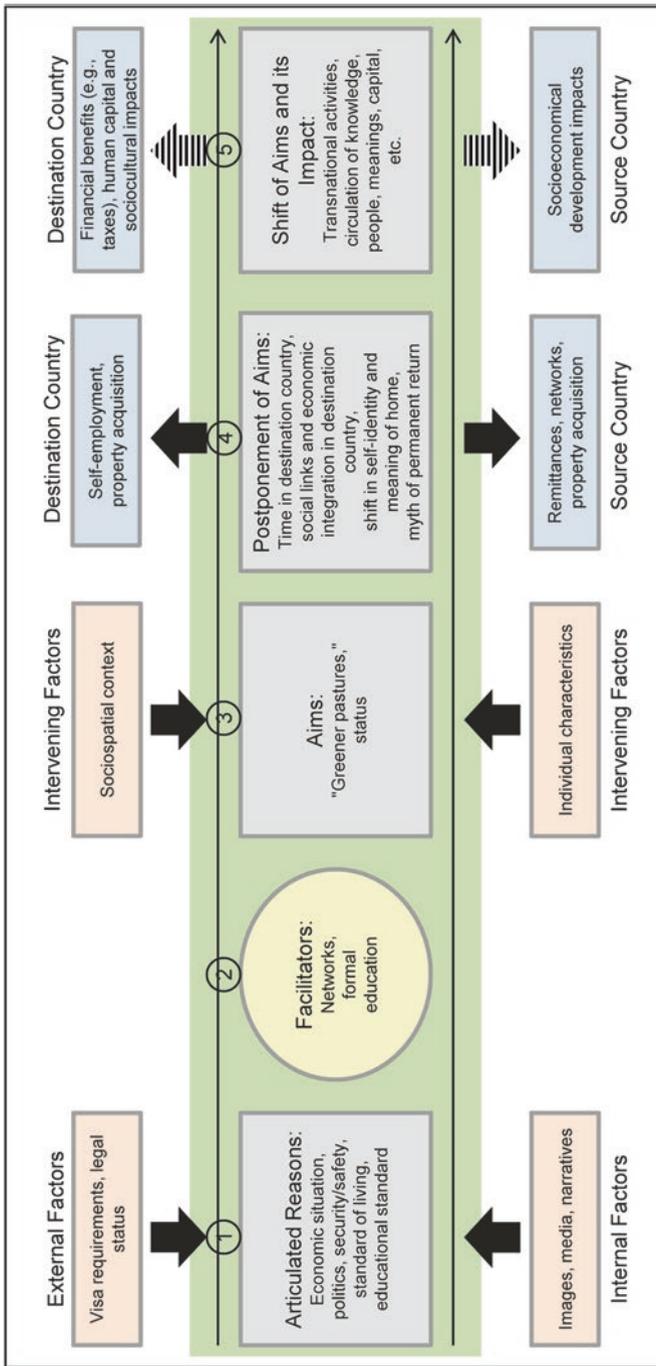


Fig. 13.3 Model of the migration process from the migrants' perspective (Design by author)

migrants' own change of self-identity, and their altered perceptions of home. The decision-making and integration process is influenced by several factors. These are shown in the boxes with arrows pointing in the direction of the migrants' development status (boxes in the middle lateral segment of the diagram), to be read from left to right. The other boxes indicate migrants' strategies and possible influences on both the country of destination and of origin (arrows indicate the direction of activity).

To describe the model step by step, I start with (1) the reasons articulated for the desire to migrate that are influenced by external and internal factors. External factors come into play through laws and administrative requirements, as well as through special programs undertaken by potential destination countries. These circumstances either facilitate or constrain migration and play a role in the migrant's decision to consider migration. Internal factors are ones in the sending country that may affect the desire for migration through influences such as narratives, media, culture, and specific images. Potential migrants articulated to me various reasons why they considered leaving to be the only or best option, also explaining how they had formulated the wish to migrate and finally actively begun to plan how to accomplish it. From an actor's point of view, these steps may not be occurring sequentially, but simultaneously, and must, therefore, not necessarily constitute a deliberate process. However, my argument is that migration decision making is not that spontaneous in most cases. Rather, it is an underlying wish that is sharpened through several events and influences, and either pushed forward actively or undertaken by chance.

(2) Entering the migration process usually requires some preparation. For highly skilled Nigerians, this includes activating existing networks or developing new ones and meeting visa requirements on the basis of their formal education, an approach that requires opting for a student visa. This is step two in the migration model.

(3) The third step is migration, with certain of the migrants' motivations stemming from the "greener pastures syndrome" and their hopes for higher status in their country of origin.

(4) Migrants pursue those aims according to their individual capabilities, which are quite constrained by their individual characters and their sociospatial contexts in the destination country. Constraints not considered during the migration decision-making process can cause migrants to postpone continually the fulfillment of their previous aims. This occurs mainly because migrants do not adequately inform themselves about the process of integration in the destination country before emigrating. Prior to emigration the question of how to access the migration process is at the forefront, not how to integrate or manage after arriving in the destination country. Migrants, therefore, are forced to postpone their aims in the fourth step, as they realize that they need more time for integration, hence developing other wishes as well as other demands. During the migrants' time of stay in the country of destination, they may be able to develop social links and networks. Social and economic integration is a strategy as well as an aim that causes a shift in the individual's self-identity and understanding of home. The desire for a permanent return to the source country may be continually articulated but postponed and unplanned, yet fostered, integration in the host society (see also Sinatti, 2011) often results in this goal being more of a myth than a reality. Both pathways—return and integration—are maintained in furthering self-employment possibilities related to

typical migrant entrepreneurship in the country of destination. These enterprises enable migrants to stay linked to both societies and to acquire property in both countries. Remittances are also a manifestation of the promise of return and part of dealing with a migrant's responsibilities in the source country.

(5) Finally, migrants adjust their aims and shift to a transnational way of life—another of the potential outcomes of the migration process. Transnationalism includes return migration; whether it is permanent or short term does not matter, because the very strong networks these migrants meanwhile have in both countries have led to significant changes in their self-identities. Migrants now perceive home to be in both places and are eager to keep in touch with their contacts in the source and destination countries. Migrants usually perceive transnationalism as being preferable to permanent return because of their responsibilities and strong links vis-à-vis the host society and because of their changed, more “hybrid” self-identities and understanding of home. Recent literature (e.g., Akesson and Baaz Eriksson, 2015) takes this preference into account and confirms the interpretation of migration leading to transnationalism rather than permanent return or just integration, with no linkages preserved to the country of origin. With time, migrants appear to be more likely to stay in the destination country, while maintaining strong links to the source country. The destination country experiences financial benefits from this, for instance, in tax income, as well as in the form of the human capital represented by highly skilled migrants who successfully integrate into the labor market and make use of their acquired knowledge. Furthermore, migrants may have the socio-cultural impact of creating a multinational society with different cultures, languages, and mixtures of those. The source country may also experience socioeconomic change, as the narratives of migrants continually shift images and cultures; temporary return visits lead to exchanges between migrants and non-migrants, possibly fostering knowledge transfers, remittances, and even income generation and entrepreneurship in the source country.

Conclusions

In this chapter, I have suggested considering education not only as a driving force of migration undertaken to acquire knowledge but also as an instrument for gaining access to migration processes. Applying a cultural perspective to migration (Fielding, 1992; Cohen & Sirkeci, 2011), I identified migration as an intrinsic variable in the daily lives of Nigerian university graduates—as Carling and Akesson (2009) found for Cape Verdean migrants—that influences the mindsets and attitudes of migrants, former migrants, and non-migrants. Migration is seen by Nigerian university graduates as a path to greener pastures that is worth their effort. Access to migration thus becomes the overall aim of Nigerian university graduates, despite circumstances contradicting this choice, such as secure employment in Nigeria or narratives drawing a rather negative image of living abroad.

Synthesizing my findings from the analysis of the interviews and the web-survey, I have showed that there are both personal and structural constraints hindering

the effective use of the knowledge base of highly skilled Nigerian migrants. Typical personal constraints are, for instance, inadequate information and preparedness before emigration. The most important structural constraints are the differing educational systems and lack of accreditation of foreign degrees in the countries of destination, as well as an absence of funding for master's degree programs in the country of origin.

