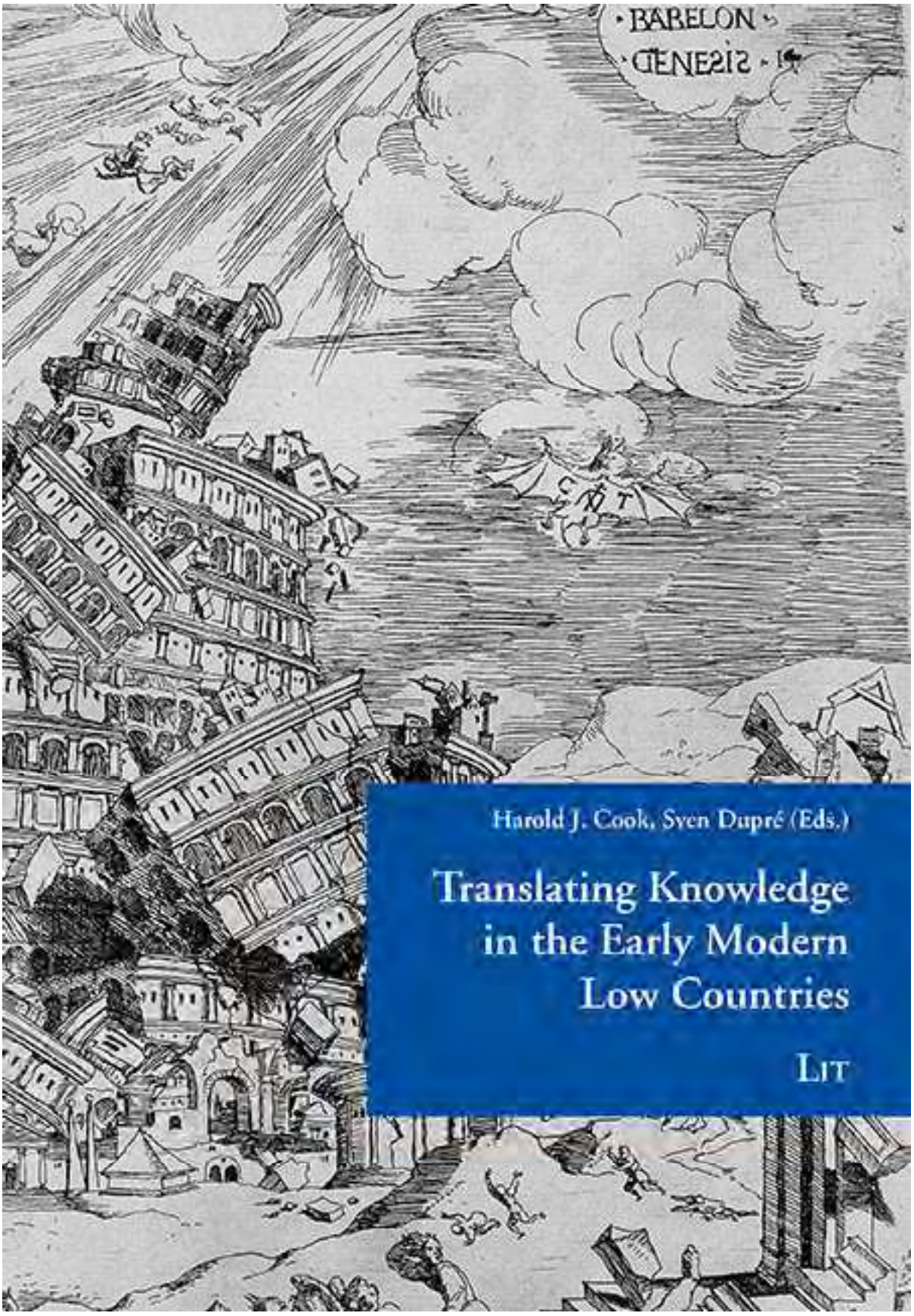


Harold J. Cook, Sven Dupré (Eds.)

Translating Knowledge in the Early Modern Low Countries

LIT

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Low Countries Studies on the Circulation of Natural Knowledge

edited by

Sven Dupré and Geert Vanpaemel

volume 3

LIT

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Preface

The initial germ of this book was planted in conversations between us when we were both at the Institute for Advanced Study in Princeton in the autumn of 2007. Upon our return to Europe, the opportunity arose to develop the issue of translation in the context of the Scientific Research Network Circulating Knowledge in the Early Modern Low Countries, sponsored by the Research Foundation—Flanders (FWO) of which our institutions were members. In November 2009 the Wellcome Trust Centre for the History of Medicine at UCL kindly hosted a workshop—the fifth in the series of the Research Network—on go-betweens, translations, and the circulation of knowledge in the early modern Low Countries. The workshop was incredibly stimulating, and we would like to thank all participants for the discussions, which fueled the present volume. However, we felt that we had only started the exchange, and for this reason, we decided to have a follow-up workshop, this time focusing more on the mathematical sciences, the exchange of knowledge in the arts, and the invention of vocabulary. The workshop was hosted by Ghent University's Centre for History of Science in September 2010. In the meantime, another workshop took place under the auspices of the Research Network at the Institut d'Estudis Catalans in Barcelona. The workshop focused on the exchange of knowledge between the Iberian Peninsula and the Netherlands, and, not completely surprisingly, several of the papers presented also dealt with translation. We decided to add them to the present volume. We would like to thank the local organizer of the workshop in Barcelona, José Pardo, for arranging such a stimulating meeting, as well as the CSIC who generously provided additional funding for it.

Since we started this project we, much like the historical characters we study in this book, have both changed location ourselves. We have found our new institutions, the Max Planck Institute for the History of Science, Berlin and Brown University, most supportive in the final phase of bringing this book to press. We would like to thank in particular Gina Partridge Grzimek and Johannes Lotze of the Max Planck Institute for the History of Science for their extensive editorial efforts on the language and the style of the volume, thereby translating the draft manuscripts into the present book.

Harold Cook & Sven Dupré
Providence and Berlin, April 2012

Introduction

Harold J. Cook and Sven Dupré

It is difficult to imagine knowledge without language. But languages proliferate and diversify, while moving statements from one language to another also brings change. To a purist, it may be that because identical expression is not possible in different languages, knowledge itself is necessarily different according to the mode of expression. People nevertheless get on with the process of 'translation', despite the difficulties. Being attentive to the ways in which translation was practiced, and its consequences for the history of knowledge, can therefore alert us to activities that are often slighted in the quest to find origins for ideas.

Anyone acquainted with European traditions will recognise that one enduring metaphor for knowledge is something written in a book. Indeed, those associated with Judeo-Christian ways are sometimes termed the peoples of *The Book*. One source for this is Augustine of Hippo who, not long after the collection of texts into codices became common, wrote about God's "two books" in his late fourth century work against the Manichaeans. One was the book of God's revelation as recorded in the sacred books; the other was the *Book of Nature,* which recorded the relationship between God and his creation. For centuries afterward, Augustine's terminology served as a powerful argument about how the orderly manifestation of the Creator's omnipotence and omniscience in the world were in perfect harmony with scripture. Both books were thought to flow from the one source of meaning, the *logos*—an utterance possessing meaning, variously translated as a 'statement' or even a 'word', most famously in John 1:1, "In the beginning was the Word." For Augustine and his like, then, the *logos* manifested itself in the unities of embodied creation and language, therefore providing a foundation for both moral and natural philosophy. But by the seventeenth century, in some parts of Europe the relationship between the two books was proving more contentious, with divergence of views about the sources of knowledge for each.[1] The distinc-

[1] For a recent guide, see Jorink, *Reading the Book of Nature.*

tions between them, along with attempts at reunification, have pre-occupied many minds ever since.

One of the fundamental problems was that it was recognised that the two books had been written in many languages. It was common knowledge that the Book of Genesis told of how God had thrown down the enormous power of a united humanity by scattering us across the face of the earth and confounding our languages (Genesis 11:5-8). Like Augustine's contemporary, Jerome, before them, Renaissance humanists confronted the difficulties of reinterpreting scriptures that had themselves been composed in many languages, and one solution was to try to restore the original but multifarious texts. Indeed, some of the most impressive scholarly projects of the early modern period were the production of polyglot Bibles, first under the direction of Cardinal Cisneros (1436-1517) (the *Complutensian Polyglot*, 1520), and later, with the addition of Syriac, under the direction of Arias Montano (1527-1598) in Antwerp, (completed in 1572), followed by one in Paris (1645) and in London (1657). In other words, at the same time that 'national' languages were being standardized for the first time by the proliferation of print, philologists were attempting to establish the source texts for a book recognized to be multilingual. But even if the 'original' words could be agreed on, bringing their meanings faithfully into more commonly understood languages continued to raise serious problems, making all vernacular Bibles controversial.

But if scripture was presenting difficulties, so was the *Book of Nature*. In the Garden, Adam might have named all the birds and beasts (Genesis 2:19), but after the confounding of languages no unity of names for the creatures on earth remained. And of course the world was made up of more than birds and beasts, including the powers that give life and motion. The definition and naming of both natural phenomena and the categories to which they belonged could sometimes prove controversial even where people spoke the same dialect, while travellers had to confront a plethora of unknown names, terms, and concepts. Even numbers presented problems. In Europe, it was possible to calculate using Roman numbers or the newer system that included the zero, or by fractions or the new decimal points, by arithmetical or geometrical methods or the Cartesian combination of the two, or even according to logarithms. From Francis Lodwick (1619-1694) and John Wilkins (1614-1672) to Gottfried Leibniz (1646-1716), one ambition of seventeenth-century virtuosi was to find a universal or philosophical language to formulate and communicate both descriptions and concepts of nature, although such attempts to unify the languages of nature proved as Panglossian as the at-

tempts to find a definitive version of scripture.[2] Among other problems was the impossibility of completeness: what was included in the book kept expanding, with a consequent expansion of vocabulary.

