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History of Science and History of Translation: Disciplinary Commensurability?

MAEVE OLOHAN, *Centre for Translation & Intercultural Studies, University of Manchester*

Abstract

The history of translation is seen variously as examining the role of translation in historical episodes or investigating the phenomenon or understanding of translation itself historically. These different historiographical perspectives involve potentially different research aims, approaches, concepts, methods and scholarly interlocutors. The paper focuses on this question of disciplinary commensurability in historical studies, and draws parallels between the history of translation and the history of science. Themes addressed include the tensions between local and global, national and transnational histories, and concomitant tensions between established historiographical norms and alternative, interdisciplinary approaches. It is argued that both the history of translation and the history of science are following a similar trajectory, towards a reflexive, transnational history that seeks productive modes of engagement with other historical disciplines. By bringing to the attention of translation scholars some of the key debates in the history of science and by identifying commonalities, this paper hopes to encourage historians of translation and of science to collaborate in the pursuit of a transnational history of science, the conceptual and methodological requirements of which could be usefully fulfilled by that combined expertise.

Keywords

history of translation; history of science; historiography; microhistory; transnational history; self-reflexivity; disciplinary commensurability

A recent debate instigated by Rundle (2012), and responded to by St-Pierre (2012), Hermans (2012) and Delabastita (2012), raised the question of the fundamental purpose of the history of translation and provided the impetus for this paper. Rundle argues that we should be asking ourselves whether we are studying the history of translation or translation in history. These two conceptualizations seem to imply both different target audiences and different functions for the narratives thus produced. A historical focus on translation interests translation scholars and deepens our understanding of what translation is and how it works. The second approach aims to contribute to histories of an episode, period or phenomenon (other than the phenomenon of translation itself), and to deepen our understanding of those periods or phenomena. Rundle (2012:233) highlights the challenges faced by translation scholars who adopt the second approach; he argues that to contribute to the historiography of a subject or period and to engage in dialogue with historians of that subject or period, translation scholars may have to adapt their discourses and abandon some of the conceptualizations and methodologies that are typical of the translation history they write for a translation studies audience.

The debate then extended into distinctions between the specific and the general and the usefulness of descriptive translation studies for translation history, but it is the specific issue of disciplinary commensurability in historical studies that will form the basis of this paper. In this case, the disciplines in question are translation studies, with particular attention to translation history, and the history of science. As a precursor to collaborative research between historians of science and translation scholars, the paper identifies significant areas of historiographical common ground between the two disciplines.¹

The discussion focuses on the tensions between local and global, national and transnational histories, which are intricately linked to choices of historical subjects and historiographical approaches. In both disciplines these issues embody a tension between established historiographical norms and newer, alternative approaches that prompt a re-examination of analytical categories, a more flexible approach to sources and a fresh theoretical impetus. This

¹ Here 'historiography' is used to refer to the study of how historians interpret history in their writings. D'hulst (e.g. 2010) has introduced into translation studies the term 'metahistoriography' to designate writing about the writing of history, but this term appears not to be in general use in other branches of history and I have opted instead to talk about historiography when referring to this level of analysis and reflection. This usage is, I believe, in line with the terminology of other history disciplines (of science, of technology) discussed in this paper.

paper shows how both disciplines may be seen as following a similar trajectory, towards a reflexive, transnational history seeking productive modes of engagement with other historical disciplines. By bringing some of the key debates in the history of science to the attention of translation scholars and by identifying commonalities, I hope to encourage historians of translation and of science to combine forces in the pursuit of a transnational history of science, in which translation plays an integral part.

Section 1 introduces translation scholars to the academic discipline of the history of science and compares its disciplinary status to that of translation studies. Despite clear differences in traditions, extent and scope of activities, a key common feature is identified, notably an institutional heterogeneity which, viewed in positive terms, can foster flexibility and a willingness to address new, interdisciplinary research questions. Section 2 examines some of the major approaches in recent historiography of science and of translation. It notes the dominance of the local case study in both disciplines, as well as the tendency towards histories that are organized around the notion of a ‘national’ literature, a notion which is just as problematic when applied to science as to literature. It traces, in both disciplines, a desire to move towards ‘transnational’ or ‘global’ history, while also highlighting some of the conceptual and methodological difficulties posed by that move. Section 3 continues the discussion of historiographical approaches by focusing on the choice of historical subjects. Against a backdrop of prioritization of canonical texts and figures by both disciplines, alternative approaches encouraging a focus on more marginal aspects of the respective activities of translation and science are highlighted. Suggestions are also made for attending to the integration of material and human agency in historical studies, offering an alternative to accounts of translation practice that pay little attention to material objects. I conclude that both disciplines’ drive towards transnational histories and the conceptual and methodological requirements of a transnational history of science offer a unique opportunity to combine the expertise of translation scholars and historians of science.