In this chapter, I have argued that education functions alongside networks as a facilitator of migration because requirements for a student visa are easier to fulfill and universities abroad are more likely to accept migrants who have a university degree. Furthermore, I defined six types of highly skilled Nigerian migrants to conceptualize migration as a dynamic process with several possible trajectories over time and space. Migration is thus no longer a uni- or bidirectional process, but, in fact, a multidirectional and multidimensional one with several back-and-forth steps, both in terms of national border crossings and shifting between the six migrant types. Accordingly, outcomes cannot be declared as either positive or negative, but need to be evaluated in specific contexts. Jöns (2015) concludes in respect to brain circulation that it “captures physical and virtual, temporary and permanent movements; it accounts for the increasingly networked nature of talent migration; and it avoids *a priori* assumptions about causal relationships between the nature, duration, and effects of talent mobility” (p. 374). Migrants often develop transnational links that go beyond chatting or communicating with private contacts. The development of transnational ways of life furthers the circulation of knowledge, capital, and value flows. These circulations may influence a variety of outcomes that cannot be foreseen.

With the introduction of a West African model depicting the migration process from the migrants' perspective, I incorporated the findings of my interviews and my web-survey into a more abstract model that is supported by other case studies (e.g., Ammassari, 2004; Efonayi & Piguet, 2011; Hunter, 2011; Sinatti, 2011; Tiemoko, 2004). It depicts the migration process, from the migrants' images of destination countries and articulated reasons, to the migration facilitators, the accomplishment of migration, the integration process, and the possible intention of returning. Hereby I take into account that migrants can take multiple trajectories. However, the model indicates that the aims of migration are likely to shift with time, from status and greener pastures to transnationalism, which promotes brain circulation (e.g., Ho, 2011; Jöns et al., 2015; Lerner, 2007). Nigeria could, therefore, usefully draw on its highly skilled migrants abroad, as it is already attempting to do through, for instance, migrant diaspora organizations such as the Nigerians in Diaspora Organization (NIDO).

Educational migration can be regarded as harmful to Nigerian educational and economic systems, although it can create benefits when transnational links are established between Nigerian universities and abroad, and between local and international companies in ways similar to those discussed by Saxenian (2005, 2006) in regard to transnational networks constituted through brain circulation between the United States and India, China, and other Asian countries. Further research could focus on the conditions that enable the establishment of mutually beneficial transnational linkages of highly skilled migrants between source and destination countries

(concentrating on African countries), in an approach carried out for other countries in Asia, Europe, and the United States (for the IT sector, see Saxenian, 2006; for schools and universities, see Waters, 2006; 2007; Jöns, 2009; Jöns et al., 2015).

References

- Adepoju, A. (1985). Development programmes and population redistribution in Nigeria. In C. I. Clarke, M. Khogali, & L. A. Kosinski. (Eds.), *Population and Development Projects in Africa* (194–205). Cambridge, UK: Cambridge University Press.
- Adepoju, A. (1995). The politics of international migration in post-colonial Africa. In R. Cohen (Ed.), *The Cambridge survey of world migration* (pp. 166–171). Cambridge, UK: Cambridge University Press.
- Ammassari, S. (2004). From nation-building to entrepreneurship: The impact of élite return migrants in Côte d'Ivoire and Ghana. *Population, Space and Place*, 10, 133–154. doi:10.1002/psp.319
- Akesson, L., & Baaz Eriksson, M. (Eds.). (2015). *Africa's return migrants: New developers?* London: Zed Books.
- Binaisa, I. N. (2009). *Ugandan migrants in Britain: Negotiating spaces of "home" and "belonging"*. University of Sussex, Brighton.
- Carling, J. (2002). Migration in the age of involuntary immobility: Theoretical reflections and Cape Verdean experiences. *Journal of Ethnic and Migration Studies*, 28, 5–42. doi:10.1080/13691830120103912
- Carling, J. (2014). *The role of aspirations in migration*. Paper presented at a conference on "Determinants of International Migration" Oxford.
- Carling, J., & Akesson, L. (2009). Mobility at the heart of the nation: Patterns and meanings of Cape Verdean migration. *International Migration*, 47, 123–155. doi:10.1111/j.1468-2435.2009.00526.x
- Carling, J., Fall, P. D., Hernandez-Carretero, M., Sarr, Y. M., & Wu, J. (2013). *Migration aspirations in Senegal: Who wants to leave and why does it matter?* European Policy Brief. Brussels: European Commission.
- Castells, M. (2000). *The rise of the network society*. Oxford: Blackwell.
- Cebula, R. J. (1979). *The determinants of human migration*. Toronto: Lexington Books.
- Chikanda, A. (2007). Medical migration from Zimbabwe: Magnitude, causes and impact on the poor. *Development Southern Africa*, 24, 47–60. doi: 10.1080/03768350601165850
- Choldin, H. M. (1999). Kinship networks in the migration process. In S. Vertovec & R. Cohen (Eds.), *Migration, diasporas, and transnationalism* (pp. 163–175). Cheltenham: Elgar Reference Collection.
- Cohen, J. H., & Sirkeci, I. (2011). *Cultures of migration*. Austin: University of Texas Press.
- Dannecker, P. (2009). Rationalities and images underlying labor migration from Bangladesh to Malaysia. *International Migration*, 51, 40–60. doi:10.1111/j.1468-2435.2009.00547.x
- DaVanzo, J. (1981). Microeconomic approaches to studying migration decision. In G. F. De Jong & R. W. Gardner (Eds.), *Migration decision making* (pp. 90–129). New York: Pergamon Press.
- Efionayi, D., & Piguët, E. (2011). *Partir ou rester? La migration dans le projet de vie des étudiants universitaires d'Afrique de l'ouest*: Université de Neuchâtel, École Polytechnique Fédérale de Lausanne, Maison D'Analyse des Processus Sociaux, Swiss Forum for Migration and Population Studies. (Leave or stay? Migration aspirations in the project of accompanying university students in West Africa)
- Faist, T. (2008). Migrants as transnational development agents: An inquiry into the newest round of the migration-development nexus. *Population, Space and Place*, 14, 21–42. doi:10.1002/psp.471
- Falola, T. (1999). *History of Nigeria*. Westport: Greenwood Press.