If the *Book of Nature* is written in many and distinct languages, then can science really claim to have the character of universality that is commonly associated with it? The answer from science studies in recent decades has been a resounding 'no.' In attacking various idealist assumptions, scholars have been particularly keen to show that the construction of meaning and knowledge are grounded in local communities and, we would add, languages. The ordinary view that there are knowledge claims that apply universally has therefore been characterised as the 'view from nowhere.' Among those powerfully articulating the view that knowledge is always situated is Steven Shapin, who has identified the origin of the ideal of a universal science in the seventeenth century, when "The Christian virtuoso was situated everywhere and nowhere in professional space."[3] But as Shapin has recognised, "The success of a program dedicated to displaying the situatedness of knowledge generates its successor problem. How is it, if knowledge is indeed local, that certain forms of it appear global in the domain of application?"[4] To tackle such problems, sociolinguists such as Mark Granovetter developed a view of social networks in which groups bound by 'strong ties' adopted new words and information from those with whom they had 'weak ties.' The importance of weak social ties was "that they are disproportionately likely to be bridges" between core groups.[5] Bruno Latour went further in proposing a view of networks in the construction of scientific knowledge that were not merely social, since non-human 'actants' had an important place in them, too. Information might be collected, constructed, and inscribed at one place and then (as 'immutable mobiles') conveyed back to a 'centre of calculation,' where it might become a bit of data that could in its own right be reinscribed and reconstructed by other groups and places.[6] Borrowing from Jacques Callon, he unhorsed the commonly-used notion of the 'diffusion' of knowledge and replaced it with 'translation.' "There are no equivalents, only translations," he proclaimed in one of his aphorisms.[7]

Recent studies have reinvoked something like the position of Granovetter by

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2 Bono, *Interpreting Nature*.

3 Shapin, *Social History of Truth*, 182.

4 Ophir & Shapin, "Place of Knowledge," 15; also see Shapin, "Sociology of Scientific Knowledge."

5 Granovetter, "Network Theory Revisited," 130; also see Granovetter, "Strength of Weak Ties."

6 See especially Latour, *Science in Action*.

7 Latour, *Pasteurization of France*, 162.

pointing to the fundamental importance of 'brokers' and 'go-betweens' in early modern knowledge networks.[8] Many conferences and projects are now examining questions about how knowledge moves from place to place, and how it is transformed in the process—including the network program of which this book is a result.[9] But it would be well to revisit the processes that allow transference, picking up the problem of 'translation' again. The English word derives from the Latin *translatio*, meaning to transfer or transport from one place or state to another, a handing over, or even, in horticulture, a grafting of one living stem onto another. When referring to writing practices, *translatio* might mean not only translation in the modern English sense of conveying the meaning of one linguistic expression into another, but copying, or even the employment of a word in an unusual way in order to convey a figurative or metaphorical meaning. *Translatio* can be understood by Dutch *vertaling*, which is similar to the English *translation* but also suggests a 'rendering', with connections to *omzetting* ('change' or 'transformation') and *overdracht* ('transferring', 'handing over', or 'metaphor'). Put otherwise, problems about whether the *Book of Nature* has a meaning that is universal or universalisable, and problems about whether (or how) situated knowledge can be moved to other places, involve questions of translation.

To more fully understand the process of translation, one might plunge into linguistics and the philosophy of language, especially since it is arguable that the cultural turn in twentieth-century thought—which certainly had a large impact on the history of science—is rooted in the linguistic turn based on the semiotics associated with Ferdinand de Saussure (1857-1913). Against the genealogical studies of languages and the differences among human families based thereon that preoccupied the later eighteenth and nineteenth centuries, Saussure developed a more universal (and ahistorical) approach, considering languages to be formal systems of arbitrary signs, which in turn indicated signifiers and signified.[10] Concepts of structural linguistics came to underpin the study of 'cultures' not as highly developed forms of arts and crafts but as forms of meaning, and had a massive impact on a variety of fields from literature and psychoanalysis to philosophy and anthropology. Other kinds of linguistic studies moved toward analytical philosophy and even neurology. Ironically, then, the wide-ranging applicability of linguistic

8 Smith & Findlen, *Merchants and Marvels*; Schiebinger & Swan, *Colonial Botany*; Roberts, Schaffer & Dear, *Mindful Hand*; Schaffer et al., *Brokered World*; Bleichmar et al., *Science in the Spanish and Portuguese Empires.*

9 Two other books have preceded this in the same series: Dupré & Lüthy, *Silent Messengers*; Roberts, *Centres and Cycles of Accumulation*.

10 Said, *Orientalism*.

and cultural 'theory' drew the attention of many away from the history of languages, which in turn tended to still construe linguistic change along genealogical lines of descent. By the later 1970s, a field labelled 'translation studies' emerged, but while its practitioners took at least a partial interest in historicising their activities, few historians jumped in.[11] For these and many other reasons, it became uncommon for historians to consider linguistic change as occurring from the individual and collective choices made when people responded to other linguistic environments. The best-known cases are when classical and vernacular tongues or 'foreign' languages interacted.[12] Translation grew invisible.

Perhaps this trend was reinforced by the development of modernist taste in 'the West,' or even because of the ubiquity of translation in commerce and science. The self-conscious work of the translator is often disregarded because of the common assumption that meanings are universal, so that language is merely the vehicle for conveying meaning. If this were true, then all vehicles would be equivalent. Lawrence Venuti, for instance, observed that in the English-speaking world, at least, translators who approach their subjects with the goal of 'transparency' are the most appreciated in modern times, although this has not always been true: in the seventeenth and eighteenth centuries, for instance, 'fluency' came top.[13] Yet almost everyone who has considered the problem agrees that translation is not simply a question of converting a meaning from one set of words into a different but equivalent set—as if meaning exists in a world apart from words. Even in cases where, as among European languages, there are many shared histories, expressions and assumptions, the nuance, connotation and implication of differences of expression convey differences of meaning. "Translation is a process that involves looking for similarities between languages and cultures—particularly similar messages and formal techniques—but it does this only because it is constantly confronting dissimilarities."[14] Or put another way, "What translators do is find matches, not equivalences, for the units of which a work is made, in the hope and expectation that their sum will produce a new work that serves overall as a substitute for the source."[15] The question is, then, how the translator choses to deal with dissimilarity.

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[11] For an invitation to historians to get involved, see especially the introduction to Burke & Hsia *Cultural Translation*.

[12] See, for example, the strong repost to this approach in Pollock, *Sanskrit, Culture, and Power*, 497-505.

[13] Venuti, *Translator's Invisibility*, 43-98.

[14] Venuti, *Translator's Invisibility* 306.

[15] Bellos, *Is That a Fish in Your Ear?*, 308.

To be simplistic about it, there are two major philosophical positions on the matter that one can invoke here: Willard van Ormen Quine's view about the indeterminacy of translation, and the argument for the incommensurability of translation commonly associated with Thomas Kuhn and Paul Feyerabend.[16] The first position shares some commonalities with Ludwig Wittgenstein due to their common view of language as constructed by use, thus a social process rather than a reference to ideal types through ratiocination. It holds out the possibility of multiple possible translations that come close to being the same. The second position holds that different ways of thought and expression cannot be exchanged: you see one pattern in the world, or another; and they do not morph from one to another, but sit side by side, distinct and incompatible. Because difference cannot be entirely overcome, then, there can be no perfectly transparent translation, giving all attempts a patina of likeness that is false.[17] Something like the latter view also emerged from the early work of Michel Foucault, in which he compared patterns of thought (*epistemes*) in different historical periods to cultural layers in a archaeological site: in each layer there are common patterns distinct from all other layers, while between them are brief and complete ruptures (perhaps indicated by a layer of ash).[18]

Such discussions about translation in the abstract are illuminating, but they remain orientated toward definition and typification rather than contingent examples of how things have actually happened. Despite the apparent impossibility of complete and transparent translation, or at least the impossibility of doing it precisely, people have, in fact, simply gotten on with it. The study of practice rather than reasoning has, of course, been one of the major moves of recent decades in the history of ideas and sciences. In keeping with it, after reviewing the chief arguments about translation and science Ian Hacking concluded: "Where we as people have branched off from others as people, we find new interests, and a looseness of fit between their and our commonplaces. Translation of truths is irrelevant. Communication of ways to think is what matters."[19] At the same time, however, value

[16] Quine, *Word and Object*; Kuhn, *Structure of Scientific Revolutions*; Feyerabend, *Science in a Free Society*, 65-70.

[17] Among the debates about these problems, see Kirk, *Translation Determined*; Biagioli, "Anthropology of Incommensurability"; Sankey, "Kuhn's Changing Concept." For a brilliant example of cultural incommensurability put into historical practice, see Kuriyama, *Divergence of Greek and Chinese Medicine*.

[18] Foucault, *Archaeology of Knowledge*, *Order of Things* and *Birth of the Clinic*.

[19] Hacking, *Historical Ontology*, 171-2.

may be added to the target language. "At each translation of traces onto a new one something is *gained*," wrote Latour.[20]

In that spirit, the problem of how people went about the process of translation, and what effects their efforts had, has recently begun to attract the attention of historians and historians of science.[21] If one keeps an eye out, 'translation' can be seen to have become an important analytical tool in many studies of other processes, most importantly those concerned with power. Michel Callon reminded his readers of the aphorism "*traduttore-traditore*, from translation to treason there is only a short step." He did so when discussing the process of 'translation' by which three marine biologists attempted to develop a conservation strategy for the scallops in St. Brieuc Bay: the researchers defined the nature of the problems and came to speak on behalf of various parties. In his view, 'to translate' is to displace the original voices while expressing "in one's own language what others say and want, why they act in the way they do and how they associate with each other: it is to establish oneself as a spokesman."[22] Latour—who dedicated his *Science in Action* to Callon—similarly employed the word in his studies to indicate subtle but strong processes of appropriation.[23]

Similar processes have been observed in many colonial contexts. The historical anthropology of Bernard S. Cohn, for instance, was very alert to linguistic interactions in the systems of power in British India, as is Michael Dodson.[24] Similarly, Homi Bhabha wrote about the "hybrid location of cultural value" of post-colonial literature as being like the 'translational' settings of colonial encounters.[25] A brilliant study by Vincente Rafael on early Spanish rule in the Philippines dealt with the attempts of Spaniards to translate Christian doctrine into the vernacular of Tagalog society. These efforts were, of course, aimed at subjugation, but perhaps ironically "the vernacular's resistance to translation spurred further translations." Moreover, "in setting languages in motion, translation tended to cast intentions adrift, now laying, now subverting the ideological grounds of colonial hegemony. The necessity of employing the native vernaculars in spreading the Word of God constrained the universalizing assumptions and totalizing impulses of a colonial-

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[20] Latour, *Science in Action*, 236 (emphasis in original); also see 108, and esp. 132-44.