1. Institutional Heterogeneity

Using just one of several available indicators, we might trace the modern academic discipline of the history of science back to the early decades of the last century, specifically to the

establishment of some of its key journals and scholarly societies. The History of Science Society's journal, *Isis*, was launched in 1912, predating the founding of the society in 1924. The *British Journal for the History of Science* has been published since 1962 by the British Society for the History of Science, which was founded in 1947. Influential publications such as Sarton's (1927) *Introduction to the History of Science* may also be seen as marking a foundational moment in this disciplinary evolution. In her assessment of the current state of the discipline, Daston (2009:811) suggests that the history of science is converging towards the discipline of history, as seen in the increasing reliance of historians of science on the same methods of archival and documentary research. She also notes a tendency for the academic background of today's historians of science to be principally in history rather than other fields; by contrast, it was not uncommon for members of an earlier generation of historians of science to come from the natural sciences or to have a more eclectic or unconventional academic background and training. An impression of present-day scholarship in the history of science can be gained from the programme of the 2013 *International Congress of History of Science, Technology and Medicine*, which brought together over 1,700 scholars (iCHSTM 2013), classified by period, locality, scientific discipline and theme.²

Assessed in the same terms, translation studies emerges as the younger of the two disciplines. Two long-running translators' journals were founded in 1955: *Babel*, the journal of the International Federation of Translators (FIT), and the Canadian *Translators' Journal*, which became *Meta* in 1966. Practice-oriented contributions were joined by an increasing number of research papers, and the journals also became increasingly international in theme and authorship (Roberts 1985). They were followed by other journals, conceived solely as outlets for disseminating scholarly research, in the late 1980s (e.g. *TTR* and *Target*), the 1990s (e.g. *The Translator* and *Across Languages and Cultures*) and the 2000s (e.g. *Translation Studies*), as well as many other periodicals with varying degrees of international, regional and national reach. The cornerstones for the academic discipline of translation studies were set by a relatively small

² The classifications were as follows. Periods: pre-modern, early modern, long 18th century, long 19th century and 20th century. Locality: Arabic and Islamic worlds, Asia, Europe and its colonial projects, Africa, Americas, and global and transnational perspectives). Scientific disciplines: mathematics, astronomy, physics, chemistry, life sciences, medical sciences and social sciences, among others. Themes addressed include objects, visual culture, Cold War, commerce, gender, education and warfare, to quote just a selection.

number of publications in the 1960s and 1970s, with scholarly activities growing exponentially since the 1990s. The latest generation of translation scholars is likely to have undergone academic training in translation studies while most of their predecessors developed their translation studies interests via literary or linguistic studies. Just as the history of science now has its “cultivated practices and an ethos” (Daston 2009:811), so too does translation studies.

Historical research is recognized as a specific activity in translation studies, represented in the key encyclopedias and handbooks for our field, although not figuring in Holmes’s (1972) foundational map of the discipline. Hermans (2004) identifies two main strands in descriptive-historical studies: the polysystems-oriented work which began in the 1970s and 1980s and the literary translation research based at the University of Göttingen in the 1980s and 1990s. The latter is associated with philological analyses of larger corpora, focusing on transfer relations between source and target texts, while polysystems scholars have generally produced case studies with emphasis on target-system contextualization. Hermans (2004:201) summarizes the common features of these historical-descriptive approaches as follows (bullet points added):

- a concentration of research into translation as part of cultural history;
- an interest in translations as products rather than in the translation process;
- a predominant but not exclusive interest in literary translation;
- the presence of a broadly functionalist framework;
- a preoccupation with methodological and theoretical issues which takes its cue from literary studies rather than from linguistics;
- a desire to contextualize translation and to legitimize the study of translation in the context both of comparative literary and cultural studies and of the study of individual literatures and cultures.

The discussion of historiographical approaches in Sections 2 and 3 will exemplify some of these characteristics.

In reflections on the history of science, published in the 100th anniversary issue of *Isis*, Alder (2013) notes the “institutional heterogeneity” of the discipline, which might be

negatively construed as a failure to establish disciplinary stability for itself. Alternatively, this heterogeneity can be seen more positively as keeping the field “intellectually supple and perennially reflexive” (*ibid.*:92). Historians of science can be found in a wide range of locations in university configurations, including history departments, science or social science departments, or departments which bring together scholars of ‘science studies’, e.g. history and philosophy of science, history and sociology of science, science and technology studies. This is a state of affairs familiar to translation scholars, who are often grouped or dispersed in languages, linguistics, literature, management, social science or other university departments, frequently forming physical or virtual ‘centres’ of translation studies or similar, but seldom having the critical mass or perceived disciplinary homogeneity to form schools or departments in their own right. Just as Alder (*ibid.*) claims that this intellectual suppleness of the historians of science results in engagement with new questions and methods and greater critical reflection, we might make similar claims for translation scholars; our work has always been interdisciplinary in method and theory but it increasingly also engages with interdisciplinary research questions and seeks to open or maintain dialogue with scholars from a wide range of other disciplines. Departing from the observation that the two disciplines appear to share elements of institutional and disciplinary experience, I will now proceed to compare their specific historiographical approaches.