- Fawcett, J. T. (1989). Networks, linkages, and migration systems. *International Migration Review*, 23, 671–680. doi:[10.2307/2546434](https://doi.org/10.2307/2546434)
- Fielding, A. (1992). Migration and Culture. In T. Champion & T. Fielding (Eds.), *Migration processes and patterns: Vol. 1. Research progress and prospects* (pp. 201–212). London: Belhaven Press.
- Findlay, A. M. (1995). Skilled transients: The invisible phenomenon? In R. Cohen (Ed.), *The Cambridge survey of world migration* (pp. 515–522). Cambridge, UK: Cambridge University Press.
- Fossland, T. (2013). Crossing borders—getting work: Skilled migrants’ gendered labour market participation in Norway. *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*, 67, 276–283. doi: [10.1080/00291951.2013.847854](https://doi.org/10.1080/00291951.2013.847854)
- Gardner, R. W. (1981). Macrolevel influences on the migration decision process. In G. F. De Jong & R. W. Gardner (Eds.), *Migration decision making* (pp. 59–98). Oxford: Pergamon Press.
- Goldin, I., Cameron, G., & Balarajan, M. (Eds.). (2009). *Exceptional people. How migration shaped our world and will define Our future*. Princeton: Princeton University Press.
- Goldring, L. (2001). Disaggregating transnational social spaces. In L. Pries (Ed.), *New transnational social spaces* (pp. 59–76). London: Routledge.
- Hardwick, S. W. (2008). Place, space and pattern. In C. B. Brettel & J. F. Hollifield (Eds.), *Migration theory* (2nd ed., pp. 161–182). London: Routledge.
- Ho, E. L.-E. (2011). “Claiming” the diaspora: Elite mobility sending state strategies and the spatialities of citizenship. *Progress in Human Geography*, 35, 757–772. doi:[10.1177/0309132511401463](https://doi.org/10.1177/0309132511401463)
- Hunter, A. (2011). Theory and practice of return migration at retirement: The case of migrant worker hostel residents in France. *Population, Space and Place*, 17, 179–192. doi:[10.1002/psp.610](https://doi.org/10.1002/psp.610)
- Jöns, H. (2015). Talent mobility and the shifting geographies of Latourian knowledge hubs. *Population, Space and Place*, 21, 372–389. doi:[10.1002/psp.1878](https://doi.org/10.1002/psp.1878)
- Jöns, H. (2009). “Brain circulation” and transnational knowledge networks: studying long-term effects of academic mobility to Germany, 1954–2000. *Global Networks*, 9, 315–338. doi:[10.1111/j.1471-0374.2009.00256.x](https://doi.org/10.1111/j.1471-0374.2009.00256.x)
- Jöns, H., Mavroudi, E., & Heffernan, M. (2015). Mobilising the elective diaspora: US-German academic exchanges since 1945. *Transactions of the Institute of British Geographers*, 40, 113–127. doi:[10.1111/tran.12062](https://doi.org/10.1111/tran.12062)
- Kennedy, P., & Roudometof, V. (Eds.). (2002). *Communities across borders*. London: Routledge.
- King, R. (2012). Geography and migration studies: Retrospect and prospect. *Population, Space and Place*, 18, 134–153. doi:[10.1002/psp.685](https://doi.org/10.1002/psp.685)
- Larner, W. (2007). Expatriate experts and globalizing governmentalities: The New Zealand diaspora strategy. *Transactions of the Institute of British Geographers*, 32, 311–324. doi:[10.1111/j.1475-5661.2007.00261.x](https://doi.org/10.1111/j.1475-5661.2007.00261.x)
- Larsen, J., Urry, J., & Axhausen, K. (2006). *Mobilities, networks, geographies*. Farnham: Ashgate.
- Lee, J. T., & Kim, D. (2010). Brain gain or brain circulation? U.S. doctoral recipients returning to South Korea. *Higher Education*, 59, 627–643. doi: [10.1007/s10734-009-9270-5](https://doi.org/10.1007/s10734-009-9270-5)
- Levitt, P. (1998). Social remittances: Migration driven local-level forms of cultural diffusion. *International Migration Review*, 32, 926–948. doi: [10.2307/2547666](https://doi.org/10.2307/2547666)
- Makinwa-Adebusoye, P. (1992). The West African migration system. In M. M. Kritz, L. L. Lim, & H. Zlotnik (Eds.), *International migration systems*. Oxford: Clarendon Press.
- Mitchell, K. (2000). Networks of ethnicity. In E. Sheppard & T. J. Barnes (Eds.), *A companion to economic geography* (pp. 392–408). Oxford: Blackwell. doi: [10.1002/9780470693445.ch24](https://doi.org/10.1002/9780470693445.ch24)
- Nieswand, B. (2014). The burgers’ paradox: Migration and the transnationalization of social inequality in southern Ghana. *Ethnography*, 15, 403–425. doi:[10.1177/1466138113480575](https://doi.org/10.1177/1466138113480575)
- Parnwell, M. (Ed.). (1993). *Population movements and the third world*. London: Routledge.
- Pecoraro, M. (2013). Gender, brain waste and job-education mismatch among migrant workers in Switzerland. *Working Paper Series of the Social Science Research Network (SSRN)*, 111.
- Portes, A., & DeWind, J. (2004). A cross-Atlantic dialogue: The progress of research and theory in the study of international migration. *International Migration Review*, 38, 828–851. doi:[10.1111/j.1747-7379.2004.tb00221.x](https://doi.org/10.1111/j.1747-7379.2004.tb00221.x)

- Ralph, D., & Staeheli, L. A. (2011). Home and migration: Mobilities, belongings and identities. *Geography Compass*, 5, 517–530. doi: [10.1111/j.1749-8198.2011.00434.x](https://doi.org/10.1111/j.1749-8198.2011.00434.x)
- Rizzica, L. (2008). The impact of skilled migration on the sending country: Evidence from African medical brain drain. *Rivista Di Politica Economica*, 98, 195–231.
- Salt, J., & Findlay, A. (1989). International migration of highly-skilled manpower: Theoretical and developmental issues. In R. Appleyard (Ed.), *The impact of international migration on developing countries* (pp. 159–180). Paris: OECD.
- Saxenian, AL. (2005). From brain drain to brain circulation: Transnational communities and regional upgrading in India and China. *Studies of Comparative International Development*, 40, 35–61.
- Saxenian, AL. (2006). *The new argonauts: Regional advantage in a global economy*. Cambridge, MA: Harvard University Press.
- Sinatati, G. (2011). “Mobile transmigrants” or “unsettled returnees”? Myth of return and permanent resettlement among Senegalese migrants. *Population, Space and Place*, 17, 153–166. doi: [10.1002/psp.608](https://doi.org/10.1002/psp.608)
- Smith, L. (2015). Aspirations to go: Understanding the bounded rationality of prospective migrants from Ghana. In M. van der Velde & T. van Naerssen (Eds.), *Mobility and migration choices: Thresholds to crossing borders* (pp. 29–42). Farnham: Ashgate.
- Swindell, K. (1995). People on the move in West Africa: From pre-colonial polities to post-independence states. In R. Cohen (Ed.), *The Cambridge survey of world migration* (pp. 196–202). Cambridge, UK: Cambridge University Press.
- Tiemoko, R. (2004). Migration, return and socio-economic change in West Africa: The role of family. *Population, Space and Place*, 10, 155–174. doi: [10.1002/psp.320](https://doi.org/10.1002/psp.320)
- Tilly, C. (2007). Trust networks in transnational migration. *Sociological Forum*, 22, 3–24. doi: [10.1111/j.1573-7861.2006.00002.x](https://doi.org/10.1111/j.1573-7861.2006.00002.x)
- Utas, M. (2012). Bigmanity and network governance in Africa. In M. Utas. (Ed.), *African conflicts and informal power: Big men and networks* (pp. 1–31). London: Zed.
- van der Velde, M., & van Naerssen, T. (2015). The thresholds to mobility disentangled. In M. van der Velde, & T. van Naerssen (Eds.), *Mobility and migration choices: Thresholds to crossing borders* (pp. 3–14). Farnham: Ashgate.
- Waters, J. L. (2007). “Roundabout routes and sanctuary schools”: The role of situated educational practices and habitus in the creation of transnational professionals. *Global Networks*, 7, 477–497.
- Waters, J. L. (2006). Emergent geographies of international education and social exclusion. *Antipode*, 38, 1046–1068. doi: [10.1111/j.1467-8330.2006.00492.x](https://doi.org/10.1111/j.1467-8330.2006.00492.x)
- Wolpert, J. (1965). Behavioral aspects of the decision to migrate. *Papers of the Regional Science Association*, 15, 159–167. doi: [10.1111/j.1435-5597.1965.tb01320.x](https://doi.org/10.1111/j.1435-5597.1965.tb01320.x)
- Xiang, B., & Lindquist, J. (2014). Migration infrastructure. *International Migration Review*, 48, 122–148. doi: [10.1111/imre.12141](https://doi.org/10.1111/imre.12141)

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Chapter 14

Trans-knowledge? Geography, Mobility, and Knowledge in Transnational Education

Johanna L. Waters and Maggi Leung

TNE [Transnational Education] programs are sold as time-space compressors, extending the spatial reach of immobile consumers (potential students) who aspire to tap cultural and social capital nurtured at universities (what Brinton [2000] has termed “institutional social capital”) located at the core of the global knowledge economy.

(Leung & Waters, 2013, p. 1)

Is there anything more mobile and less sticky than the knowledge imparted and created through transnational higher education (TNE)? The very notion of transnationalism implies an inherent mobility and fluidity—a process at ease with geographical distance and difference. By definition, the mobility of knowledge lies at the heart of TNE; it crosses, transects, and overcomes the parochialism and embeddedness of national education systems, to deliver educational programs to students who are both culturally and spatially removed from home. TNE provides, we argue, a fascinating case study of the mobility of knowledge, not least because it lies at the forefront of recent, hugely significant developments in the internationalization of higher education (HE), globally (*Department for Business, Innovation and Skills* [BIS], 2011; Bone, 2010). And yet, very little is known about the geographies of knowledge within this innovative form of teaching and learning (Leung & Waters, 2013a; Waters & Leung, 2013b).