[21] Liu, *Tokens of Exchange*; Henninger-Voss, "Guidobaldo del Monte"; Montgomery, *Science in Translation*; Elshakry, "Modern Science Translations in Arabic."

[22] Callon, "Sociology of Translation," 224, 223.

[23] See especially Latour, *The Pasteurization of France*.

[24] Cohen, *Colonialism and Its Forms of Knowledge*, especially the chapter first published in 1985, "The Command of Language and the Language of Command," 16-56; Dodson, "Translating Science, Translating Empire" and "Contesting Translations."

[25] Bhabha, *Location of Culture*, 173.

Christian order."[26] But sometimes translation can be deliberately misleading, as in the efforts of the Jesuit missionaries in China to turn *qi* into the elemental matter of 'air' rather than, say, *spiritus,* in order to show that the literati were so this-worldly and in need of Christianisation. Qiong Zhang concludes that "if mistranslation and misrepresentation imply a violence to the source texts and the targeted readers, such a violence in this case was the intended goal from the very beginning."[27]

Translation is, therefore, the process by which information and knowledge is transferred from one place to another, often being altered in the process; it also affects the parties involved, whether speakers or listeners. In other words, change is not incidental to translation but its very essence, even if unintended. Wherever people with different mother tongues interact, or even when people with the same mother tongue but from different places in the world communicate, transformations take place. These deserve to be noted by historians of science as much as by any other historians. Scientific communication does not necessarily imply a universal or underlying meaning to which words and other signifiers point, but nor does it necessarily imply incommensurability. It is a process integral to human communication, in science as in other aspects of life. It is also intertwined with relationships that convey power. The *Book of Nature* is not only being continually read and imbued with new meanings, the many languages of the source text itself are always shifting. The process of translation deserves close attention, and not only metaphorically.

The papers in this volume grew out of a project funded by the Flemish Research Foundation-Flanders (FWO) on how knowledge travelled in the early modern Low Countries, and from two conferences organized in the context of this project, one held in London, at the Wellcome Trust Centre for the History of Medicine at UCL, the other in Ghent at the Centre for History of Science. A collection of related papers concerned with how the movement of objects transported meanings has recently appeared.[28] Here, the focus is on language and words rather than on material objects. The Low Countries were an important locus of what is now called scientific development, of commercial networks that reached

[26] Rafael, *Contracting Colonialism*, 110, 21. On 210, Rafael also cites the anthropological approach of James T. Siegel, who "claims that translation arises from the need to relate one's interest to that of others and so to encode it appropriately. Translation in this case involves not simply the ability to speak in a language other than one's own but the capacity to reshape one's thoughts and actions in accordance with accepted forms." See Siegel, *Language and Hierarchy*.

[27] Zhang, "Demystifying Qi," 101. Also see Zhang, "Translation as Cultural Reform."

[28] Dupré & Lüthy, *Silent Messengers*.

around the world, and of a highly urbanised society comprising unusually diversified skills. They became not only important centres for the production of fine works of art and books, but for what might be termed inter-cultural communication. Situated at the border of the Germanic and Romance languages, home to a highly educated population, many of whom also knew some classical languages, the Low Countries fostered multi-lingualism and consequently translation flourished. The authors here are well aware of the general issues concerned with how knowledge travels, and are especially attentive to the problems related to language, with particular interest in how it was that a multi-tongued *Book of Nature* could be translated and read.

This book is as much concerned with translations from the classical languages to the vernaculars as it is with those between the vernaculars and from the vernaculars to Latin. Attitudes to the status of the translation and the translator with respect to the original and the author differed, partly depending on the language of the original and of the translation, but the conviction of translatability between languages was widely shared in the rapidly developing discourse on translation from the 1550s.[29] Nevertheless, not all languages were considered equally appropriate for the circulation of knowledge. Especially, translators of books and texts to the vernaculars often felt the need to legitimize their undertakings by pleading—ironically in Latin—for the superiority of the vernacular language of destination. A discourse on the superiority of Dutch, for instance, was developed in the Low Countries by authors as diverse as Johannes Goropius Becanus (1519-1573) and the mathematician Simon Stevin (1548-1620). In the opening contribution to this volume Toon van Hal shows that they tapped into a rich discourse on the qualities and shortcomings attributed to languages, their 'virtues' and 'vices' making languages more or less suited for translation.

In practice, of course, differences between languages caused difficulties for translators. In his chapter, Peter Burke raises the question about which rules governed translations, and whether these rules differed from context to context depending upon types of knowledge and language. Burke sees the rise of the concept of 'regimes of translation', which he defines as "the system of conventions according to which translators generally operate in a particular time and place." He agrees with Theo Hermans that literal translations dominated the medieval regime to make way for translations that were freer in the early modern period.[30] In his chapter, which focuses on the circulation of political knowledge between the

[29] Hermans, "Concepts and Theories."

[30] Hermans, "Concepts and Theories," 1424-7. See also Hermans, *Door eenen engen hals*, 18-22.

Dutch Republic and England, Burke illustrates the differences between 'domesticating' and 'foreignizing' translations. Depending upon the regime of translation, translators presented themselves as authors or co-authors with the same status as the authors of the original. The question about when translators become authors returns in several later chapters, in particular those by Felicity Henderson, Arjen Dijkstra and Tim Nicolaije, and is closely connected to the issue of the identity of translators.

As well as the many highly-educated multi-linguists resident in the Low Countries, the presence of an important publishing industry, first in Antwerp in the Southern Netherlands, and later in Leiden and Amsterdam in the North, explains why the Low Countries were a place in which translation flourished. This is the main argument in the chapters by Marialuz Lopez-Terrada and Jose Pardo-Tomas and by Benjamin Schmidt. Of a quite different nature, but also connected to the political boundaries and confessional differences dividing the Netherlands in the sixteenth and seventeenth centuries—is the important role in the production of translations and textual production in Chinese played by the Jesuits from the two Belgian provinces engaged in the China mission, also discussed by Matthias Schemmel in this volume.[31]

Lopez-Terrada and Pardo-Tomas concern themselves with the shift of the centre of gravity of the publishing industry from Antwerp to Amsterdam, caused by the political and religious troubles of the period, illustrated by the fate of the editions and translations of the 'Chronicles of the Indies.' Due to the political union of the Southern Netherlands and Spain, Antwerp was an important centre of publication of information and knowledge on the Americas, producing editions and translations in multiple languages (Spanish, Latin, Dutch, French) in the sixteenth century. Lopez-Terrada and Pardo-Tomas show the effects on the appropriation of the 'Chronicles of the Indies' when the publishing centre moved to the politically disparate, that is, anti-Spanish, Dutch Republic. Nevertheless, just like Antwerp in the sixteenth century, Amsterdam and Leiden in the seventeenth century became centres of publication and translation, catering not just for the domestic market but for an international public that devoured representations of the exotic. Discussing the publication of the *Galerie agreable* by the 'print entrepreneur' Pieter van der Aa (1659-1733) in early eighteenth-century Leiden, Schmidt points to the rise of richly illustrated books. Since images were thought to need no mediation and translation, they were considered perfect vehicles for printed knowledge oriented to international markets, crossing linguistic, political and confessional

[31] Hsia, "Catholic Mission and Translations"; Dew, *Orientalism*.

boundaries. The printer's editorial strategy is also central to Michiel van Groesen's analysis of the De Bry publishing house. The diversification of languages (Latin and the vernaculars) and the use of multilingualism, allowing for manipulations of knowledge adapted to different audiences, were a key element of the editorial strategy of this 'entrepreneur of translation', Van Groesen shows.

The massive movement of classical texts from antiquity into Latin and the vernaculars during the Middle Ages and Renaissance, often via Arabic and Hebrew, has traditionally received much attention from intellectual historians and historians of science and medicine.[32] Here, several chapters concentrate instead on contexts involving the confrontation of erudition with local knowledge. This entailed problems of how to express information and knowledge for which no equivalent was available in learned circles or in the languages they used. The most typical context is that of the encounter with local plants and plant names, in particular outside Europe, as discussed by Florike Egmond. She points out that Latin and vernacular languages and names co-existed in the practice and publication of plant knowledge from the 1550s. This offers an important corrective to the dominant historiography, which has almost entirely focused on the translation movement from Latin to the vernaculars and the so-called rise of the vernacular. Instead, Egmond argues, multilinguism was the norm.[33] While Latin names were used to facilitate international communication, Latin did not have a special conceptual status (in developing a classification) nor did it have a higher status than the vernacular languages or local names for indigenous plants. The naming of plants turns out to be a complex process only rarely involving straightforward translation. The more typical situation was that of inventing a name by combining the local vernacular with a description in Latin or one of the vernaculars.

Structurally similar to the processes of naming in the encounter with indigenous, non-European plants is the invention of vocabulary in the context of the artisanal workshop and the appropriation of this terminology in print and translation when no equivalent in Latin or the vernaculars existed. Karel van Mander (1548-1606), for example, was positive and encouraging about translation, because he considered it a way to enrich the Dutch language.[34] Three chapters in this book discuss such processes of terminological invention in the languages of art and architecture. The first discusses Franciscus Junius's (1589-1677) own translation of his Latin *The Painting of the Ancients* into Dutch. As with the co-existence of

[32] For a recent summary, see Montgomery, *Science in Translation*, part 1; Goyens, Leemans & Smets, *Science Translated*.