2. Local and Global, National and Transnational Histories

Many of the contributions to translation history have been in the form of ‘national histories’ of translation and/or interpreting, as seen, for example, in Part II of the *Routledge Encyclopedia of Translation Studies*. It is duly acknowledged there that the linguistic or geographic division of the section is somewhat arbitrary and that there are inevitable limitations in what can be covered by such volumes (Baker 1998:xiv). Nonetheless, by bringing these accounts together, the *Encyclopedia* succeeds in revealing common points of interest in the profiles, roles and activities of translators and interpreters from different periods and settings, as well as the historical contingency of the very notion of ‘translation’. Other encyclopedias with similar historical overviews, by region and/or time period, include *Übersetzen - Translation - Traduction* (Kittel *et al.* 2004). Numerous contributions to the histories of translation also focus on a specific target

language. Well-known examples for English as target language are the single-volume *Oxford Guide to Literature in English Translation* (France 2000) and the *Oxford History of Literature in English Translation*, comprising five volumes, of which four have appeared (Ellis 2008, Braden *et al.* 2010, Gillespie and Hopkins 2005, France and Haynes 2006). These works follow a conventional periodization, as can be seen in the titles of the respective volumes of the *History*, and they conceive of literature fairly broadly to include poetry, fiction and drama but also some philosophical and religious classics. Translation is theorized, the contexts of translation and the working environments of translators are examined, and detailed discussion is provided of the translation of specific genres, works and authors. The *History* also includes biographical sketches of translators. The two-volume *Encyclopedia of Literary Translation into English* (Classe 2000) similarly focuses on English as a target language, and contains entries on areas and linguistic cultures and translators but also provides over 500 entries on specific authors.

A similar structuring of histories of translation around a ‘national’ literature or language(s), usually as the target language for translation, can be seen for other languages too, e.g. Chevrel *et al.*’s (2012) study of translation into French in the nineteenth century and Riikonen *et al.*’s (2007) history of translation into Finnish spanning four centuries, to name but two examples. A brief glance at earlier historiographical work shows that this target-language focus is not a recent phenomenon; Bellanger’s (1903) *Histoire de la traduction en France*, for example, recorded translations of classical Greek and Latin literature into French. This principle is also seen in the most recent digital bibliographies of translations and writings about translation, such as the *Biblioteca de Traducciones Españolas* and the *Biblioteca de Traducciones Hispanoamericanas* (Lafarga and Pegenaute n.d. a, b).

Histories have also been written which address either a more specific or a broader geographical, political or cultural area. The more specific can be exemplified by Tymoczko’s (1999) volume on the literature and politics of Ireland, told through the history of translation from Irish into English. The broader sweeps are usually accounts of translation spanning several periods and regions. For example, van Hoof (1991) set out to produce a history of translation ‘in the West’. In acknowledging the enormity of the task, he likens it to a history of civilization but from the perspective of translation (*ibid.*:7). Vermeer’s (1992) two-volume *Skizzen zu einer Geschichte der Translation* also aimed to cover considerable

ground, both geographically and temporally.

D'hulst (2008) outlines some of the problems inherent in an understanding of literatures as 'national'; this perspective tends to imbue those literatures and their institutions with a greater degree of stability and autonomy than is actually the case, and pays less attention to the exchange of literary products and the effects of such exchanges on institutions, repertoires, genres and writing techniques. Moreover, in studying translation between a specific language pair, we neglect the relevance of that binary relation for a wider network of relations. D'hulst (2008:90) advocates instead a transnational approach, in which studies of translation flows and tendencies would focus on networks of systems, and would reveal the role of translation flows in shaping and regulating power relations between literary communities (see also Heilbron 1999). D'hulst offers the edited volume on translations of Shakespeare in the eighteenth century (Delabastita and D'hulst 1993) as an example of this transnational approach which succeeded in showing how translations were involved in literary evolutions within and beyond national borders.

Notions of 'national' sciences can also be problematic, and are similarly rooted in imperialist and postcolonial perspectives. Now discredited diffusionist models of knowledge transmission (see Basalla 1967 as a prime example) tended to reduce the circulation of knowledge to one-way dissemination, usually from Europe or 'the West', and wholesale transplantation of the colonizer's science. Hard-fought independence often provided nations with a rationale for the promotion of a 'national' science in the postcolonial era. However, neither perspective readily accommodates the transnational character of science, and both perspectives are constrained by a reliance on dichotomous units which are given an illusion of stability.³ As we will see below, alternative models of knowledge circulation now try to move away from these binaries of West/rest and from highly Eurocentric models of scientific development (Sivasundaram 2010b) to focus more on transnational science and the kinds of networks and flows which have been identified by D'hulst as vital to the study of the history of literary translation.