In this chapter, we critically examine the mobility of knowledge as a consequence of the growth and expansion of TNE, focusing specifically on the movement of academic programs between the United Kingdom and Hong Kong, whereby U.K. universities are the providers and Hong Kong higher education institutions (HEI)

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the hosts.¹ We seek to address a number of questions, including: (a) What is knowledge in relation to TNE? (b) How important is knowledge within TNE? (c) How well does knowledge travel through TNE? (d) What are the implications of these findings for TNE (particularly for students and the providers of transnational forms of education)?

The chapter draws on the results of a recent research project (2009–2011), in which we undertook a qualitative examination of the transnationalization of higher education in contemporary Hong Kong, with a particular focus on U.K. (university) providers. In our project, we conducted 70 in-depth interviews with students (38) and graduates (32) in Hong Kong, but also acquired substantial input from 18 British universities (the providers of TNE) and nine employers and recruiters. Some 36 British universities offer over 600 different degree courses (at the bachelor's, master's, and PhD levels) in Hong Kong at the present time, and the number of programs continues to grow (British Council, 2010). The United Kingdom has 388,135 offshore students globally, compared to over two million students in U.K. higher education (HE) in total (British Council, 2010), but British universities are particularly prominent in Hong Kong, where over 70 % of all TNE is provided by British higher education institutions (HEIs), followed by Australia at around 20 % (Education Bureau, 2012). The United Kingdom is, therefore, an established presence in the Hong Kong educational landscape.

A simple definition of transnational education is provided by McBurnie and Ziguras (2007): “[in TNE] learners are located in a country other than the one in which the awarding institution is based” (p. 21). Such *offshoring* of education is:

only possible because higher education is now able to traverse time and space to an extent never before achievable. For two decades now, transnational programs have been at the experimental leading edge of efforts to store and standardize curricula to allow for the delivery of a replicated curriculum to multiple student groups at different times in different places by different teaching staff. (p. 2)

In other words, TNE involves the capturing, storing, and conveying of academic knowledge. Basic teaching materials are transported (in hard or electronic format) and ideas on how to run the programs are often exchanged (between the provider and the host institution). Some transnational negotiation is inevitable (rarely does the host institution embrace and adopt the teaching ideas of the foreign university wholesale and without question). Core textbooks are physically transported, as are exam scripts for marking. Transnational relationships are built—between the provider and the host of the programs and, of course, between the provider and their overseas students. Usually, TNE involves the physical mobility of academic staff (to teach, to examine, or to provide a “Western” presence at graduation ceremonies), as

¹In this chapter, we use the following terms: *provider* refers to the country or academic institution awarding the degree or other qualification in TNE. In the case of our research, these are U.K. HEIs. *Host* refers to the country or institution delivering the academic programs (with respect to our research, these are HEIs or other educational establishments in Hong Kong).

we will expand upon below. It should not be assumed, however, that the “traversing of time and space” through TNE, as described by McBurnie and Zигuras (2007), is easy or necessarily wholly successful.

An idealistic portrait of TNE would depict the unproblematic transplanting of ideas, theories, and empirical realities from one nation-state (continent or region of the world) to another. This, indeed, is how many of the marketing materials relating to TNE portray their programs (Leung & Waters, 2013). When necessary, those delivering these academic programs will tailor the materials to their local audience—to provide insight and offer examples students can better identify with. Most of the knowledge contained in the courses, however, is assumed to be generic enough to travel and be understood by a foreign audience. There will be very little in the way of cultural barriers to students’ understanding and the delivery of materials in English will be straightforward, because students will be expected to have an adequate grasp of the language of instruction.

As we will elaborate below, our research on TNE in Hong Kong, however, suggests some problems with this ideal representation. The embodied realities of knowledge transfer and exchange in TNE include some significant cultural challenges because of a divergence between the provider and host institutions regarding their academic practices and expectations. The courses often involve students with an inadequate grasp of the English language and local lecturers or tutors hired to deliver these programs widely reverting to Cantonese (for ease of teaching) and eschewing English. Many of the students we interviewed complained that empirical examples were far too embedded in a U.K. context to be relevant to their situation in Hong Kong; conversely, others, who were hoping for a British experience, complained about the lack of this within their program.

Our research left us pondering the following questions: how much thought do the providers of TNE put into the spatiality of knowledge transfer and exchange? To what extent do they critically engage with the geography of their practices, and with what consequences? We refer here to our data, as well as some previously published work on this topic, to address these questions (see Leung & Waters, 2013; Waters & Leung, 2013a, 2013b). We begin, however, with a brief discussion of some of the conceptual ideas underpinning debates in geography around mobility and knowledge.

Geography, Mobility, and Knowledge

Within geography, knowledge has been widely discussed in relation to the impact of information and communication technologies (ICTs) upon its transfer. Debates have tended to polarize around two competing claims: those who argue that ICTs have succeeded in overcoming the friction of distance and enabled long-distance knowledge transfers to occur; and those who (conversely) have emphasized the inevitable stickiness and social embeddedness of (particularly tacit) knowledge,

wherein face-to-face interactions remain essential for successful knowledge transfer and exchange to take place (see Glücker, Meusburger, & Meskioui [2013] on the complexities of defining different types of knowledge). Amin (2003), for example, has argued in favor of claims that technology has greatly facilitated knowledge transfer. He has written: “that relational proximity is also possible in distantiated networks, through mobility and a series of other technologies of contact and translation” (Amin, 2003, p. 116). In his view, “nearness” does not only connote “spatial proximity,” but can be achieved in other (non-territorial) ways, which can include (in the context of international firms): “translation, travel, shared routines, talk, common passions, base standards, brokers, epistemic and community bonding, and the ordering and orientation provided by files, documents, codes, common software and so on” (Amin, 2003, p. 127). Such things, Amin opines, are not necessarily achieved through physical spatial proximity. A similar line of argument is pursued by Faulconbridge (2006), who, on the basis of his research on professional service firms, argues that tacit knowledge “can have global geographies when knowledge management practices focus on reproducing rather than transferring knowledge across space” (p. 517) (see also earlier work by Beaverstock, 2004, 2005, for a precursor to these arguments). This, we suggest, may hold some relevance for how we understand the mobility of knowledge within TNE. Within TNE, knowledge may, in fact, be reproduced rather than directly and unproblematically transferred. The reproduction of knowledge requires, at its heart, an understanding of that knowledge. Faulconbridge (2006) describes the “global stretching” of knowledge in professional service firms, and argues that while concepts of “local stickiness” invoked in relation to tacit knowledge are useful for emphasizing the difficulties that sometimes arise when attempting to transfer knowledge within and between organizations, it is also necessary to recognize that learning may be spatially stretched beyond scale-defined limits. There is, Faulconbridge asserts, an important difference between knowledge transfer and what he terms the social production of new knowledge; globally stretched or spatially distantiated learning, he argues actually involves the social production of new knowledge and not knowledge transfer (as it is conventionally understood).

A counterview on geography and knowledge transfer has been elaborated by Morgan (2004), who described the “exaggerated death of geography” (p. 3). ICTs, he argues, do not enable the unproblematic transferring of ideas over space. Those claiming that ICTs have such “distance-destroying capacity ... [are] ... conflating *spatial* reach with *social* depth” (p. 3). This is the difference between information and understanding—the former can be transferred using technology over space, whereas the latter necessitates face-to-face interaction and exchange. This idea reflects wider debates in economic geography, in which it is claimed that tacit knowledge is “locationally sticky” (Amin, 2003). Gertler (2003) makes the following related claims about knowledge transfer:

learning involving tacit knowledge transfer, when attempted across major institutional-contextual boundaries, will be subject to formidable obstacles, even in the presence of substantial corporate wealth and resources ... The upshot is that transcending ... spatial

proximity may be possible, but it will also be difficult and expensive, because of the fundamentally different institutional environments involved ... Technological fixes ... may not be sufficient to overcome these obstacles. (p. 95)

These claims, we argue, have significant resonance with our research findings relating to TNE enacted between the United Kingdom and Hong Kong. TNE, more generally, invariably involves “fundamentally different institutional environments” (Gertler, 2003, p. 95)—culturally, socially, and linguistically. However, it remains a moot point as to whether the institutions involved have devoted the necessary resources to overcome these obstacles. TNE is often seen as a way of generating extra revenue for universities and so saving (not spending) money is a primary concern.