[33] On multilinguism, see Weitemeier, "Vernacular Languages"; and Norton, "Cultural Exchange."

[34] Hermans, *Door eenen engen hals*, 8.

Latin and the vernaculars in botany, Thijs Weststeijn points out that bilingual publication was the norm in the literature of art in the early modern period. For the Dutch translation, unlike the English translation which he undertook at the same time, Junius went through considerable efforts to invent a Dutch language of art, and when Van Mander's ground-breaking work on Northern art theory did not offer a terminological repertoire, he relied heavily on the vocabulary used in artists' studios. In his contribution on Van Mander, Paul Taylor shows that Van Mander himself used very few Italian terms because he had at his disposal a large and rich body of words in Dutch to more than adequately fill the semantic field. It is more difficult to say which were the words used on the architectural construction site, as Krista de Jonge points out in her chapter on translations of Renaissance architectural treatises in the Low Countries. She shows that Pieter Coecke van Aelst's (1502-1550) translations of Vitruvius and Serlio preferred a sort of Greco-Latin terminology, which Coecke considered 'universal' in crossing geographical and social boundaries. In the Dutch Republic, however, Salomon de Bray's (1597-1664) and Stevin's preference for supposedly more Dutch-sounding equivalents replaced Coecke's search for a 'universal' vocabulary.

Another issue is that of the identity of translators. This question has been central to much of the work on the cultural history of translation, initiated by Burke, who notes the significant percentage of translators who were, as immigrants, perfectly suited to serve as go-betweens.[35] This is connected to the question of visibility and authorship, which is central to recent work, which emphasizes the instability of print as well as the processes of differentiation between authors and 'invisible technicians.'[36] The question of the visibility of translators and their claims to authorship allows us to unpack the role of translators as go-betweens. Hermans has outlined the already vigorous early modern debate on the status of translators with respect to the authors of translated texts—with authors and translators arguing for different positions.[37] For us, the questions are: when was the translator named in the translated text? Under which conditions was he named as the translator, the co-author or even the only author masking the original author? In recent discussion of local and indigenous knowledge, the role of interpreters in the circulation of knowledge has been emphasized.[38] It has become clear, as several contributors to this volume also stress (especially Egmond and Antonio Barrera-Osorio), that the borderline between translators and interpreters is fluid.

35 Burke, "Cultures of Translation," 14.
36 Johns, *Nature of the Book*; Shapin, "Invisible Technician."
37 Hermans, *Door eenen engen hals*, 11-2.
38 Cooper, *Inventing the Indigenous*.

This raises questions about the visibility and status of interpreters with respect to authors similar to those asked about translators and authors: why and when did interpreters become visible? Under which conditions were they identified as translators?

This book does not give a definitive answer to the question of who the translators were in the Low Countries. A response would only be possible on the basis of a complete overview of all translations undertaken in the Low Countries in the sixteenth and seventeenth centuries. Such an overview, including the identification of all translators, does not exist. Nevertheless, some of our authors explore telling cases of translation projects that give insight into the choice and identity of translators. Henderson analyzes the translation of the correspondence of the Dutch microscopist Antoni van Leeuwenhoek (1632-1723) with the Royal Society, "the largest and longest-running translation project undertaken by the early Royal Society." She demonstrates how the Royal Society made a choice of translators not on the basis of their subject knowledge but because they were competent in Dutch. Some had a clear cultural background in the Dutch-speaking world, which underlines Burke's point that immigrants functioned as ideal go-betweens. However, while translation was a collaborative effort in the Royal Society, native Dutch speakers were often only consulted in cases of difficulties. It seems important that translators could serve the Royal Society in more than one role and support the Society's mission. Henderson suggests that we should consider the election of some translators as Fellows of the Royal Society against this background.

With the next two chapters we return to the Dutch Republic. The question of authorship is central to the contribution of Dijkstra. He portrays the publication output of Adriaan Metius (1571-1635), professor of mathematics at the University of Franeker, as that of an 'entrepreneur' who issued, translated, reprinted and re-translated the books of which he was the author. While Metius himself translated his work early on in his career, once his name was established, he engaged his students as translators. They played a secondary role to Metius in terms of visibility of these translations, but at the same time, Dijkstra argues, the translations launched them on a career of authorship of mathematical books in their own right. The protagonist of Tim Nicolaije's chapter, Abraham de Graaf (1635-1713), teacher of mathematics in Amsterdam, also authored publications under his own name. Nicolaije deals with a special identity of the translator: the educator who, like the translator, transformed the knowledge he published and transmitted.

All contributions to this book deal with the transformation of knowledge in the process of translation, but the chapters in the last section concentrate on this aspect. Barrera-Osorio shows how in their translations of Spanish texts Carolus Clu-

sius (1526-1609) and Johannes De Laet (1589-1649) not only transposed the texts in another language (Latin, Dutch, French), making them available to a wider, more international audience, but also selectively appropriated their source texts to fit the model of the compendium. As it turns out, these Netherlandish translators (unlike, for example, the English who were also interested in the Spanish empire as a political model) showed an outspoken predilection for information and facts about the New World. Barrera-Osorio argues that the translations helped to legitimize the empirical practices of the new science. The chapter by Britt Dams demonstrates that it would be too simplistic to cast such translation and knowledge practices in terms of national traditions. She also focuses on De Laet and his selective use of materials from first-hand witnesses, Georg Marckgraf (1610-1644) and Willem Piso (1611-1678), leading De Laet's translation to highlight the descriptive information on Dutch Brazil. However, she contrasts De Laet's with the translation of Caspar Barlaeus (1584-1648), who made use of the same source texts, though with different results as his publication wished to celebrate the reign of Johan Maurits van Nassau-Siegen (1604-1679).

The final chapters by Philippe Selosse and Schemmel are attentive to changes in the process of translation, with transformative consequences for the development of science. Selosse focuses on a type of translation, from the vernacular into Latin, which until recently received little attention from historians.[39] As in Barrera-Osorio's chapter, the central character in Selosse's contribution is Clusius. Selosse shows how Clusius's translation of Pierre Belon's (1517-1565) French lead to the construction of the interdependent concepts of (higher) 'genus' and (lower) 'species' which would play such a transformative role in the taxonomy of plants and animals. Schemmel brings out how the translation of Stevin's work on mechanics into Chinese—as part of the translation movement of the Jesuit mission—did not so much create transformations in concepts (as in the Clusius example) as they did in the structure of knowledge. Stevin's text was structured into definitions, theorems, postulates and propositions, but this deductive structure disappeared in the translation from Latin to Chinese.

What we have, then, are many and various historical examples that enable us to think about the vocabularies and grammars in which the *Book of Nature* was written. Mastering the difficulties of those languages required erudition of many kinds, while trying to find matches in other tongues sometimes led to changes in how the original was understood. Perhaps in some senses incommensurability between ways of knowing existed, but that did not prevent those who had the ca-

[39] Burke, "Translations into Latin"; Ijsewijn, "Latin as lingua franca."

pacity and interest from plunging into the problems of translation. The diversity of original languages in which the *Book of Nature* was written coupled with the enduring belief that it remained a single book established the necessity of these attempts. In speaking on behalf of the *Book of Nature*, translators constantly invented and revised the languages employed to explore and record science. In the course of trying to establish stable source and target texts, the means of communication transformed meanings. This book argues that this process played a significant role in the making of knowledge.

Language and Rules of Translation

Virtues and Vices Ascribed to the Dutch Language

Toon van Hal

Introduction and Aims

An 'untrained choirboy in the shadow of the lead singer', the 'weak echo of a resonant voice', a 'polluted river emanating from a pure spring', or—most famously—the 'reverse side of a tapestry'. These are just some random examples picked from among the many images that were in vogue during the early modern period used to characterize the essence of a translation. This small inventory of metaphors, some of which can be traced back to antiquity, suffices to demonstrate that translations were habitually considered inferior to originals. While translatability as such is never questioned, a faultless and impeccable translation was considered to be impossible. Whereas translating was generally seen as a useful, worthwhile and praiseworthy activity, the translation itself was bound to do worse than the original. This was ascribed to the original's brilliance, to the translator's lack of talent, or to the differences between the languages and cultures involved.[1]

The present contribution will focus on the last point. As a matter of fact, the act of translating texts implies the belief that one language can be successfully translated into another language. To what extent, however, were early modern scholars aware of the differences between the languages concerned? Are languages regarded as merely distinct nomenclatures (sharing identical structural features), or are they considered fundamentally different? For the transmission and translation of knowledge, this issue was not without importance, given that early modern scholars did not assume all languages were equally suitable for expressing scholarly thoughts.

Broadly speaking, nowadays languages are compared from two different perspectives. A number of scholars are interested in the genealogical connections be-

[1] This paragraph heavily draws on the accounts given by Haßler & Neis, *Lexikon* (subheading 'Translation'); and Hermans, "Concepts and Theories." Hermans, "Images of Translation," offers an extensive survey of metaphors used to describe what a translation is like.

tween languages. Historical-comparative linguistics aims at establishing language families and at reconstructing extinct languages by comparing their daughter languages. In typological linguistics, on the other hand, languages are compared in view of their structural features, irrespective of their historical background or genealogical affiliations. Both of these approaches were given an initial impulse during the Renaissance. On the one hand, Renaissance scholars, faced with a considerable number of languages previously hardly known, tried to classify them into several language groups. Most attempts consisted of a demonstration proving that all languages ultimately stemmed from Hebrew (the alleged *lingua Adamica*). On the other hand, early modern scholars contrasted certain languages in terms of their typical features and characteristics, thus foreshadowing to some extent both contrastive and typological linguistics. Generally speaking, early modern scholars tried to achieve this goal either by highlighting the virtues of their native language, or by downplaying the importance of other nations' vernaculars. As a result of these two complementary strategies, several European and even Eastern languages were often compared and contrasted in terms of their *qualities* and *shortcomings*. Although this paper focuses on Humanist pleas in favor of the Dutch tongue, apologetic treatises in support of other languages cannot be ignored as they show how the defenders of Dutch differed from the advocates of neighboring languages.

