Writings of Early Scholars in the Ancient Near East, Egypt, Rome, and Greece: Translating Ancient Scientific Texts edited by Annette Imhausen and Tanja Pommerening

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After a great deal of discussion in recent decades about both the practical and theoretical aspects of translation,[1] most contemporary critics would concur that translation is impossible in theory but necessary in practice. While the translation of highbrow literature is the field that has contributed most to the discussion of translation in general, another field has long gone unnoticed, namely, the transmission of explicit or even scientific knowledge. What about the great texts of Greek mathematics, let alone Egyptian medicine or Mesopotamian omen literature?

Translation as a practice and a problem, especially in the humanities that investigate the past, is a natural, and thus well chosen, topic for such a collection. This one brings together scholars from ancient Near Eastern studies, Egyptology, Classics, and History of Science. The volume well illustrates the risks that truly interdisciplinary work in the historically oriented humanities has to face, but it also clearly demonstrates the great benefits that can emerge from such collaborative work.

Throughout the volume there is some variation concerning what exactly it is that the contributors investigate. According to the subtitle the unifying question is,

(1) How should one translate 'ancient scientific texts'?

[1] See, e.g., Gerzymisch-Arbogast *et alii* 2006, Vandevelde 2005.

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Although the main focus of interest is on contemporary translations, some contributors also trace ancient attempts at translation. Nevertheless, there are at least two more overarching questions:

(2) What is ancient 'science'? or Are certain ancient discourses or texts 'scientific'?, and
(3) What do certain 'scientific texts' actually do or mean, or, occasionally, even say?

While it is quite clear how questions (1) and (3) connect, question (2) and its possible answers, although hotly debated not too long ago, do not primarily concern the problem of translation. Rather, they concern the range of texts discussed in this volume. In what follows, I will discuss the contributions in relation to which of these problems that they mostly deal with, leaving the central one (1) to the end and starting with the most specialized one (2). The editors have structured the collection differently, namely, in sections on:

(a) scientific language (Cancik-Kirschbaum, Althoff, Quack, and Fögen),
(b) ancient translations (Taub, and von Lieven),
(c) medicine (Pommerening, Heeßel, Worthington, Hoffmann, and Totelin),
(d) astronomy/astrology (Depuydt, Brack-Bernsen, Heilen), and
(e) mathematics (Imhausen, Ritter, and Høyrup).

As one would expect, many papers touch upon more than one of the three aspects. The essay that tries to address all three most consistently is probably Annette Imhausen's 'From the Cave into Reality: Mathematics and Cultures' [333–347], which critically assesses the state of mathematical historiography as strongly colored by what one could call with Bourbaki a 'work-day Platonism' (and Eurocentrism, too). She then discusses the cultural backgrounds of Babylonian and Egyptian mathematics, ending with an account of the Unguru debate,[2] which applies to ancient Near Eastern or Egyptian

[2] The debate was kicked off by Unguru 1975, which provoked many harsh responses by eminent historians of science, (e.g., B. L. van der Waerden) and even mathematicians (e.g., A. Weil). The venom of the debate, which is exactly the one about translation between source text and target reader, is explained more easily when one realizes that this debate is about the identity and continuity of European-style mathematics.

mathematical traditions even more than to ancient Greek ones. Today, all contributors and most readers of this volume would, I suppose, firmly settle on Unguru's side of the controversy, which is the historical-mathematical variant of the many debates about the two mutually exclusive ways of translation: either source- or reader-focused.

Problem 2: What is 'science' and/or *Wissenschaft*?

Some contributors actually define what they mean by 'Wissenschaft'. For their definitions, they identify two to three factors, namely, knowledge, a notion of the 'systematic' presentation of that knowledge, and social organization.[3] Thus defined, the notion of science or *Wissenschaft* becomes wide and integrative but perhaps too wide to be useful, especially too wide still to be 'science'. Rather, it reflects negotiations and struggles within modern knowledge systems that investigate ancient cultures, structurally similar to the discussion about what 'literature' is.[4] One should hope that these are battles of the past (and battles that were won), at least in strictly scholarly contexts.[5] On the other hand, throughout this collection there is some consensus on the fact that 'etic' or observer's categories, although unavoidable, are often less helpful than they seem to be at first sight. Thus, instead of discussing, e.g., whether divination texts or lexical lists are tokens of a scientific method, one should focus on describing what their language is telling us about the rational practices in which these texts were embedded. This kind of description is exactly what the papers of Cancik-Kirschbaum, Althoff, Quack, and Fögen attempt, by carefully trying to avoid purely 'etic' perspectives on ancient discourses.[6]

Eva Cancik-Kirschbaum's 'Gegenstand und Methode. Sprachliche Erkenntnistechniken in der keilschriftlichen Überlieferung Mesopotamiens' [13–34], in what is the most theory-conscious paper in the collection, investigates how language itself becomes a tool of inquiry.