Geographers have also written about the role that migrants play in knowledge transfer, and Alan Williams’s work has been instrumental in this regard. Williams draws upon Blacker’s (2002) typology, which distinguishes between different types of knowledge: *embrained*, *embodied*, *encultured*, *embedded*, and *encoded*—some of which are inherently more mobile than are others.² The most mobile of all, Williams claims, is encoded knowledge—as found in text books and manuals. Meusbarger (2013), however, makes the point that simply making knowledge accessible does not make it understood—understanding is the key to true mobility. Embrained and embodied knowledge have a *corporeal mobility*, in that they will move with and within the migrant. Finally, encultured and embedded forms of knowledge are, in contrast, relatively immovable, as they represent “relational knowledge, grounded in the institutionally specific relationships between individuals” (Williams, 2006, p. 591). The question this raises for us is this: What types of knowledge (as signified here) does TNE actually represent? In theory, it should be the epitome of encoded academic knowledge—through the mobility of text books and intellectual ideas contained within academic journals. Different models of TNE, however, will involve a different balance in the types of knowledge represented. Thus, embodied knowledge will be far more prevalent when a *flying faculty* model is deployed, than when a franchise model is used.³

More generally, Williams (2006) argues that the movement of knowledge through migration is perhaps best conceptualized as translation. “Migrants,” he writes, “have distinctive roles as translators of knowledge . . . The notion of translation takes us beyond simplistic ideas about transferring immutable knowledge, and leads to consideration of knowledge creation” (p. 593). This invokes the ideas of Faulconbridge (2006, p. 533) regarding “the social production of new knowledge”—knowledge is

²Embrained knowledge describes cognitive and conceptual skills, while embodied knowledge refers to physical experience (practical work within a particular context). Encultured knowledge describes shared cultural meanings and understandings and embedded knowledge is found within particular contexts. Finally, encoded knowledge refers to signs and symbols found in books, manuals, websites, and policy reports.

³The flying faculty model refers to when staff from the home institution fly out at intervals to teach their program, whereas a franchise model involves the home institution selling the degree program to the host institution, which is then responsible for delivering it.

largely reproduced rather than transferred. We explore, below, the extent to which knowledge transfer in TNE can be considered translation or knowledge creation.

Louise Ackers (2012) has examined “the relationship between human mobility and knowledge transfer processes” (p. 131) directly. She describes a move, in the literature, away from emphasizing long-term embodied migration (captured by the concept of brain drain) as “the value of short stays and the substitution of physical co-presence with virtual stays (providing the opportunity for “disembodied” knowledge transfers) became recognized as key mechanisms for relationship-building and knowledge transfer” (p. 133).

In the proceeding sections and in relation to these debates, we draw upon our data to address the following issues. First, we consider definitions of *knowledge* and *transnational* in relation to TNE. What does knowledge in TNE actually represent, and is it the same as capital? This is significant, because much of the extant literature on international education discusses the capital (not knowledge) that students acquire. There must also be, we argue, something meaningful about the transnational element of TNE. We discuss the possible interpretations of transnational in this context. Next, we move on to consider the process of knowledge transfer through TNE, examining the moving of program content. Two issues arise in relation to this—(a) the duplication of content in other (associate degree or higher diploma) courses; (b) the use of British contexts for examples and case studies. The next section then considers the subject of capital more directly, drawing upon other published papers to examine the extent to which TNE imparts cultural and social capital (Bourdieu, 1986) (as opposed to knowledge in its more traditional sense). The final substantive section of the chapter discusses how (successfully) knowledge (in its different forms and including capital) is transferred over space through TNE. Here, issues around language and different models of delivery are particularly pertinent. We also, in conclusion, suggest some ways in which knowledge transfer within TNE might be enhanced.

Knowledge, Transnationalism, and TNE

It should go without saying that the primary purpose of education, of any kind, is the imparting of knowledge and, to a lesser extent, knowledge creation. In other words, knowledge must be at the center of TNE. It is assumed that students enroll in a particular program (in our research, these were largely degree programs—both undergraduate and master’s) with the intention of acquiring knowledge about a subject matter. The majority of TNE courses presently offered in Hong Kong involve some sort of business-related subject: for example, a bachelor of arts (with honors) in applied business, business information technology, international business management, business administration and management, or business and law. As explicated in Jöns (2007), this indicates not only different demands but also different

possibilities with regard to the mobility of different types of knowledge. There is seen to be a need for transnational business knowledge and this may, in fact, travel more easily than humanities or social science knowledge. (Humanities programs are almost non-existent, and social science programs are very rare). These courses offer a mix of encoded knowledge (international business theory and principles) and encultured and embedded knowledge (in the U.K. and Hong Kong business environments) while also developing, in students, embrained knowledge (Blacker, 2002).

However, perhaps surprisingly, very few of our research subjects (students and graduates of TNE programs in Hong Kong) discussed their thirst for knowledge. Rather, they widely articulated a far more instrumental objective—to obtain a degree, as the following quotations suggest:

The only purpose of having this degree was to provide me with an entry ticket for meeting the minimum requirement as a degree holder. (Interviewee 6, graduated with a top-up⁴ degree in 2007)

The degree might not be good enough, but at least I could have a certificate. If you saw a job with “university graduate” as its requirement, you would be brave enough to send your application. Without this top-up degree we wouldn’t even apply. (Interviewee 8, has almost finished a one-year top-up degree)

Employability considerations were fundamental, and the “ticket” was “a degree” and not a degree in a particular subject, nor the acquisition of a particular set of skills. Thus, our findings would seem to support other work on the aims and intentions of international students indicating that strategic and instrumental concerns about employment far outweigh any considerations about the acquisition of knowledge (Waters, 2008). This work largely asserts that contemporary (international) students are concerned not with the knowledge they will gain through a particular degree program, but with the capital they will acquire (Brooks & Waters, 2011; Findlay, King, Smith, Geddes, & Skeldon, 2012; Ong, 1999; Waters, 2006). However, we also observe below that this may relate to short-term rather than longer-term time frames. The value to be found in specific degree-related knowledge and social capital may develop over time, whereas cultural capital may indicate more short-term and immediate gains or rewards. Here, we are drawing heavily on the work of sociologist Pierre Bourdieu (1984, 1986); his definitions of capital have become axiomatic within work on the sociology of education.

Indeed, what our research participants were referring to was the perceived importance of institutional cultural capital—the symbolic power of the university degree and the practical power of the degree certificate (Bourdieu, 1986). And this brings us to consider the relationship between knowledge and capital, and to ask: Are knowledge and capital interchangeable when it comes to transnational education?

⁴In TNE, *top-up* refers to the fact that students in TNE undergraduate courses will have been required to complete either an associate degree or a higher diploma at a local tertiary institution, before transferring into the overseas program. They are supposed to be topping up this earlier qualification to degree level. Consequently, TNE top-up degrees are usually only 1–2 years in duration.

Definitionally, there are clear differences between them: The importance of capital lies in its symbolism and its ability to be converted into something of value (e.g., employment or money). Knowledge, on the other hand, is supposed to be of value in and of itself. Both, however, can be accumulated over time. Cultural capital (particularly embodied cultural capital) implies a degree of know-how that clearly involves knowledge of sorts. Social capital, on the other hand, refers to the extent and quality of one's social relationships, and the more people you know, the more extensive (and therefore valuable) your social capital. Therefore social capital, too, involves knowledge, but is at the same time more than just knowledge. However, we are primarily interested in whether knowledge and capital are interchangeable in the particular context of transnational education (as opposed to more generally). And, in relation to TNE, it is legitimate to argue that they are. Students make little or no distinction between the cultural and social capital they are expecting to acquire in a TNE degree course, and the knowledge that they are anticipating accumulating (in the short term, at least). As described above, actual encoded knowledge would appear to be of very low immediate priority for students seeking to study in a transnational program. Far more important (we have deduced from our data) are the following: (a) gaining a university degree (any university degree); (b) gaining a degree from a university that an employer might recognize (the symbolic importance of the university's reputation); (c) building social capital (during the degree course and afterwards through alumni activities). Acquiring knowledge, per se, is a relatively minor concern. In this chapter, therefore, we consider capital alongside (and as a subset of) knowledge.