After a brief survey of the cultural and historical background against which these polemical debates on (the lack of) a language's qualities were held, their main Dutch protagonists are succinctly presented. The main part of this paper will systematically discuss the criteria employed by scholars when they attempted to either upgrade or downplay a certain language. This will then allow me to assess to what extent the argumentation put forward in favor of Dutch differed from the set of arguments used to defend other languages. After these reconsiderations, I will concisely consider the impact of the discussions held by early modern Dutch scholars upon the following generations of linguistic thinkers.

Historical Background and Main Protagonists

The early modern emergence of new political entities resulted in an increase in national self-consciousness. Paradoxically, Humanism, in itself a supranational movement, sparked considerable interest in the issue of national identity. In this connection, Karel Bostoen refers to an 'international kind of nationalism'. It is a thorny question whether the designation 'nation' and its derivations ('national', 'nationalism', 'nationalist') apply to the early modern period or not. Whereas

modernist theorists tended to expose 'nationalism' as a mere eighteenth–century construction (cf. Benedict Anderson's 1983 *Imagined Communities*), more recent scholars such as Anthony Smith, while still acknowledging that nationalism as a political movement was an eighteenth-century phenomenon, have drawn attention to some undeniable national tendencies and sentiments in the preceding centuries. In this paper the term 'national' is used for convenience's sake. In Germanic-speaking countries, national pride received a substantial boost after the late fifteenth-century discovery of the Latin dissertation *de Germania*, whose author Publius Cornelius Tacitus drew positive attention to the high moral standards of the Germans. Irrespective of several real wars waged between the new powers, Europe became the scene of a cultural battle as well, in which the players aimed to demonstrate their artistic, literary, and intellectual superiority. Of course, the vernacular languages also had an important role to play in this rivalry for prestige. In addition, the rulers of the new states regarded a strongly centralized language as a valuable political instrument for consolidating their territorial expansion. In other words, by ascribing (alleged) virtues to their own (standardized) vernaculars, language communities attempted to make themselves less vulnerable to internal or external conflicts.[2]

Before outlining some recurrent qualities ascribed to the Dutch language in the early modern period, it might be enlightening to briefly introduce the main Humanists of the Low Countries who expressed their opinion on the matter. Today, Johannes Goropius Becanus (1519-73) is more notorious than famous. Having obtained a degree in medicine at the University of Louvain, Jan van Gorp became a private physician at the Spanish Court. After his return to the Low Countries, he established himself as a physician in Antwerp, where he became a close friend of bookbinder Christopher Plantin (c.1520-89) and a shareholder in his future book printing business. In 1569, Plantin published Goropius's comprehensive survey of Antwerp's history, glorifying its past, present and, above all, its language. More specifically, Goropius attempted to demonstrate that not Hebrew, but Dutch (in his own terminology: 'Cimbric') was the oldest language on earth. Although highly controversial, Goropius's ideas thus paved the way for other advocates of the Dutch language. One of them was the Bruges-born mathematician and engineer Simon Stevin (1548-1620), who actively strived for the

[2] See Bostoen, "Wetenschappelijke grondslag," 148. As to the question of early modern nationalism, see Lawrence, *Nationalism*, for a very convenient state of affairs. I am indebted to Han Lamers for this reference. In cautiously subscribing to Smith's theory, my approach differs from Rutten, *Archimedische punten*, 316-32, who rather pleads in favor of Anderson and argues against Smith.

adoption of Dutch as a medium for transmitting scientific knowledge. To this end, Stevin published some short essays. A son of one of Stevin's best friends, Hugo De Groot (1583-1645), became internationally known for his juridical and political work, which was strongly rooted in historical and philological interests. In his early years, and most likely under the strong influence of his father, De Groot, or Grotius started writing *Parallelon rerumpublicarum libri*. At a later age, however, Grotius abandoned this ambitious comparison of Greek, Latin and Dutch society, so the first two books failed to materialize. In the third installment of his comparative study (which remained unpublished until 1801-1803), Grotius included a comparison of the languages spoken by these three nations. Adrianus Schrieckius (1559/1560-1621), far less known than Grotius, was city counselor in Ypres at the service of the archdukes Albrecht and Isabella and wrote in his leisure time on the (pre)history of Europe, from ancient times to the Middle Ages. As he regarded Hebrew as the oldest language, his works did not go as far as those of Goropius. Nevertheless, in his view, Dutch held the second position, right after Hebrew. More or less the same ideas, albeit with more moderate arguments, are put forward by Abraham Mylius (Van der Myl; 1563-1637). After finishing his theological studies, Mylius became involved with the 'Remonstrant' movement. In 1608 he was banned from preaching and spent the rest of his life in Dordrecht writing theological works, most of which remained unfinished or unpublished. A book he devoted to language, however, was published in 1612 (*De lingua Belgica*). Finally, the Dutch historian Petrus Scriverius (1576-1660) was the author of a famous panegyric on the Dutch language. These programmatic *Voor-reden* appeared as an introduction to Daniel Heinsius's (1580-1655) even more famous *Nederduytsche poemata* (1616).[3]

Yardsticks of Linguistic Evaluation

Which virtues and vices have been ascribed to languages in general, and to Dutch in particular? Humanist scholars put forward various and to some extent contradictory qualities. I will distinguish aesthetic, linguistic-structural and functional criteria, as well as what could be referred to as a distributive criterion, resulting in

[3] The majority of the humanists mentioned here are thoroughly discussed in Hal, *Moedertalen en taalmoeders*. Simon Stevin's contribution in this respect will not be dealt with in full detail, as his views have already been widely discussed (see, for instance, Wal, "Logic, Linguistics, and Simon Stevin"). Additional, yet more succinct eulogies on language are included in the anthology of Hagen, *O schone moedertaal.*

a retrospective classification, as the early modern scholars themselves obviously did not make these distinctions.[4]

Given their subjective nature, aesthetic claims are difficult to validate. For instance, the *euphonia* of a language was often praised, and its pronunciation was labeled as 'friendly', 'sweet', and 'soft'. Goropius vaguely praised the *summa quaedam pronuntiationis lenitas* ("the supreme sort of smoothness of the [Dutch] pronunciation"). Mylius, after having shown that Dutch and Greek are related, or nearly identical even, rejected the (apparently wide-spread) preconception that Dutch was an unpleasant language (*mera insuavitas*) that had no more in common with Greek than tasteless beets have with honey.[5]

Regarding the functional aspect, the learnability of languages was repeatedly assessed. This criterion could be applied to support two different, somewhat opposing views. Both Goropius and Mylius stressed the ease with which speakers of Dutch succeeded in learning languages other than their native tongue. Goropius stated that many speakers of Dutch had a nearly perfect command of Spanish, Italian, French, German, Latin, and Greek, thus spectacularly outclassing the famous Roman poet Ennius, a speaker of Latin, Greek, and Oscan, who boasted of being 'tricordial', but who would have felt dumb [Lat. *excors*, etymologically 'heartless'] if he would have known the linguistic skills of the Dutch. In line with Goropius, Mylius goes so far as to call his Dutch fellow countrymen language sponges:

> In addition, no single nation would speak so many foreign languages in such a correct way as the Belgians do, not only with regard to the words themselves and to the genuine phrases, but equally—and that is more complex—with regard to the native-like pronunciation of each language, inclusive of sounds, rhythm and all tempers of a word. Maybe a fairly ingenious one would learn one or two languages, but only a truly exceptional foreigner will learn more languages in a perfect way. [... Every speaker of Dutch], including women, artisans, and sailors, will speak all languages of those communities he has recently become acquainted with so perfectly, that he seems to be a member of the same community. [...] I would almost call my Dutch fellow a language sponge. Just like a sponge perfectly absorbs all kinds of liquids, he absorbs languages.

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4 This classification elaborates on those proposed by Wal, *Moedertaal centraal*; Hüllen, "Good Language" and "Characterization and Evaluation"; and Hundt, *Spracharbeit*.

5 Wal, *Moedertaal centraal*, 45. Goropius Becanus, *Opera* [*Hermathena*], 26; and Mylius, *Lingua belgica*, 44: "Imprimis quam loquimur crebro Graece? Nos illi Belgae, quorum lingua, prae ceteris, esse mera insuavitas videtur, ac praesertim non plus sapere suavissimae linguae Graecae quam betae insipidae mellis? Immo Graece nos loquimur saepissime, si quid in eo laudis. Mechanici nostri, nostri rustici, nostrae feminae, pueruli nostri (quis Gallus aut Italus crederet?) multoties loquuntur Graece." See also Scriverius, "Voor-reden," 11, 20.

As an aside, it is worth noting that Mylius explicitly stated that all Dutch possessed the quality of learning languages, including women, artisans, and sailors. One of the key arguments most often used against the existence of a nationalist-like Renaissance and Post-Renaissance *Sprachkultur* consists in arguing that the vernacular languages have been cultivated and promoted by elitist groups within a linguistic community, and that they did so in the first place in order to distinguish themselves from lower 'strata' within the same society by displaying that they were able to compete with other elitist groups belonging to other linguistic communities. While it can be questioned that making sociological distinctions within one and the same linguistic community by definition excludes national tendencies, it is interesting to read that Mylius explicitly ascribes this alleged quality of Dutch to its entire community and that he regards this sociological homogeneity as an additional asset. The young Hugo Grotius, on the other hand, was not enthusiastic at all about the Dutch eagerness to learn other languages, denouncing it as a mere waste of time. He advised his fellow countrymen to follow the example set by the Greeks, who were so proud of their own language that they simply ignored all other languages: "they did not waste their time with words, but they used it for learning things. They entirely and unrelentingly devoted their studies to the arts. This explains their revenue and glory, this explains their proverbial ingenuity."[6]