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3 See p. 15 (Cancik-Kirschbaum, recurring in Høyrup) and p. 69 f. (Quack).

4 See, e.g., the positions summed up in Schmitz 2007, 19–21.

5 Fundamental and often quoted in this volume are Larsen 1987 and Jeyes 1991–1992.

6 For the distinction of 'emic' and 'etic' categories of description in ethnology and cultural studies, often used in this volume, see Goodenough 1970 and Harris 1976.

After a rich introduction that situates her project in the history of ancient Near Eastern studies, she discusses various aspects and levels of the role of language in articulating cognition. Her main point seems, to me, to be that language is more than an instrument and thus that one cannot really separate cognition from language. A classic example of this is metaphor. The second part of the paper discusses four different ways in which language operates in gaining knowledge. These are binary statements, the creation of terminology in early seventh-century Assyria, the coordination of language and visualization in bilingual lists, and mythological explications of speculative knowledge. As several authors in this volume, Cancik-Kirschbaum settles on divination in order to demonstrate how language structures the scientific corpus of Babylonian divinations that employs the principle of image-based relations. She ends her paper with short remarks on thought experiments in the divinatory corpus that take the form of adopting impossible parameters. Cancik's paper highlights the importance of language for rational-practice texts (Ritter's term, see below) and thus the difficulties that result from translation.

Jochen Althoff [47–68: 'Das Verhältnis von medizinischer Prognose zur religiösen Divinatorik/Mantik in Griechenland'] takes translation less literally and investigates transpositions of divinatory patterns into Hippocratic medicine. His paper throws light upon the emergence of 'rational medicine', especially prognostics, from preexisting discourses such as divination. Thus, the ubiquitous polemic against divinatory practices that one finds in the Hippocratic Corpus becomes understandable as one more instance of 'boundary-work'.[7]

Joachim F. Quack [69–71: 'Präzision in der Prognose oder: Divination als Wissenschaft'] follows in the same vain, stressing the systematic character of Demotic divination texts—'systematicity' is one of his criteria for calling a discourse *wissenschaftlich*, besides its intellectual elitism [70]. Of course, one can always suspect that such a method begs the question; at least, one would have liked to see an abstract account of what 'systematic' actually means. Nonetheless, Quack grandly succeeds in describing Demotic divination as science.

More linguistics-oriented is Thorsten Fögen's paper on Pliny the Elder [93–115: Zur Rolle des Fachwortschatzes in der *Naturalis historia* des Älteren Plinius], which has much of value to say about

[7] I borrow the term from Gieryn 1995, 394–407 and Hess 1997, 58.

problems of translation. Pliny himself discusses a great number of bilingual phenomena. Fögen gives a systematic, descriptive account of Pliny's stances toward terminology. In the last lines of the paper [112], we glimpse a truly fascinating project, namely, the presentation of terminological discussion within a moral agenda, that is, as part of Pliny's authorial self-staging throughout his discussion of terminology.

Problem 3: Reconstruction of ancient argument in its context

Another slate of papers concerns a prerequisite of translation, namely, a clear grasp of what a text actually means, which in the case of ancient 'science' can be rather difficult. Most of the papers that belong to this group do not actually discuss the 'scientificity' or translatability of their textual objects, but their structure and argument. In two thorough papers, Leo Depuydt [241–276: 'Ancient Egyptian Star Tables: A Reinterpretation of Their Fundamental Structure'], and Lis Brack-Bernsen [227–297: 'Methods for Understanding and Reconstructing Babylonian Predicting Rules'] attempt to see ancient astronomical lore through 'emic' categories [see 11n6 above], that is, they free the modern interpreter of ancient astronomy from his modern knowledge and concepts of stars and simply try to make sense of the texts in terms of what their authors could actually have seen. While Depuydt is led by his research towards revoking certain functions of Egyptian star tables that were assigned by modern scholars ('just tables, not also clocks' [251]), Brack-Bernsen is concerned with procedural texts that determine the lengths of Babylonian months. Especially the latter are a great example of the difficulties that later scholars have to face when ancient texts do not even wish to communicate the second-order discourse that governs the data preserved by the text. Neither Depuydt nor Brack-Bernsen turn this into an argument against translation proper but it is difficult to see how one can translate these texts in the traditional sense and still produce a meaningful text.