When addressing definitional issues, it is also necessary to consider the difference that transnationalism makes to the transfer of knowledge in these higher education contexts. Transnationalism, as it has come to be understood within a substantial body of academic work over the past two decades, implies a fluid, dynamic, constant movement of people, objects and ideas back and forth between a home and a host nation, to the extent that the distinction between home and host becomes necessarily blurred (e.g., Basch, Glick Schiller, & Szanton Blanc, 1994). "Trans" evokes an ease of geographical mobility. Transnational education, as we have indicated above, implies an ongoing transaction or interaction between the home, or provider, institution and the host, or deliverer. However, the extent to which this term is an accurate description of the types of interactions that take place in TNE is questionable. For one, interactions between the home and host institution tend not to be continuous, but rather focused around certain times of the year or cycles in the academic term. ICTs are key to many of these exchanges, as face-to-face meetings occur, at best, two or three times a year. Second, most of the movement seems to be one-way—that is, from the home to the host institution. Very little mobility (whether of people, products, or ideas) would seem to occur from the host to the home nation or institution (with the exception sometimes of students' work for marking). This, again, leads us to question the appropriateness of the term transnational (education), which tends to imply a two-way flow. Perhaps the most transnational element of these programs is the home staff who teach in them, although this is not uniformly applicable—many TNE programs use a franchise model that employs local lecturers to deliver most, if

not all of the course. We continue in the following to explore the extent to which transnationalism is apparent within the TNE programs we have examined.

Moving Ideas: The Transfer of Program Content

Because we're flying faculty we can't really offer a wide range of electives, so we do tend to fix the programs so students will have studied these modules, but it's based entirely on the U.K. program. So our U.K. modules will be in there—we'll have selected the core option, we'll have selected an appropriate elective. (U.K. HEI, Interview 5)

In Hong Kong, it is stipulated that TNE programs must be offered at the same time within the home country or institution. In principle, the students in Hong Kong are expected to graduate with the same knowledge and experience as their British counterparts. On graduation, they will receive an identical degree certificate. The mobility of program content is, consequently, essential. As described in the quotation above, however, a flying faculty model (and the resources this demands) makes it impossible for students in Hong Kong to have the same number of optional courses within a program as U.K.-based students do. It is just simply impractical. Interestingly, program content can and often does evolve over time (consequently decreasing the transnational element), as another U.K. university representative describes:

To begin with there was quite a close liaison between the module tutors at X [U.K.] university and the module tutors delivering the program in Hong Kong. That is to say, the curriculum and the texts and the references the students were using were either identical, or if they weren't, then the module tutors here [in the United Kingdom] had to agree to any changes to the teaching program in Hong Kong. In other words, there was quite a careful policing of what was being delivered in Hong Kong by academic colleagues here in X [U.K. university]. Now over the years, and perhaps in the last four or five years since I have been involved, that rather close scrutiny has to a large extent been diluted ... It was based upon the success of the first five or six years of the program, and the feeling emerged that, first of all, colleagues in Hong Kong were more than competent to develop the curriculum and to develop assignments and develop assessments that were more removed from what was being delivered in X [U.K. university] ... We gave to colleagues in Hong Kong far more autonomy to teach, to develop, to assess and to monitor their own delivery and their program. So it was still very much an X [U.K. university] degree, which I think the students found attractive (or do find attractive), but we delegated to colleagues in Hong Kong far more responsibility for what they were doing, especially because most, if not all of the modules were contextualized through the Hong Kong business environment. Part of it [the delegation of responsibility] arose because, I think, colleagues in Hong Kong were finding U.K.-based or Western-based case studies perhaps inappropriate to the Hong Kong business scene and the Hong Kong business culture. (U.K. HEI, Interview 3)

As this quotation illustrates well, the extent of home involvement in knowledge production and exchange is not static, but changes, with implications for the extent to which course content can be described as transnational. The U.K. HEI representative says it is "still a U.K. university degree," but as control over the course content is increasingly given to the Hong Kong hosts, is this in name only? He also here

makes reference to the appropriateness of U.K.-based case studies within many business-type degree programs, an issue that was also raised again and again by student and graduate interviewees. Most of them found the use of U.K. examples to be, at best, uninteresting and at worst, irrelevant. However, we found an intriguing counter-example in Interviewee 15, who was required in her TNE course to study the U.K. tax system (“Hong Kong has its own tax system”). Surprisingly, this knowledge proved useful on one particular occasion, when she recently worked for an Indian company with a branch in the United Kingdom:

For instance, colleagues would ask me what is meant by Value Added Tax, or some tax that does not exist in Hong Kong. At that moment, I would feel that what I learned was useful, although I have not had many of these kinds of moments! (Interviewee 15)

Another issue raised by interviewees with regard to program content concerned the duplication of materials and, in some cases, lecturers. Several students and graduates reported that much of the material learned in their TNE program duplicated work they had already covered (usually the previous year) in their higher diploma or associate degree.⁵ Interviewee 26 claimed:

The knowledge taught [on the TNE program] was the same as that I learned in my higher diploma course. I could simply use my study notes from my higher diploma course for revision for my exams in this degree course.

The result, some claimed, was a very similar “learning experience,” because many of their TNE program teachers had also taught them in their higher diploma or associate degree courses. Edward Lee: “Actually, all the courses were lectured by local teachers who also taught us in my associate degree.” In many cases, the Hong Kong institutions delivering the TNE program employ locally sourced lecturers to teach it, and (coincidentally) these are often the same individuals who teach in their associate degree or higher diploma courses. As we go on to discuss, this has implications for the kinds of social capital students are able to acquire in TNE programs (Waters & Leung, 2013a).

Positive differences in the nature of knowledge on TNE degree programs vis-a-vis the higher diploma/associate degree were also noted by a minority of interviewees, however:

For the higher diploma, most of the time we had to recite something. For the top-up degree we couldn't simply recite the materials but had to think ... A degree should be like this. If it is not, I would be afraid. For a degree, we should think more. (Interviewee 17, has almost completed a one-year top-up program in marketing)

In this case, the knowledge acquired in the degree felt more advanced than previous knowledge attained in lower degrees or diplomas.

⁵The majority of students will have studied for a higher diploma or associate degree in the year prior to embarking on the transnational program. Usually, this will have been undertaken at a local tertiary institute. This qualification is unconnected to the TNE program that follows, and thus duplication is an issue.

The Transfer of Different Forms of Capital

The distribution of the different types and subtypes of capital at any given moment in time represents the . . . structure of the social world, i.e., the set of constraints, inscribed in the very reality of that world . . . determining the chances of success... (Bourdieu, 1986, p. 242)

As discussed in this quotation, in relation to TNE, it makes sense to characterize capital as a subtype of knowledge acquired through education, not least because students themselves did not draw a distinction between capital and education. We therefore briefly discuss transnational capital as a form of knowledge transfer found within TNE. Pierre Bourdieu (1986, p. 243) famously described three main forms of capital: economic (“which is immediately and directly convertible into money and may be institutionalized in the form of property rights”), cultural (“which is convertible, on certain conditions, into economic capital and may be institutionalized in the form of educational qualifications”), and social (“made up of social obligations, which is convertible, in certain conditions, into economic capital”). We discussed in an earlier publication (Waters & Leung, 2013a) the relationship between TNE in Hong Kong and the development of institutional social capital (Brinton, 2000) among students. According to Bourdieu (1986), social capital is

the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group—which provides each of its members with the backing of the collectivity-owned capital, a “credential” which entitles them to credit, in the various senses of the word. These relationships may exist only in the practical state, in material and/or symbolic exchanges which help to maintain them. They may also be socially instituted and guaranteed by the application of a common name (e.g., a family or of a school) . . . (pp. 248–249)

The common name can be a school or a university, with significant social implications for individuals for whom the development of social capital is somehow curtailed. In our paper, we argued that, for various reasons, students in U.K. TNE programs in Hong Kong were unable fully to develop the kinds of institutional social capital one might expect from a university experience. Space prohibits a detailed discussion of them here. However, the following points are pertinent to this chapter’s discussion. The development of social capital is limited because (a) teaching on TNE programs often takes place away from the main university campus (usually in a downtown location); (b) students therefore miss out on the spatial advantages that a campus has to offer, including the close proximity of other students; (c) limited or no contact with U.K. teaching staff diminishes the transnational social capital available; (d) alumni associations are significantly underdeveloped; and, finally, (e) top-up degrees can be over in as little as 1 year and students complained that this did not allow enough time for social capital to be developed. In Leung and Waters (2013) we also make a specific argument about space and place in relation to TNE—we stress that students have extremely grounded experiences of learning (from the physical location of where teaching takes place, to the use of

local lecturers, to the use of local examples in the teaching), and we juxtapose this with the space-conquering claims of the TNE providers.