In addition to large-scale projects which aim to produce overviews or accounts of translation activities according to place, period, target language or language pair, there is a growing body of

³ For a concrete example, see Phalkey's (2013) characterization of the history of science in India as inseparable from the history of imperialism but as also heavily constrained by the colonial and postcolonial binary.

local historical case studies, published in journals, edited volumes and monographs, of specific instances of translation, focused, for example, on a particular text or a particular translator or a particular translation context and providing a detailed historical-descriptive account. And, although most translation history to date is predominantly concerned with literary translation, there are a few examples of historical research on other genres, with case studies and contributions to the history of scientific translation for several periods and regions (Montgomery 2000, Wright 2000, Gutas 1998, Saliba 2007).⁴

Local case studies are also a dominant form of historiography in science. They became the norm as the history of science moved away from grand narratives of scientific progress and rejected linear, teleologizing, universalizing perspectives on science. Historians focused instead on science in its localities, documenting this in great detail in microhistories (Daston 2009:811, Sivasundaram 2010a). This historiographical approach also chimed with the increasing interest in studying the specific *practices* of science. However, this approach has been criticized for the “mononational character” of the research it produces, as illustrated by Simon and Herran (2008b:4), who examine the past ten years of British doctoral theses in the history of science and medicine and note that three quarters of them deal with British cases only. Secord (2004:659) criticizes the “tendency to see the localizing of a piece of scientific work as a worthwhile end in itself” and notes that an emphasis on local contexts runs the risk of “parochial antiquarianism”. He argues that this localizing approach does not enable us to see and understand how knowledge travels. Pickstone (2011:133) similarly argues that, irrespective of their degree of detail, “the accumulation of illustrative microstudies” no longer suffices. Secord (2004:660) is more pointed when he states that this “rich array of research ... somehow adds up to less than the sum of its parts”.

These perceived shortcomings have prompted scholars to reflect on how or whether such microhistorical studies can enhance our understanding of science when we wish to move beyond local cases and away from models of linear knowledge accumulation. Notions

⁴ Some attempts have also been made to compile histories of translation theory, sometimes limited to a region or area (e.g. Steiner 1975, Kelly 1979), and a small but important set of contributions has been primarily methodological, i.e. reflecting explicitly on historiographical methods in translation studies (Pym 1998, Bastin and Bandia 2006, D’hulst 2010, 2012, Cheung 2012, Wakabayashi 2012, Coldiron 2012, Candler Hayes 2012, Footitt 2012).

of global or transnational histories of science now being developed imply much greater emphasis on how knowledge travels and reveal a move towards “a more polyvocal and encompassing narrative of science in global history” (Nappi 2013:103). The local case study is not rejected but rather the aim is that, through accumulation and interweaving, these individual cases allow scholars to characterize and study local specificities but also to identify commonalities and establish connections and relations, in time and space, between diverse objects of study. In pursuing a global history of science we would not lose the richness of the microhistories but we would also not revert to the grand narratives of scientific progress (see Rheinberger 2009 for a concrete illustration of the macrohistorical shift in molecular biology).

However, as also widely noted (Secord 2004, Sivasundaram 2010b, Nappi 2013, Simon and Herran 2008a), such global or transnational perspectives are challenging and require new approaches to historiography and theory. Secord (2004), for example, advocates an alternative emphasis on ‘knowledge in transit’, which requires a study of the circulation of knowledge itself, beyond national contexts, with all texts and all actions viewed as the traces of communicative acts, rather than treating the production and circulation of knowledge as separate. Another suggestion for alternative sites of and approaches to historical study, to bring the networks and movements of knowledge into focus, is offered by Raj’s (2007) conception of sites of intercultural contact.⁵

These approaches focus attention firmly on the role of intercultural contact and mediation in the history of scientific endeavour, with a realization that scientific knowledges and practices interact and circulate and are influenced both by local conditions and by the processes of circulation themselves. Raj (2010:517) suggests that a focus on circulation may be a useful approach to future transnational history and historiography, “to gain a better understanding not only of the problematic nature of circulation itself but also of the ways localities are constantly constituted within a history of circulation and entanglement between heterogeneous networks of peoples, objects and knowledge practices”.