Jim Ritter [349–383: 'Translating Rational-Practice Texts'] and Jens Høyrup [385–417: 'How to Transfer the Conceptual Structure of Old Babylonian Mathematics: Solutions and Inherent Problems'] work on our understanding of the structure of, mostly, Mesopotamian

mathematical texts. Ritter, who also discusses Egyptian mathematics, Babylonian medicine, and Assyrian law, adduces parallels from computer science and information theory, e.g., the 'abstract command list' or 'flow diagrams', in order to understand the structure of these ancient algorithms. His apparent intention to free us from the problematic term 'science' with respect to ancient societies and to understand a whole range of ancient practices as 'rational practice' is well illustrated by the set of examples presented. Now, however, the term 'rational' should come into focus. (I expect problems lurking there that are similar to the ones historians of science had and are still having with 'science'). Høyrup's paper focuses more on actual translation, approaching the scene, however, from the perspective of conceptual structure. After giving a highly instructive sketch of how research on mathematical cuneiform texts developed and of the inherent methodological problems it had to face, Høyrup presents a list of terms and operations, arranged according to mathematical operations, adding his standard translations [399–405]. Even for readers who are not closely acquainted with Babylonian mathematics, these lists illuminate mathematical terminology and procedure and provide much insight. Both papers can also serve as general introductions to the field of ancient Near Eastern mathematical texts.

Problem 1: Translation proper

The remaining papers discuss more specific problems, or perhaps one should say questions, that are centered on the actual linguistic problems of translating ancient 'scientific' texts. Among these, Liba Taub's 'Translating the *Phainomena* across Genre, Language, and Culture' [199–137] is the only one that focuses exclusively on ancient translations, by looking, in the style of a case–study, at Aratus' *Phaenomena* and its Roman versions (Cicero, Germanicus, and so on). Since Aratus exerted such an impact on Roman didactic poetry, Taub's paper can also serve as an overview of research to ancient didactic poems. Especially instructive are her remarks on different kinds of readers. While she does not dwell on ancient techniques of actual translation, her thesis that these texts occupy a poetic-scientific space that is lost to us, is well made (and well worth serious consideration, not the least by readers of Presocratic texts).

The remaining contributions are presented by Egyptologists, Assyriologists, or Classicists, who are currently working on specific translations, and allow us to glimpse what is going on at their workbenches. Among the Egyptologists, Alexandra von Lieven [139–150: 'Translating the Fundamentals of the Course of the Stars'] describes what we know as *The Book of Nut*—the true title, which she has discovered, is 'Fundamentals of the Course of the Stars'—and the different versions of which allow insight into the philological practices of priests who compared different existing versions. While describing methodological and actual problems of the translation of specific language-structures, there comes into view a fascinating area of Egyptian literature comprised of a great variety of 'manuals', including instruction on how to run an ideal temple.

Tanja Pommerening [153–174: 'Von Impotenz und Migräne—eine kritische Auseinandersetzung mit Übersetzungen des Papyrus Ebers'] presents interesting data (see especially the diagrams on page 161) on how certain, highly problematic, translations, in this case of the ancient Egyptian medical Papyrus Ebers, have been the most influential ones (both 'impotence' and 'migraine' are overly precise identifications of ailments against which the papyrus provides help). The dominant position of less than apt translations is due to a combination of information sociology (availability, established traditions, and so on) and of the tastes of the targeted readers' tastes who have, understandably, in the past preferred pseudo-accurate identifications of medical phenomena rather than question marks. Pommerening here touches upon the well known crux of retrospective or palaeodiagnosis that is always either marred by complex anachronism ranging from the conceptual to the terminological or essentially impossible.[8] In the first instance, although theoretically faulty, it provides 'facts' for modern readers who are not experts of the source-culture, e.g., physicists or historians of more recent 'sciences'. In the second, it ends in *aporia* but is at least well aware of the historical dimension of the problem. This problem has been well explored, for example, with respect to Thucydides' description of the Athenian plague.