However, some capital within TNE programs often does travel, in different ways. This can include the British academic staff members, who make the regular trips out to Hong Kong and have (some, if limited) contact with the students, and, as the quotation below describes, the U.K. university's brand name. One interviewee said:

One of the things they [the students] say is they like having the British academics out there, and they always want photographs with you and stuff like that. And at graduation they always want [their photograph with you]. I mean, one of the things they've said to me this year, and we've tried to do something about it, is that they've said 'we need to feel part of X [U.K. university], we want to be X students, and not just Y [Hong Kong university] students. So you know, we've done small things like send them out X [letter headed] paper and X stuff, you know. We try to do that. (U.K. HEI, Interview 9)

This describes a rare example of the U.K. institution being very sensitive to students' needs and their desire to attain some cultural capital from the home university—and acting upon this understanding. According to Ackers (2012), short stays can “play a very important role in promoting knowledge transfer” (p. 13) and so it is feasible that these brief trips by U.K. academics to teach in TNE programs do promote transnational knowledge transfer.

How (And the Limits to How) Knowledge Is Transferred in TNE

In this last section we address two key issues affecting how knowledge is actually transferred through TNE (in practice) and how these relate to language (and understanding), and the mobility of U.K. academics.

Language Issues

As discussed in depth in Waters and Leung (2013b), students undertaking British TNE programs in Hong Kong are often not as fluent in English as might be assumed and many, as was reported by them to us, struggled to understand when subjects were taught by British academics.

No one would challenge them (the U.K. lecturers) because the lessons were conducted in English. We were not confident with our English proficiency. I am not sure if someone has ever challenged them, but I would not. My English is not very good. This may be a weakness when compared with graduates from local universities. (Interviewee 26, has almost completed a one-year top-up program)

Thus, although United Kingdom academics may be seen to embody transnational knowledge, this knowledge is not being successfully transferred (in many cases) to

students, who lack the essential element of understanding. This important issue points to problems with the understanding of knowledge and not just the transplanting of information, as noted by Morgan (2004), who is careful to distinguish between these two concepts (see also work by Meusbarger, 2013). For many students (it would seem), understanding is the main challenge when it comes to knowledge transfer. Local lecturers employed to teach these courses attempt to remedy this problem somewhat by reverting to Cantonese and dispensing with English altogether. This has come to the attention of some U.K. universities:

Everything is supposed to be taught in English. I get the impression that sometimes it's easier for the staff to just deliver it in whatever. But everything is written, all the assessments are in English, everything, all our stuff is in English. And to be honest, I think ... quite a few of the staff do it ... when things are getting a bit difficult, sometimes they revert to Cantonese (U.K. HEI, Interview 9)

So, while teaching in Cantonese could be seen as facilitating knowledge transfer, this approach inevitably also diminishes the transnational element of the program (which is supposed to include English language medium teaching) and, of course, attenuates the cultural capital to be gained by being taught in (and improving one's proficiency in) English.

Mobile Academics

Transnational movements of academics shape the production and dissemination of knowledge and thus the geographies of contemporary knowledge economies. (Jöns, 2007, p. 97)

Geographer Heike Jöns (2007) is unequivocal in her claims regarding the significance of academic mobility (the international movements of scientists and scholars) to the contemporary knowledge economy (see also Ackers, 2012). It plays, she argues, a key role in (a) the internationalization of higher education; (b) the maintenance of a strong research capacity within universities and countries; and (c) the longer term development of important transnational social networks. Key to her argument is exploring the complex relationship between knowledge production and spatial movement. Here, we touch in brief upon some of her claims and make links to recent developments in transnational higher education.

To a greater or lesser extent, TNE does involve the transnational movement of academics and thus has the potential to contribute to significant social transformation, as highlighted by Jöns (above). As already noted, some programs are taught entirely by what has come to be called the flying faculty model. This was described to us by one U.K. academic responsible for administering their department's TNE programs in Hong Kong:

[Our programs] are taught solely by flying faculty, so they're solely our staff. XXX is taught in blocks over a semester, so they [U.K. staff] will go and teach the initial block over, say, four or five days, and then local tutors take over with a workshop and seminar support, and then our lecturers go back and do a revision session at the end ... [In our original model] they basically teach over eight days—it's over a nine day period, because they take the

Thursday off. So they teach Saturday afternoon and early evening, Sunday all day, Monday, Tuesday, Wednesday evenings, Friday evening, and again Saturday afternoon/evening and Sunday all day. (U.K. HEI, Interview 5)

This particular academic department has about ten staff flying out at any one time:

“It is quite a lot of staff, yeah, and it is, it’s very intensive, the flying faculty. It’s quite resource heavy. But the students do seem to like it. It does seem to be a good selling point. It distinguishes our program from other programs that are maybe more of a franchise model.” (U.K. HEI, Interview 5)

This approach also, quite possibly, has an important role to play in the knowledge transfer process—Ackers’s work on short-term stays within healthcare partnerships (between the United Kingdom and Uganda) suggests that “where the visits are well organized, prepared for in advance and form an integrated component of a mutually planned and coordinated project, they can play a very important role in promoting knowledge transfer” (Ackers, 2012, p. 13).

In a way, the problem when assessing the transnational movement of knowledge in TNE lies precisely with the huge diversity of approaches adopted by different institutions and programs within those institutions. The flying faculty model is the most hands on when it comes to transnational involvement and represents a high degree of embodied cultural and social capital. However, very few TNE programs deploy this model to the extent described here—many fly staff out to Hong Kong to introduce the program and for graduation at the end, with little or nothing in between. Others do not involve U.K. staff at all.

Conclusions: So Where Is Knowledge in TNE?

This chapter has considered if and how knowledge is transferred within transnational education. We began with the premise that TNE should, by its very nature, epitomize knowledge transference over space. In its idealized form, TNE indicates knowledge transported from one country to another, from one institutional environment to another, and from one cultural and social context to another. The recent momentous growth in TNE programs over the past decade suggests the overwhelming success of this process. Drawing upon our empirical data, however, we argue that in reality very little consideration has been given (by the providers of TNE) to the geography of knowledge transmission/exchange and (a wider issue) the geographies of institutionalized cultural capital. In this chapter we make several observations about knowledge transfer in TNE. Initially, however, a definition of knowledge transfer in relation to TNE is needed. First, it attempts to define what we mean by knowledge in relation to TNE. It would appear that knowledge is both created and translated in TNE (Faulconbridge, 2006)—knowledge creation is particularly apparent over time, as U.K. HEIs (for cost and other reasons) loosen their control over their programs and Hong Kong HEIs are given more control. We initiated a discussion of knowledge in relation to different forms of (institutionalized) capital,