⁵ In his examination of the circulation and construction of knowledge in South Asia and Europe between 1650 and 1900 through six case studies, Raj (2007) focuses on the heterogeneous sites of knowledge production in intercultural interaction, seeking to accommodate the complex dynamics of knowledge-making, through which new knowledge emerges and existing knowledge is reconfigured, and which are contingent on the nature of the intercultural encounter.

Nappi (2013) points out that this tension between the local and the global is not only felt in terms of the objects of historical study but is also experienced in historiographical practice, in which those local histories are ‘translated’ into the dominant discourses. The challenge, as he sees it, is for historians of science to find ways of embracing local diversity while “translating that local difference into a meaningful common conversation” (*ibid.*:103). This involves using new sources (e.g. beyond conventional documentary archives) and new methodologies, as well as revising existing categories of analysis and decentering Europe (*ibid.*). Examples of these transformations in sources, methods and analyses might include Sivasundaram’s (2010b) use of palm-leaf manuscripts in his study of connections between Sri Lankan and British botany and Chowdhury’s (2013) discussion of the key role of oral history and other sources in a history of contemporary scientific practice in India.

As in the history of science, translation studies has also shown a more critical attitude in recent years to the grand narratives. Foz (2006:139), for example, has argued against viewing translation teleologically as part of the narrative of progress; as we will see in the next section, microhistory has been seen by translation scholars too as a counterweight to the historical pull of great events, famous personages and linear models of progress. As in the history of science, the heterogeneity of an accumulation of historical case studies, and the difficulties of deriving broader perspectives from them, are also perceived as problematic in translation studies (Rundle 2012). Hermans (2012) argues that coherence is achieved through the historian’s interpretive frame by which the historical events and the historian’s take on them are represented, and then, at a remove, the interpretation of those interpretive frames, through which commonalities or differences in narratives may be observed; while Rundle questions the usefulness of an interest in translation as the primary interpretive frame and sees greater explanatory potential in frames that are formulated from issues of wider historical importance. The key point, following White (2000:392), is that “historical discourse features a double representation: of the object of its interest and of the historian’s thought about this object”. Thus there is scope to find coherence through the devices used by historians to narrate their interpretation of history and the devices used to interpret a variety of those different narrations.

The move to a transnational perspective, on science or on translation, also requires critical re-examination of analytical, culturally contingent categories, including

periodizations and the very notions of ‘transnational’ or ‘global’ (Nappi 2013). For Apter (2001:3), for example, in discussing the movement of artistic and literary products, ‘global’ does not mean “the conglomeration of world cultures arrayed side by side in their difference” but rather the aesthetic agenda of a monoculture, or linguistic superpower, which elicits transnational engagement. Her understanding of transnational, by contrast, primarily signifies an exchange of cultural products between minority cultures. Cronin (2006: 23) likewise employs a transnational framework to relate the Irish experience of globalization to experiences of other post-colonial countries and their diasporas. Elsewhere Cronin (2003:78-79) illustrates the relevance of the translation activities of the diasporas to a transnational history of translation through three specific examples: Greek-Latin translations by Irish monks in the early medieval period, the translation and publishing activities which took place in Irish colleges in Louvain, Rome, Prague and Salamanca in the seventeenth century, and, the activities of Joyce, Beckett and other Irish modernist writers in the twentieth century. A detailed appraisal of these and other categories is beyond the scope of this paper, but it is important to highlight the need to reflect upon them in pursuing the goal of transnational history.

Another key conceptual and methodological shift of transnational history is away from binary relations to a network approach, facilitated by systems and/or network theories. The history of science has a long-standing, though not always easy, relationship with the sociology of science (Biagioli 2012, Daston 2009). Many historians of science have successfully employed sociological models based on concepts of networks or assemblages to illuminate their historical studies (a few salient references were given above). Translation scholars’ engagement with sociological models is more recent but is gaining traction. Applications to translation history certainly exist (see, for example, Hanna 2005, Hermans 2007, Sapiro 2010, Simeoni 2007) but remain relatively limited in quantity and restricted in scope. Future work on transnational translation histories has the potential to expand on this sociological repertoire. Finally, we may note that sources for a transnational translation history may also expand beyond conventional documentary archives and books to embrace oral, audiovisual and other material objects and technologies which are relevant to studies of translation practices. The use of oral testimonies in the *Languages at War* project (Footitt 2012, Baker 2010) provides a useful example of the productivity of such sources.

3. Canonicity, Agency and Temporality

In addition to the histories of translation mentioned above, another specific historiographical approach can be observed, namely to focus the narrative on the translator. Examples are seen in Delisle's (1999, 2002) profiles of male and female translators and Delisle and Woodsworth's (1995) *Translators through History* (including the second edition in 2012). Translators are viewed "in terms of [their] position in a sociocultural, geographic and temporal space" (Woodsworth 1994:55). The accounts address questions about the translators and their positions or functions in society as well as about the function of the translation activity, viewed from the perspective of the translators (e.g. through prefaces) and the receivers (e.g. through criticism and reviews). This approach reflects one of Pym's (1998) key messages in his consideration of methods, namely that translation history should centre on translators, as social actors who effect change through embodiment, mobility and the specificities of their private and professional lives and trajectories.