From another perspective, it could be argued that it is an admirable quality in

[6] The examples offered in this paragraph complement those given by Wal, *Moedertaal centraal,* 47-8. The original Latin texts read as follows: "Ennius tria se corda habere iactabat, quoniam tres diversas linguas teneret, Latinam, Oscam, et Graecam, fortassis excordem se dicturus, si scivisset quamplurimos, et prope infinitos nostrates esse, qui praeter Cimbricam, Hispanicam, Italicam, Gallicam, Almanicam, duas alias, Latinam et Graecam, optime norunt; quorum non pauci sic efferunt singulas, ut iss vernaculas esse credas" (Goropius Becanus, *Origines Antwerpianae*, 565-6); "Nulla aeque natio tot linguas peregrinas tam exacte expresserit, quam Belgae. Aeque ipsa vocabula, non modo et genuinas phrases, sed quod difficilius est, ipsam nativam uniuscuiusque linguae pronuntiationem, ad sonos, variam modulationem, vocisque affectus omnes usque. Unam aut alteram forsan linguam peregrinam discat bene ingeniosior peregrinus aliquis, sed ut plures discat exacte, rara illa erit avis. [...] Belga, inquam, talis usque ad mulierculas, opifices, et socios navales, tam perfecte loquetur linguas omnium illarum nationum, cum quibus justo aliquo tempore consuetudinem coluit, ac si ipse nationis eiusdem esset. [...] Dixerim fere Belgam meum spongiam linguarum, ut ista perfecte humores omnes, sic ille linguas recipit" (Mylius, *Lingua belgica,* 69-70, 147); "Quamquam Latini Graecas quoque litteras didicerunt, Graeci vero non nisi suas, nec aetatem in verbis perdiderunt, qua res potuerant discere. Sed integra studia et illibata ad artes contulerunt. Hinc illa seges, et materia gloriae; hinc illis sollertiae nomen" (Grotius, *Parallelon rerumpublicarum*, 69-70). See also Scriverius, "Voor-reden," 4; and Wal, *Moedertaal centraal*, 11-2, 54-5. According to Rutten, *Archimedische punten*, 316-32, the external, 'international' competition between authors of different linguistic communities promoting their own vernaculars primarily served to stress an internal, sociological demarcation.

a language, if non-native speakers can master it with relative ease. The English scholar Richard Carew (1555-1620) was probably the first to attribute this quality (‘*facilitas*’) to a vernacular language. With regard to the classical languages, Hebrew was traditionally seen as an unproblematic language, although true specialists such as Josephus Justus Scaliger (1540-1609) acknowledged that at a more advanced level Hebrew was not undemanding. Goropius explained the multilingual ability of Dutch speakers by referring to their controlled and careful use of the speech organs, and to the rich set of sounds the Dutch language requires. Hence, learning Dutch appears to be quite difficult for non-native speakers.[7]

Furthermore, most Dutch scholars who intended to show that the Dutch language fulfilled all necessary conditions for functioning as a literary or a scholarly language often alluded to its structural qualities. At this structural level, one could, in retrospect, distinguish morphological, lexical and phonic qualities. Inflected languages were generally held in high esteem, as they were seen as grammatical languages, whereas an uninflected language was considered ungrammatical. Depending on the language being promoted, grammatical languages were regarded either as cultivated or affected, and non-grammatical languages either barbarous or simply natural. Obviously, the advocates of Dutch, an (almost) uninflected language, did not stress the importance of a case system. Moreover, Grotius pointed out that Latin and Greek possessed more cases than strictly necessary, which is supported by Hebrew, which has no cases. Most scholars underscored the outstanding ability of the Dutch language to derive words and create compounds. Stevin in particular elaborated on this significant characteristic. Grotius, while admitting that the Greeks were more successful in compounding than the Romans, declared that in this respect they were strongly inferior to the Dutch. Mylius expressed the same opinion, albeit in more cautious terms: he asks his readers with a command of both Dutch and Greek to stand up and witness that “does our language not almost snatch this palm from the Greek.”[8]

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7 On Carew, see Hüllen, “Characterization and Evaluation,” 242. Klein, “Entstehung der komparativen Linguistik,” 17, discusses Hebrew’s alleged simplicity. For Scaliger’s objections, see Hamilton, “Scaliger the Orientalist.” For Goropius Becanus’s ideas on Dutch language acquisition by foreigners, see his *Opera* [*Hermathena*], 26-7.

8 Grotius, *Parallelon rerumpublicarum*, 66, on cases: “Ne illud quidem tacendum plures apud Latinos et Graecos nominum casus esse quam necesse est, quod vel Hebraeis iudicibus pervincemus.” As to word composition, Grotius, *Parallelon rerumpublicarum*, 65, reads as follows: “Graeci in connectendis vocibus feliciores, ut quorum studia id postulabant, cum Philosophia, tum Poësis. Possunt itaque hac laude, quae certe non minima est, Germanis esse proximi, sed longo tamen intervallo,” while Mylius, *Lingua belgica*, 45, states: “Palma tribuitur Graecae prae aliis fere, quod tam sit felix in apta et significante duarum vocum in unam compositione. Testor

Judging from what most champions of Dutch maintained, this language's most significant trump card was its impressive number of monosyllabic words. A revealing remark made by Goropius reads: "In our language, you will find hardly any word consisting of two syllables which does not stem from elsewhere and which is not a result of derivation, declension, conjugation or composition." This point of view was also adopted by Mylius and Grotius, and was lent further support by Stevin, who compiled two lists of monosyllabic words, for which he largely relied on an unfinished draft of the *Twe-spraack*, the final, published version of which (1584) had been abbreviated. Other advocates of the superiority of monosyllabicity were Petrus Montanus (1594/95-1638; Peter Berch) and Johan De Brune (1588-1658).[9]

Goropius cannot be credited with having introduced the idea of monosyllabicity as an exceptional virtue in the early modern metalinguistic discussions, since the Swiss scholar Beatus Rhenanus (1485-1547) focused on the considerable number of monosyllabic German words as early as 1531. Nevertheless, the theory did not seem to gain momentum until after Goropius had undertaken his remarkable works. Via Goropius and his Dutch supporters, the theory spread throughout Europe and was once again adopted by German scholars such as Justus Georg Schottelius (1612-76) around 1650. The advantages of monosyllabic words were manifold. First, ancient rhetorical theory promoted the virtue of *brevitas* ('conciseness'), albeit for a text rather than for a language. Second, monosyllabic words ensured an efficient way of communicating. The German scholar Christianus Becmannus (Christian Becmann; 1580-1648), however, questions the advantages of monosyllabicity, arguing that longer words clarify their meaning more aptly than short ones. Grotius even stated that it is crucial for hunters to call their dogs with names which are as short as possible, in order that they would obey as swiftly as possible. Finally, Goropius argued that simple, short words represented simple things, while compounds served to designate complex things.[10]

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utriusque callentes, an non nostra hanc palmam ferme Graecae praeripiat?"

9 "In nostro sermone nullum fere vocabulum invenias, quod quidem non aliunde vel derivatione, vel declinatione, vel coniugatione, vel compositione defluxerit, duabus syllabis constans" (Goropius Becanus, *Opera [Hermathena]*, 26); Mylius, *Lingua belgica*, 87. Grotius, *Parallelon rerumpublicarum*, 64: "Itaque si fieri posset, vellem non plures literas esse, quam sunt voces. Id quoniam fieri non potest, proximum est, ut verba nominumque potissima una syllabi contineantur, in themata scilicet, quam Latini quidam positionem, Iudaei radicem vocant"; Dibbets, *Twe-spraack*, 35. For additional information, see Hulsker, "Petrus Montanus"; Jansen, *Brevitas*; and Wal, *Moedertaal centraal*.

10 Krop, "Antiquity of the Dutch Language," wrongly ascribes the invention of the monosyllabicity principle to Goropius Becanus. Becmannus, *Manuductio*, 168, reasoned as follows: "Assero

This leads to an additional quality formulated by a number of scholars: the formal transparency of a language. With or without direct reference to the age-old discussion of the correctness of names exemplified by Plato's Cratylus, it was argued that in an ideal language the form of a word should clarify its meaning. Apart from Goropius, who made the observation that the inversion of many Dutch words resulted in the inversion of their meaning, this virtue was stressed by Schrieckius in particular. After investigating in which languages words clearly reflect their meaning and in which languages they do not, he concluded that, besides Hebrew, Dutch possessed this exceptional quality. In other words, Schrieckius was convinced that in Hebrew and Dutch the object (*res*) maintains a natural and motivated connection to its verbal designation (*verbum*). For Goropius this property even had moral implications as he suggested that knowledge of the Dutch language led to ethical and religious insights. In Stevin's opinion, Dutch was the oldest language to have survived from a now lost golden age ('de wysentijt'; 'the wise men's age'). The language would display a considerable measure of transparency when all foreign influences (such as Latin, Greek, or French borrowings) were rejected. This concept was also adopted and elaborated by Jacob Willemsz Verroten (1599-1638) in a translation of Euclides (*Zes eerste boekken, Van de beginselen der Wiskonsten*, 1633).[11]

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iam contra illum [sc. Goropium Becanum]: 'Longa potius, quam breviuscula id praestant. Igitur his potiora sunt.' Quia inter signum et signatum quo maior analogia; eo melior. Iam utra proportio, eane, quae inter 'syllabam unam et rem'; an illa, quae inter 'plures syllabas et rem eandem', maior sit, unusquisque, nisi Hypsea caecior, videt. Plures enim ut lineae clarius imaginem aliquam exprimunt. Ita plures litterae et syllabae rectius ipsam rem significant, quam una syllaba, qua idioma Germanorum magnam partem continetur. Ita vox, Iehovah, significantior est Germ. Gott. Quia eum significat, qui et est et fuit et erit, id est, infinitum atque aeternum." As to Schottelius's reception of the monosyllabicity theory, see Kiedroń, *Niederländische Einflüsse*, and McLelland, "Justus Georgius Schottelius." Grotius, *Parallelon rerumpublicarum*, 64, reads as follows: "Ita linguae laus prima censenda est, exprimere quam minime mentem. Neque enim minor est gloria cito posse docere quam discere. Quid enim est utilius, quam plurima notari paucissimis, lucro laboris et temporis? [. . .] Venatorum quidem ea sollicitudo est, ut quam brevissimo nomine canes suos appellent, ne vocari se tardius audiant."