asking whether knowledge and capital could be seen as interchangeable when it comes to (transnational) education. We concluded that, on the basis of our data and the research of others on international students, yes, capital should usefully be conceived as a subset of knowledge within TNE (for students and immediate graduates, if not perhaps for individuals who have been in the workplace for some time). We then examined the transnational element of TNE and discussed the obvious limits to transnationalism within this form of long-distance education. These limits need to be better reflected in TNE marketing and literature, which tends to assume the unproblematic transplanting of ideas and symbolic capital (Leung & Waters, 2013). More generally, the transfer of knowledge and capital within TNE programs is hampered by language problems, structural problems with the programs themselves (for example, the absence of alumni associations and the tendency to teach students off campus), and the increasing propensity towards using a (cheaper) franchise model of teaching (as opposed to using flying faculty to deliver the course). According to Ackers (2012), short term stays, such as those practiced by some U.K. academics in Hong Kong, can be productive and actively promote knowledge transfer. However, such stays are, it would appear, increasingly rare within TNE, as more and more control is handed over to the Hong Kong partner. This is not necessarily a bad thing, with there being advantages of this model for students, but it raises questions about the transnational nature of knowledge in these circumstances, and the extent to which it is being transferred or created. When a flying faculty model is applied, the transfer of embodied knowledge is hampered by the use of lecturers' use of English, which is poorly understood by students. And yet, this model is clearly more fundamentally transnational in nature. Conversely, where a franchise model is deployed (with use of local staff), students gain better understanding of the materials (through use of Cantonese in teaching and use of local examples), and yet the transnational element is significantly attenuated. An open discussion among U.K. universities about the geography of the knowledge transfer process within TNE, as it currently stands, may result in a richer and more valuable experience for the students undertaking these programs.

Acknowledgements We gratefully acknowledge the generous financial support of the Economic and Social Research Council in the United Kingdom (RES-000-22-3000) and the Research Grants Council in Hong Kong. We also acknowledge the work of Yutin Ki, who conducted many of the interviews for this project.

References

- Ackers, H. L. (2012). Mobilities and knowledge transfer: Understanding the contribution of volunteer stays to north–south healthcare partnerships. *International Migration*, 53, 131–147. doi:10.1111/j.1468-2435.2012.00773.x
- Amin, A. (2003). Spaces of corporate learning. In J. A. Peck & H. Wai-chung Yeung (Eds.), *Remaking the global economy: Economic-geographical perspectives* (pp. 114–129). London: Sage.

- Beaverstock, J. (2004). 'Managing across borders': Knowledge management and expatriation in professional service legal firms. *Journal of Economic Geography*, 4, 157–179. doi:10.1093/jeg/4.2.157
- Beaverstock, J. (2005). Transnational elites in the city: British highly-skilled inter-company transferees in New York City's financial district. *Journal of ethnic and migration studies*, 31, pp. 245–268. doi:10.1080/1369183042000339918
- BIS (2011). Estimating the value to the UK of education exports. *Department for Business, Innovation and Skills, BIS Research Paper no. 46*. Retrieved from <http://www.bis.gov.uk/assets/BISCore/higher-education/docs/E/11-980-estimating-value-of-education-exports.pdf>
- Basch, L., Glick Schiller, N., & Szanton Blanc, C. (1994). *Nations unbound: Transnational projects, postcolonial predicaments, and deterritorialized nation-states*. Amsterdam: Gordon and Breach.
- Blacker, F. H. M. (2002). Knowledge, knowledge work and organizations: An overview and interpretation (reprinted). In N. Bontis & C. W. Choo (Eds.), *The strategic management of intellectual capital and organizational knowledge* (pp. 47–64). New York: Oxford University Press.
- Bone, D. (2010). *Internationalisation of HE: A ten year view*. Retrieved from <http://webarchive.nationalarchives.gov.uk/tna/+http://www.bis.gov.uk/wp-content/uploads/2009/10/HE-Internationalisation-Bone.pdf>
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste* (R. Nice, Trans.). London: Routledge Kegan & Paul.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York: Greenwood Press.
- Brinton, M. C. (2000). Social capital in the Japanese youth labor market: Labor market policy, schools, and norms. *Policy Sciences*, 33, 289–306. doi:10.1023/A:1004893624263
- British Council (2010). *The landscape of learning: Guide to UK qualifications in Hong Kong 2009–10*. British Council and EDU Plus.
- Brooks, R., & Waters, J. (2011). *Student mobilities, migration and the internationalization of higher education*. Basingstoke: Palgrave Macmillan.
- Education Bureau, Government of Hong Kong Special Administrative Region (2012). *Statistical Information*. Retrieved from <http://www.edb.gov.hk>
- Faulconbridge, J. R. (2006). Stretching tacit knowledge beyond a local fix? Global spaces of learning in advertising professional service firms. *Journal of Economic Geography*, 6, 517–540. doi:10.1093/jeg/lbi023
- Findlay, A. M., King, R., Smith, F. M., Geddes, A., & Skeldon, R. (2012). World class? An investigation of globalisation, difference and international student mobility. *Transactions of the Institute of British Geographers*, 37, 118–131. doi:10.1111/j.1475-5661.2011.00454.x
- Gertler, M. S. (2003). Tacit knowledge and the economic geography of context, or the undefinable tacitness of being (there). *Journal of Economic Geography*, 3, 75–99. doi:10.1093/jeg/3.1.75
- Glückler, J., Meusbürger, P., & El Meskioui, M. (2013). Introduction: Knowledge and the geography of the economy. In P. Meusbürger, J. Glückler, & M. el Meskioui (Eds.), *Knowledge and the economy* (pp. 3–14). Knowledge and Space: Vol. 5. Dordrecht: Springer.
- Jöns, H. (2007). Transnational mobility and the spaces of knowledge production: A comparison of global patterns, motivations and collaborations in different academic fields. *Social Geography*, 2, 97–114. doi:10.5194/sg-2-97-2007
- Leung, M., & Waters, J. L. (2013). British degrees made in Hong Kong: An enquiry into the role of space and place in transnational education. *Asia Pacific Education Review*, 14, 43–53. doi:10.1007/s12564-013-9250-4
- McBurnie, G., & Ziguas, C. (2007). *Transnational education: Issues and trends in offshore higher education*. Oxford: Routledge.
- Meusbürger, P. (2013). Relations between knowledge and economic development: Some methodological considerations. In P. Meusbürger, J. Glückler, & M. el Meskioui (Eds.), *Knowledge and the economy* (15–42). Knowledge and Space: Vol. 5. Dordrecht: Springer.

- Morgan, K. (2004). The exaggerated death of geography: Learning, proximity and territorial innovation systems. *Journal of Economic Geography*, 4, 3–21. doi:[10.1093/jeg/4.1.3](https://doi.org/10.1093/jeg/4.1.3)
- Ong, A. (1999). *Flexible citizenship: The cultural logics of transnationality*. Durham: Duke University Press.
- Waters, J. L. (2006). Geographies of cultural capital: Education, international migration and family strategies between Hong Kong and Canada. *Transactions of the Institute of British Geographers*, 31, 179–192. doi:[10.1111/j.1475-5661.2006.00202.x](https://doi.org/10.1111/j.1475-5661.2006.00202.x)
- Waters, J. L. (2008). *Education, migration, and cultural capital in the Chinese Diaspora: Transnational students between Hong Kong and Canada*. New York: Cambria Press.
- Waters, J. L., & Leung, M. (2013a). A colourful university life? Transnational higher education and the spatial dimensions of institutional social capital in Hong Kong. *Population, Space and Place*, 19, 155–167. doi:[10.1002/psp.1748](https://doi.org/10.1002/psp.1748)
- Waters, J. L., & Leung, M. (2013b). Immobile transnationalisms? Young people and their *in situ* experiences of ‘international’ education in Hong Kong. *Urban Studies*, 50, 606–620. doi:[10.1177/0042098012468902](https://doi.org/10.1177/0042098012468902)
- Williams, A. (2006). Lost in translation? International migration, learning and knowledge. *Progress in Human Geography*, 30, 588–607. doi:[10.1177/0309132506070169](https://doi.org/10.1177/0309132506070169)

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Fig. 1 The Villa Bosch (© Peter Meusbürger)



Fig. 2 Participants of the symposium “Spatial Mobility of Knowledge” at the studio of the Villa Bosch in Heidelberg (Photo: Jonathan Ihrig, Heidelberg)

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