Other historians (e.g. Santoyo 2006, Adamo 2006) have also advocated a shift of focus away from the text but not explicitly or exclusively towards the translator. They have proposed instead that we attend to the daily practice of translation, or translation in everyday life. Santoyo (2006) argues that the focus on the (influential) book has meant that many other acts of translation have been ignored; these include the history of interpreting, pseudo-translations, self-translations, translations as survivors of lost originals, forgotten or overlooked texts about translation theories and traditions, and the correction of common misconceptions in translation history. Adamo (2006) criticizes much existing translation history for singling out what is most visible and for focusing on canonized subjects and events, while others remain marginalized. She argues for more microhistories of translation that focus on those marginalized subjects and the fragmentary data available to investigate them, seeing in such studies the ability to challenge grand narratives, which tend to be reinforced by *a priori* choices of canonical subjects as objects of study.

Micro-historical studies of science have also tended to concentrate on "canonical figures, canonical disciplines, and canonical works" (Jardine 2003:133) and this approach has similarly been questioned. Rudwick (1985:6), for example, criticizes his fellow historians for focusing so often on one person, thus distorting the processes of scientific

activity, because insufficient attention is given to the crucial role of interactions between scientists and their networks. Jardine (2000) proposes an alternative approach to the prioritizing of central individuals in which the historiographical focus is on the “scenes of inquiry”, i.e. scientific questions as they emerged and dissolved. In this way, he hopes to bring together the content of the scientific agenda, the conditions in which science was practised, both material and social, and the interests that shaped it (Jardine 2003:134).

In shifting the focus of the history of science to scenes of enquiry or the “sites of science” (Pickstone 2011:124), there is a concomitant shift of attention away from the cutting edges of science to its “mundane activities” (Pickstone and Worboys 2011:99). This new perspective is epitomized by Jardine’s description of a different approach to texts. Text authorship is seen as one of numerous components by which questions and doctrines are established. Focusing on the construction of scenes of enquiry rather than the work of the best-known scientists *per se* provides an opportunity for scholarship to examine what Jardine calls “secondary authorship”, i.e. “the modest but visible shuffling and shiftings of meanings by readers with a pen in hand” (2000:282). These activities include editing, anthologizing, annotating, popularizing and translating, so that texts such as popularizations, translations and abridgements become important sites for investigating the making of meanings in science (*ibid.*). Also of interest are manuals of instruction and the “routine authorship” (*ibid.*) by which scientific activities and methods are coordinated. Topham (2004:391) also argues that the history of science lacks studies of the “technicians of print”, i.e. the personnel of the scientific book trade.

As can be seen from Section 2, much of translation history has focused on canonical (literary) genres and texts; there is therefore much scope to extend our research into more marginal areas of translation activity, which certainly include the translation of non-literary genres. We have noted that some attention has been given to translators themselves; this goes hand in hand with a general growth in interest in the translator as social agent (Wolf and Fukari 2007, Milton and Bandia 2009). The range of translators studied can, however, also be extended beyond the literary sphere, bearing in mind that the scientific domain has been particularly neglected to date. It is worth emphasizing that the delineation of centrality and marginality becomes more complex when considering the translation of science because many of the canonized works by much-studied, prominent scientists have been translated by people who are barely acknowledged in any historical account. As an example we can mention the women –

Helen Maria Williams, Elizabeth Sabine, Thomasina Ross – who translated into English the main works of Alexander von Humboldt (1769-1859), “one of the most celebrated figures of modern science” (Rupke 2008:10), and whose translations provided inspiration to British scientists and explorers, including Charles Darwin (Nicolson 1995:xxxi). Those same translations, and the absence, until recently, of any retranslations, as well as a large body of biographical and critical work on Humboldt that has not been published in English, have shaped the reception of Humboldt in US literary and cultural studies circles up to the present day (Walls 2009:x, Rupke 2008:191). Yet very few studies have been carried out on the translators and their translations, including their production and reception, either in terms of their role and importance at the time of their production or in terms of their influence on the reception and perception of Humboldt in the English-speaking world. This is just one example among many to indicate that there is merit, in a scientific context at least, in studying translators as marginalized figures whose work has played a significant part in highly prominent endeavours. Similarly neglected but worthy of further consideration are the editors and other “technicians of print” and their work with the tools, resources and technologies of publishing, printing and dissemination.