[11] Goropius Becanus, *Opera [Francica]*, 73, on the conversion of words: "Proprium autem linguae nostrae est, voces plurimas retro vel pronuntiatas vel lectas id notare quod maxime facit ad notitiam eius quod prorso litterarum ordine significabatur, quod vel contrarium est vel necessario consequens prioris." Schrieckius, *Van t'beghin [Introductio]*, fol. 4v, reads as follows: "Videamus nunc qua in lingua sint nomina, quae existentia pronuntient ut existunt, eoque modo veritatem investigemus; quibusque aliis in linguis nomina sint quorum voces existentia vocant ut non existunt, quo falsa omnium oculis exponamus. [. . .] Hanc proprietatem fuisse in lingua primogenia quae post Hebrum dicta fuit Hebraica, et in eius permansit progenie [. . .] est pro fide. Verumetiam eandem proprietatem post confusionem mansisse in ea lingua quae per de-

The concept of lexical richness as a virtue of a language, which can be traced back to the Roman philosopher and orator Cicero, was a rather controversial parameter. Some scholars considered lexical diversity to be an asset, whereas others clearly favored simplicity and purity. For example, before 1570 speakers of English, a language which contained many loanwords, seemed to have a linguistic inferiority complex, referring to their language with unfavorable epithets such as 'rude', 'gross', 'barbarous', 'base', or 'vile'. But rather than denouncing the many loanwords in English, the previously mentioned British scholar Carew maintained that they should be welcomed into the vocabulary as these borrowings contributed considerably to the enrichment (and thus ennobling) of the English language. Carew thus regarded the *copia verborum* as an outstanding benefit of a language, whereas the Frenchman Claude Duret (c.1570-1611) greatly appreciated the soberness of the Hebrew language. Some authors condemned the limited lexical capacity of the French language, whereas others saw this as a significant advantage.[12]

Among the Dutch scholars the points of view also diverged. Goropius, on the one hand, was an ardent supporter of a rich lexicon, since a comprehensive vocabulary guaranteed the maximal elimination of homonyms. The more elaborate a language's lexical set, the less obscure this language became, as homonyms caused many misunderstandings and confusion. In Hebrew dictionaries, for example, it was hard to find any entries of words with only one single meaning. Schrieckius, on the other hand, lent less weight to richness that was supposed to avoid misunderstandings, stating that Hebrew's ambiguities did not prevent the language from mirroring the original Adamic condition. To illustrate his point, he argued that since a very limited set of notes is sufficient to compose marvelous musical masterpieces, the same holds for a language:

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scensum Iapheti Europae facta est universalis, omnino asserimus." As to the ethical lessons to draw from Dutch, compare Goropius Becanus's characterization "in qua vocum radices cum rerum naturam exponunt, tum praecepta continent ad vitam bene recteque instituendam apprime necessaria" (Goropius Becanus, *Opera [Gallica]*, 106); "Perfectissimam autem eam dicimus quae quam apertissime, et quam brevissime, una cum sono convenientissimo, imagines animi, et earum compositionem dat intelligendas. Cui si hoc accedat, ut eas rerum notas habeat quae non solum significent res ipsas, sed de iis illa etiam consideranda exhibeant, quae quam plurimum afferant utilitatis audienti, vel ad naturae cognitionem, vel ad recta vitae morumque instituta, vel ad eam quae ad primam causam tendit solutionem, quid erit amplius de primati eius haesitandum?" (Goropius Becanus, *Opera [Hermathena]*, 24). On Verroten, see Wal, "Verrotens taalbeschouwing."

12 On English, see Bailey, *Images*, 44; and Hüllen, "Good Language," 323. On Duret, see Céard, "De Babel à la Pentecôte," 578. Kibbee, "Renaissance Notions," 47, and Schunck, *Sprachwandel*, 63, discuss the views on the French lexicon.

It is not more surprising that this arises from such a limited set of simple elements. The same holds for the numbers, as we observed together with Pythagoras. As a matter of fact, the harmonic Nature of the entire Universe is based on very few, viz. nine or thrice three elements. This is proven in music, given that infinite and unlimited melodies emerge from the ternary number in particular.

Scriverius stressed that the Dutch language was rich as well as pure and unmixed. Furthermore, richness was a quality that not only applied to a language's vocabulary, but also to its set of *elementa* ('sounds', often equated with 'letters'), which were sometimes said to create wealth. Goropius, apart from being proud of the many diphthongs the Dutch language contained, was convinced that the letter *double u* was a Dutch exclusivity, although Carew made a similar claim for the English language. Incidentally, it might be interesting to note that it is probably no coincidence that the letter *w* (which does not belong to the classical Latin alphabet) appeared in the title of Goropius's first *opus* (*Origines Antwerpianae*, 1569). It is likely that Goropius urged the printer to spell it that way, as in the text itself and in other publications the word is written as *Antuerpiana*.[13]

Venerable antiquity and extensive geographical dispersal were external, distributional arguments in favor of the Dutch language. In order to command the respect of other languages, a language should provide some proof of its own *antiquitas* and of its stability. In this respect, Jean-Claude Dubois stated: "the hier-

[13] Goropius Becanus, *Opera [Hermathena]*, 25: "Verum ex eo ipso colligitur, tanto minus obscuritatis in linguis fore, quanto maior fuerit copia verborum sigillatim res significantium, quae quam potest proxime ad rerum multitudinem accedat. [...] Hinc tanta interpretum eius discordia, tot obscurae incertaeque de verborum orationumque intelligentia coniecturae: quas qui compendio novisse volet, lexica ipsorum consulat, in quibus paucas voces videbit unius dumtaxat notationis." Schrieckius, *Van t'beghin [Introductio]*, unnumbered page, reads: "Linguae Hebraicae, Sacrae et primogeniae, omnis origo debetur; et licet ambigua sit, in diversum trahi potest, proprietas sua tamen sibi maneat salva et integra. [...] Alius rogavit, cur praepositionibus tantum tribuerim, et mirari quem posse quod ex tam paucis vocibus originalibus, ostendi posset innumerabilium nominum et rerum proprietas. Respondi, Hebraeis e quibus originem nostram ostendimus, id esse vulgare. Nec magis mirandum esse ex tam paucis simplicibus id fieri, quam illud quod ex Pythagore observatione vidimus in numeris. Nam ex paucissimis, scilicet novem vel ter ternis, constat harmonice Natura totius Universi. Quod per musicam plane probatur, cum praecipue ex numero ternario, fiant infinitae et innumerabiles consonantiae. Sic etiam fieri in lingua hac nostra primogeniae proxima." See Scriverius, "Voor-reden," 11. Goropius's theory of diphtongs is introduced in *Opera [Hermathena]*, 25: "Ut autem et brevissima esset et copiosissima, quod mirabile videtur, inde consecuta est, quod pluribus constet elementis, quam ulla ceterarum. Dipthongos enim plures multo habet, quam aliae, et omnes pariter ceteras una consonante superat, quam duplex digamma licet vocare. Quanto autem plures sunt litterae, tanto plures erunt earum complexiones, et inde pluria vocum discrimina." It is further elaborated upon in Goropius Becanus, *Opera [Hermathena]*, 55.

archy of languages seems to be modeled on the hierarchy of 'states' in the Ancien Regime. Titles of nobility are based on seniority and are transferred by birthright." Mylius suggested that some languages were as perishable as hay, whereas the good ones were as stable as precious metals. German(ic)-speaking scholars often denounced the Romance languages as mere Latin corruptions by labeling them so-called 'spume' (*spuma*) languages. Whereas the origin of the Romance languages was well-known, the background of the Germanic languages was rather unclear. None of the Dutch Humanists, however, went as far as Goropius. Mylius, Schrieckius, and Scriverius explicitly or implicitly regarded Hebrew as the oldest language. At a later stage, there was much debate among German, Dutch, and English-speaking scholars, as they all tried to demonstrate that their dialect was the most time-honored. The German scholar Andreas Helvigius (1572-1643), for instance, not only considered Dutch a *spume* language, but associated it with bastards, diseases and toddlers. Arend Van Slichtenhorst (1616-57) is probably referring to another author still, when he rejects the claim by "a certain smart alec and audacious author," who "recently ventured to pretend that the Dutch language would be a spume language with regard to the German one, corrupted by foolish women's lisping or stammering." Schottelius in turn considered English a *spume* language.[14]

It should be emphasized that a respected antiquity was more than just one of the qualities a language could be proud of. Indeed, the prevailing idea was that the oldest language must have been a perfect language. In other words, scholars who regarded their own language as the oldest were often in search of the qualitative characteristics underpinning this antiquity. Consequently, arguments formulated to promote the qualities of a given language were also directly or indirectly used to increase its age and antiquity. In sum, antiquity and quality went hand in hand. The majority of scholars regarded monosyllabicity, for instance, as a chief indica-

[14] See Dubois, *Mythe et langage*, 62: "La hiérarchie des langues semble se calquer sur la hiérarchie des 'états' dans la société d'Ancien Régime. Les titres de noblesse sont fonction de l'ancienneté et se transmettent par droit d'aînesse." Mylius, *Lingua Belgica*, 145 (see also 146-7): "Fenum, stramen, cito rancescunt et fimescunt, nulla interna virtute adversus corruptionem munita, atque ideo nulla eorum est dignitas. Aurum, adamas, perennia sunt, et res corruptelae indomitae." See Scriverius, "Voor-reden," 12. Helvigius, *Etymologiae*, 28-9: "De Belgica lingua noli quaerere! Spuria haec est, seu (ut mitius dicam) spuma nostrae Germanicae, tamquam a lallantib[us] et balbutientibus pueris. Per mutuam συνθήκην introducta quondam, et veluti per febrim recepta in vulgus eius gentis." Slichtenhorst, *Geldersse geschiedenissen*, 23: "Want dat onlanx zeker neuswijs en vermeetel Schrijver heeft derven voor-geeven als of de Nederlandsse tael een schuym zoude wesen van de Duytsse, door het lispen ofte kromtonghen van malle wijven aldus verbastaerd, en sluyt niet."