Friedhelm Hoffmann [201–218: 'Zur Neuedition des hieratisch-demotischen Papyrus Wien D 6257 aus römischer Zeit'] describes his

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[8] See Grmek 1998, 6 f. and, more sceptical, Leven 2004.

work on a medical text from Crocodilopolis. Hoffmann gives a practitioner's account that shows quite well, besides the points which he actually wishes to make, how extensively matters of private taste infuse the edition and translation of 'scientific' texts [204: 'Ich nehme daher lieber eine hellgraue Unterlegung'].

Among the Assyriologists, Nils Heeßel [175–188: 'Rechts oder links—wörtlich oder dem Sinn nach?'] introduces his article with Rosenzweig's well put dictum that translating is like serving two masters and thus impossible. After a short discussion of the problem's theoretical side,[9] especially with respect to 'science', Heeßel concentrates on Babylonian diagnostic texts and presents three aporetic cases in which target-oriented and source-oriented translations are bound to clash. Martin Worthington's essay [189–199: 'The Lamp and the Mirror, or: Some Comments on the Ancient Understanding of Mesopotamian Medical Manuscripts'] discusses the evidence for scribal philology, including translation, that the manuscripts provide.

Two Greco-Roman traditions that have roots in ancient Near Eastern or Egyptian knowledge traditions, namely, pharmacology and astrology, are the subject of papers by Laurence Totelin [219–237: 'A Recipe for a Headache: Translating and Interpreting Ancient Greek and Roman Remedies'] and Stefan Heilen [299–329: 'Problems in Translating Ancient Greek Astrological Texts']. Totelin gives a great *tour d'horizon* of Greek and Roman pharmacological recipes, explaining their context, textual structure, terminology, and so on, choosing as her example the τροχίσκος ('pastille') of Antonius. Besides the obvious problem of translating terms for the many substances of *materia medica* and its quantities, she discusses the reconstruction of actual drugs and their efficacy, also considering approaches taken from ethnpharmacology. For the layperson, Totelin opens up a fascinating and, among classicists, much-avoided field. Recipes, however, have been studied, even from a literary point of view.[10]

Heilen gives a systematic account of the difficulties that a translator of Greek astrological texts will encounter, starting from the local (transmission, style, terminology) and ranging towards the global (conceptual, poetic mode of exposition). Most of the points made here find parallels in non-astrological traditions. The end of the

[9] See now Kitzbichler 2007.

[10] See most recently Telle 2003 and Asper 2007, e.g., 197 f.

article reads as if it was meant to illustrate Rosenzweig's statement (quoted by Heeßel, see above): translation (of astrological texts) is either impossible straightaway, because the texts as transmitted do not make sense (Heilen's section 1); or it is impossible without giving additional information (in 'boxes', as Heilen repeatedly explains) that provides context, which means in fact a commentary, marginal or not.

As should be clear by now, this volume has many attractions. The editors have mastered the noble task to of bringing together people from different philological-historical disciplines in order to discuss a problem fundamental to them all. Generally, the collection is very successful in illustrating all the different aspects of the problem. Second, it is also a great guide to the range of fields concerned with ancient 'science'. Many of the papers presented here would also serve well as a readable, up-to-date introduction to the fields that they discuss (Totelin, Heilen, and Ritter). Only occasionally does one get the impression that experts are talking to each other, well over the heads of their interdisciplinary readership (e.g., Høyrup [391]: 'for example, ZUR.ZUR (now read UL.UL and interpreted du7.du7)'). The volume both underlines the heterogeneity of ancient rational-practice traditions, the need to approach them across disciplines, the many practical obstacles, and the rewards of such approaches. Our modern institutionalized field of higher education and professional scholarship, by bringing about increasing differentiation, has made the study of such cross-disciplinary problems even more difficult. It is certainly not by chance that the two editors of this volume, Tanja Pommerening and Annette Imhausen, before becoming well established Egyptologists, had earned undergraduate and graduate degrees in pharmacology and mathematics, respectively. They should be congratulated on their achievement.

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