Material objects and the way they shape and are, in turn, shaped by human agents are fruitful objects of study in the history of science and technology. Studies of human and material agency in scientific practice have been informed by a range of theoretical and sociological approaches. In taking a ‘posthumanist’ or ‘decentred’ perspective, scholars attend to both human agency and material agency but do not prioritize or ‘centre’ one at the expense of the other. This contrasts with other, ‘humanist’, sociological approaches to science that seek predominantly social (i.e. human-centred) explanations of how scientific knowledge develops. Leading exponents of posthumanist perspectives on scientific practice include Bruno Latour, Donna Haraway and Andrew Pickering, whose work offers numerous examples of historical research, ranging from studies of the contributions of Louis Pasteur to biology, medicine and public hygiene in France (Latour 1988) to the development of particle physics (Pickering 1984) and the history of cybernetics in Britain (Pickering 2010). These studies focus on the interplay between human agents and material objects; scientific production is thus studied as a “socio-material assemblage” (Pickering 2005:358). It may be noted that Latour’s Actor-Network Theory (ANT) (e.g. Latour 2005) similarly focuses on

the associations between heterogeneous human and nonhuman actors in networks.⁶

Thus, one approach to conceptualizing science and narrating its history is to adopt this kind of posthumanist perspective. It is clear that materiality plays a vital role in the history of experiments and apparatus, and the history of industrial processes of science. The history of the book and the history of print culture and publishing are also areas of study that are now being viewed as offering the potential to enrich the history of scientific practice (see, for example, Apple *et al.* 2012). Here, the technicians of print come into focus again, but so too does the materiality of the book, of printed objects, of publishing technologies. The history of publishing and of the book also offer considerable potential for enriching the history of translation, though this has been little exploited as yet; for examples of such studies, see Armstrong's (2007) analysis of translations of the *Decameron* and Meade's (2013) research on the production and translation of engineering texts in Meiji-era Japan. However, most accounts of translation privilege the human agent; the posthumanist perspective offered by the science and technology scholars mentioned above may offer a possible theoretical framework by which the emergent interrelations between human agency and material performativity in translation practice can be more fully explored; see Olohan (2011) for an account, in those terms, of aspects of present-day translation practice.

A final aspect to be addressed here is that of temporality. Historians of science, as mentioned previously, have rejected grand narratives of scientific progress and do not focus their accounts exclusively on past endeavours that are deemed successful or superior in the present. Moreover, scholars seek to avoid anachronism when reconstructing scientific events of the past. One of the challenges of applying a temporal perspective to scientific practice lies in the feasibility of construing the past without recourse to conceptual categories of the present (Daston 2009, Jardine 2003). To what extent are such accounts (in)comprehensible to those who understand present-day science? What is the role of critical historical interpretation and explanation and how can this be achieved without recourse to knowledge that was not possessed by the agents being studied?

A concrete example of engagement with these issues in the historiography of science can be seen in a seminal study (Rudwick 1985) of a dispute concerning the identification and

⁶ There are some differences in conceptualization but it is beyond the scope of this paper to tease them out.

sequencing of rock formations in Devon, Britain, in 1834. The dispute eventually resulted in consensus and the development of a new system for categorizing rocks formed in the Devonian geological period. In order to reconstruct the controversy and its resolution, Rudwick summarized the background and introduced the main actors (the Geological Society, the Société géologique de France and the British Association). He then presented a non-retrospective narrative of the controversy which was lengthy and detailed, following Geertz's (1973) concept of 'thick description', and which "rigorously and self-consciously avoid[ed] hindsight" (Rudwick 1985:12). Rudwick followed this non-retrospective account with an analysis of the case study and its implications, in the form of retrospective reflection. In producing both non-retrospective description and retrospective analysis in this way, he hoped to avoid the shortcomings of both (*ibid.*:14). The approach received a mixed response. The non-retrospective account was criticized for denying readers any indication of where the story would end and where the author was positioning himself, and for being, to some extent, redundant because much of it could be gained from the subsequent analysis (Gould 1987, Golinski 2005). However, this narrative mode was also seen as a device that enabled Rudwick to trace the gradual stabilization and establishment of the new Devonian system over time, thus providing "an excellent example of the use of historical narrative to address issues of the temporality of scientific practice" (Golinski 2005:202).

Jardine (2003) argues that, in seeking explanations for transitions in particular, it is necessary to acknowledge and understand outcomes or absences of outcomes between phases or periods. Similarly, those interested in tracing successive steps in the history of science, such as shifts in the forms, methods and protocols of research (Pickstone 2011), need to give a sense of those cumulations and changes over time; this necessitates an analysis of the "layered complexities of synchronic practices and knowledges ... through to a historicized present" (Pickstone and Worboys 2011:99). In a similar vein to Pickstone (2011) above, Hermans (2012:244) writes about conceiving of translation across the time and space of history as a historical series. That is to say, we construct our historical narratives based on the notion that "translators can translate only because there are preceding translations and because there are discourses about translation that recognize the relevant utterances as translation" (*ibid.*). Thus, understanding what translation was like at a historical moment is a first step in the historiographical process and a prerequisite for

understanding the role or wider significance of translation cumulatively and over time.

4. Converging Around Transnational History?

Having started the paper with reference to the goals of translation history and the relationship between translation history and ‘general’ history, I shall now return to these questions. A relevant parallel can be drawn with views recently expressed about the history of technology and its relationship to history. Edgerton (2010) argues that historians of technology are mostly concerned with saying something about technology and are much less engaged with history. He notes that historians of technology primarily address non-historians and an audience that is also primarily interested in technology rather than history. We could certainly say the same of those who write about the history of translation. Rundle (2012) identifies potential incompatibilities in method and discursive convention between historians and translation scholars; Edgerton (*ibid.*) also sees difficulties in contextualizing a history of technology within existing global history. The main stumbling block, according to Edgerton, is that issues that are central and relevant to one history may be barely covered by the other and indeed one historiographical and narrative perspective may be rebuked by the other.

Alder (2013) addresses the same issue in relation to the history of science. He sees the challenge, or “burden”, as he describes it, of the history of science as being “to show historians of other subfields that we can treat the history of any given scientific subject in a manner no different in principle from the way they treat the history of any nonscientific subject” (*ibid.*:94). In arguing, thus, against scientific exceptionalism, Alder is not denying what is distinctive, unique or contingent about science and its history. He is, rather, re-asserting the historical character of the history of science and reminding us that, as history, the history of science shares some basic similarities with historical analyses of non-science subjects. This view is very much echoed by Malena (2011) in relation to translation studies and history. On the basis of her study of the history of translation in Louisiana, she argues that translation scholars need to be aware of their own historiographical activities and need to “think like historians” (*ibid.*:88).

It cannot be denied that disciplinary divides can pose very real challenges -- methodological and perhaps primarily discursive. Bielsa (2011) also alludes to them in relation to the boundary between sociology and translation studies when she notes that translation scholars are keenly

attuned to the social and cultural contingencies and contexts of translation but scholars in other fields (and she is referring here specifically to British and American sociology) may use and rely on translation without reflecting on that complexity. The solution she offers in that particular instance is similar to those suggested by the historians of science and translation above (D'hulst 2008, Cronin 2003 and 2006, Secord 2004, Sivasundaram 2010b, Simon and Herran 2008a, Nappi 2013), namely to adopt a perspective which abandons the national angle and assumes a transnational one, promoting an understanding of the (unequal) international exchanges through which social theory circulates globally and which are essential to the constitution of the field (*ibid.*: 212). Translation is central to that perspective.

My conclusion is similar, though it is derived from seeking convergence around a different disciplinary boundary. It is that the emerging transnational character of both the history of science and the history of translation provides a very fertile meeting ground for our two disciplines. As transnational models of science such as those offered in Secord (2004) and Raj (2007) undergo further development and refinement, it is clear that they draw increasingly on notions of intercultural transfer, international circulation of knowledge and practices of mediation. Translation, alongside other forms of transfer (see also D'hulst 2012), is often pivotal to the realization of transnational science, and translation scholars would therefore make ideal interlocutors for historians of science as both engage sets of scholars in conceptualizing and studying the transnational character of science.

There is some evidence to suggest that the dialogue suggested here may be welcomed by historians of science. Nappi (2013), for example, identifies translation, both interlingual and disciplinary, as being key to a transnational history of science. On the one hand, linguistic expertise is needed to study the history of science in specific locales, but translation between disciplines is also necessary if local historiographies are to be woven into “a common and mutually epistemologically comprehensible history of science” (*ibid.*:107). Moving away from rigid notions of disciplines, Nappi also notes that many different disciplines contribute to the history of science and produce various modes of historiography and cultures of knowledge-making in different periods and localities; scholars have to be able to engage with these multiple historiographical practices and link them together through “a self-consciousness about engaging in a conversation about history in its

many forms” (*ibid.*:109).

From our own disciplinary perspective we might well affirm that translation studies is well placed to engage in that dialogue too. We are developing a similar self-reflexivity about how we write history. As linguists and historians we also foster an analytical appreciation and sensitivity for varieties of discursive practices and an ability to command a range of different interpretive frames and historiographical modes. Perhaps most importantly, we are keen to understand the significance of the choices we and others make in weaving transnational historical narratives around translation, whether in literary, cultural or scientific domains.

MAEVE OLOHAN

*Centre for Translation & Intercultural Studies, School of Arts, Languages & Cultures,
University of Manchester, Oxford Road, Manchester, M13 9PL, UK.
maeve.olohan@manchester.ac.uk*

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