tor of originality and antiquity, although according to some Humanists the alleged monosyllabicity of Dutch was a result of abbreviation at a later stage. Apart from Franciscus Junius Jr. (1589-1677), who is frequently mentioned in this connection, the British antiquarian William Camden (1551-1623) voiced the same idea with regard to English:

> As for the *Monosyllables* so rise in our Tongue, which were not so originally, although they are vnfitting for verses and measures, yet are they most fit for expressing briefly the first conceipts of the minde, or *Intentionalia*, as they call them in schooles: so that we can set downe more matter in fewer lines, than any other language. [...] I cannot yet but confesse, That wee have corruptly contracted most names both of men and places, if they were of more than two syllables, and thereby hath insued no little obscuritie.[15]

A language's geographical diffusion could prove its antiquity as well. The wide dispersion of the Aramaic or Syrian language in comparison to the rather limited diffusion of the Hebrew language was to the advantage of the former. Humanists operating in the Low Countries attempted to demonstrate that Dutch (or Germanic) also enjoyed a wide diffusion. Very often the Gaulish and Germanic languages (the former of which was almost unknown) were considered to be one and the same language, which is why Goropius could claim that Dutch was even spoken in what is now Turkey, referring to the Celtic Galatians. Also Augerius Gislenius Busbecquius's (1520/1-91) discovery of Crimean Gothic contributed considerably to this idea. In Mylius's view, the Dutch language predated Greek, given that the former was more widespread than the latter. A similar idea was put forward by Grotius, who stated that "our language, identical to the German language and truthfully mirroring the distant past, covers an enormous area from most ancient times."[16]

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15 Camden, *Remaines*, 25. On the tandem combination of antiquity and quality, see Wal, "Early Language Typology," 93.

16 "Nec mirum, ad Pontum Euxinum huius vocis usum fuisse, cum et in Galatia lingua nostra viguerit, et hactenus in Taurica Cherroneso, prisca Cimmeriorum sede, plurimis sit vernacula; licet Tartaricam et Turcicam, propter commercia et dominium, praeterea discant" (Goropius Becanus, *Opera [Hermathena]*, 74). "Ex hoc nunc colligo, quia latius se extendit, multoque plus terrarum occupavit lingua nostra, quam Graeca, ideo aetate eam praecedere" (Mylius, *Lingua Belgica*, 97). "Sumendum celeberrimam linguam esse primum quae antiquissima est, deinde quae patet latissime, ut hodie Arabum ac Sclavorum, Romanorum non ita olim propter imperii potentiam, Graecorum propter Litterarum studia. At nostra lingua, quae eadem est cum Germanica, vetustatem fidelissime repraesentans, ab ultima antiquitate plurima terrarum spatia comprehendit, nec aliunde suam traxit originem" (Grotius, *Parallelon rerumpublicarum*, 57). On Busbecquius and Crimean Gothic, see the papers in Rousseau, *Traces de Busbecq*.

Some Reconsiderations by Way of Conclusion

It is probably no coincidence that the majority of pleas in favor of the Dutch language were made during the seventeenth century, the so-called Golden Age of the Netherlands, just as the first defenses of the Italian language converged with the emergence of the Italian Renaissance. Economic prosperity and political strength seem to elicit linguistic self-consciousness. Indeed, the early modern evaluation of languages should be understood against the contemporary cultural, religious, and political background of sixteenth- and seventeenth-century Europe, which was characterized by Humanism, Protestantism, and new emerging states trying to centralize and extend the power they had recently acquired. Marijke van der Wal has shown that a positive attitude towards one's own vernacular language was often accompanied by codification and extension of its functions, and was thus part of a complex standardization process. Hence, the search for linguistic qualities nearly always served the emancipation and ennobling of a particular vernacular language. Still, the classical languages had their own defenders. In many an apologetic linguistic encomium, which became almost a genre in its own right, the Latin, Greek or Hebrew language took centre stage. Nevertheless, proponents of the 'new' languages stated that over the years these 'old' languages had passed on their virtues to the younger vernaculars (a '*translatio*' of qualities).[17]

The virtues attributed to languages were manifold, and a considerable number of them were not inherently of a linguistic nature, as they applied to the history, diffusion, and the praiseworthy achievements of their speakers rather than to the language itself. The very fact, for instance, that the Bible had been composed in Hebrew, Aramaic, and Greek was felt to demonstrate the intrinsic merit of these languages. In addition, Brigitte Schlieben-Lange pointed out that particular qualities often ascribed to languages (in particular the quartet '*richness, energy, clarity, harmony*') directly stemmed from ancient rhetorical theory. Whereas they used to be applied only to texts, early modern scholars imposed these properties on the languages themselves. Regarding the Dutch language, the share of intrinsic 'linguistic' arguments was rather large. As Antonius Hagen rightly remarks, Dutch was not presented as an apt Protestant means to fight Catholicism. Whereas French scholars mainly drew attention to panchronic and syntactic qualities, scholars in German-speaking countries predominantly put forward diachronic and lexical arguments. Van der Wal, however, is rather reluctant to make generalizations. In-

[17] As to the apologetic linguistic encomium as a genre in its own right, see Demonet-Launay, *Voix du signe*, 473; Klein, "Ursprüngliche Einheit," 37; and Haßler & Neis, *Lexikon* (subheading 'Apologie').

deed, the qualities most frequently put forward not only varied from country to country, but even authors defending the same language compiled divergent sets of virtues. While Goropius assiduously identified as many qualities as possible, going so far as to claim that the Latin alphabet should be read as a Dutch prayer, Schrieckius rejected most of his argumentation. Instead, he insisted on one single virtue, i.e. the straightforward and natural relationship between a Dutch word and its meaning. Finally, scholars sometimes resorted to one and the same feature to account for different linguistic phenomena, as Van der Wal has demonstrated using the example of monosyllabicity.[18]

It might seem surprising that so many eulogies to the Dutch language were composed in Latin. Most Latin apologetic writings were aimed at underpinning the status of Dutch at a more theoretical level in order to convince their international readership. This is why Schrieckius decided to compose his second work in Latin, while his first had been composed in Dutch: "meanwhile, some scholars have asked for a somehow more extensive proof of the origin, not out of necessity as they said (the very reality seemed to suffice for them), but as an introduction for those who do not know Dutch." Authors writing in Dutch, on the other hand, seemed to prefer to ennoble their vernacular in a more direct way, for example by codifying the language in a grammar or by extending its functions. Still, it does not seem necessary to draw a sharp distinction between the Latin (e.g. Goropius Becanus and Mylius) and the Dutch tradition (e.g. Stevin), since Mylius and Scriverius as well as Schrieckius made use of both languages to defend their native tongue. Nevertheless, this does not alter the fact that at least some frictions and differences of opinion existed between the 'doers' on the one hand, and the 'international ambassadors of Dutch' on the other. The authors of the *Twespraack*, for instance, deplored that Goropius had written his works in Latin, and wished he had focused on "het te recht brenghen onzes taals" ["establishing our language"] rather than on "['t]bewyzen des zelfs oude heerlyckheyd" ["proving its old magnificence"].

Later Dutch intellectuals continued to recycle the qualities attributed to their native language by the previous humanist generations. Since most of them composed their linguistic works in Dutch, their influence on the international debate

[18] See Schlieben-Lange, "Reichtum, Energie, Klarheit und Harmonie"; Hagen, *Lof der Nederlandse taal*, 12; and Wal, *Moedertaal centraal*, 102. As to the divergent accounts of monosyllabicity, see Wal, "Early Language Typology." See also Blume, "Sprachtheorie und Sprachlegimitation." The anthology composed by Hagen, *O schone moedertaal*, clearly demonstrates that Dutch authors made use of divergent sets of qualities to praise their native language.

was rather restricted.[19] Surprisingly, however, the argumentation developed to ennoble the German language heavily relied on the set of arguments developed in the Low Countries, as is clearly shown in Schottelius's *Ausführliche Arbeit*. In spite of the virulent debate about which Germanic dialect was to be considered the oldest, the unity and coherency between the Dutch and German dialects was widely acknowledged and intuitively felt. As a matter of fact, it should be borne in mind that the boundary between German and Dutch territory established in the Peace of Westphalia (1648) started functioning as a firm linguistic barrier only at a later stage. Hence, seventeenth-century German scholars could easily adopt the arguments used by Dutch Humanists. This can be clearly illustrated with the example of the Wittenberg professor Theodor Kirchmaier (1645-1715)—not to be confused with Georg Casper Kirchmaier (1635-1700), a professor at the same university who has recently been uncovered as the proper author of an influential treatise on the affinities between languages (*De lingua vetustissima Europae*, 1686, previously commonly attributed to Andreas Jäger (c.1660-1730)). In the introduction to his 1667 *Exercitatio philologica de linguae Teutonicae aetatibus*, he stated that the German:

> character is so eminent and fertile that it should not at all be considered inferior, neither to Greek wealth, nor to Latin elegance, nor to Spanish majesty, nor to Italian decency, nor to French graceful fluency. German is an old language, a pure language, a weighty language, which is really worthy of the fatherland that fostered so many heroes. A language whose richness lies in conciseness, and whose conciseness in richness hardly any rhetorical talent whatsoever could praise in a sufficient and suitable way.[20]

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[19] Schrieckius, *Monitorum secundorum [Praefatio]*, unnumbered page: "Quidam interea viri eruditi aliquam maiorem originis probationem desiderarunt, non tam, ut dicebant, ad necessitatem (cum res ipsa sibi sufficere videbatur) sed ad introductionem eorum, qui linguam ignorant Teutonicam." Wal, *Moedertaal centraal*, 102, makes a sharper distinction between the Dutch and Latin tradition. See Hal, *Moedertalen en taalmoeders*, 214-5, for Mylius's Dutch defense of his native language. See Dibbets's reproduction of *Twe-spraack*: Dibbets, *Twe-spraack*, A2r.

[20] As to Schottelius's dependency on Dutch humanists, see Kiedroń, *Niederländische Einflüsse*. On the authorship of *De lingua vetustissima Europae* (1686), see Considine, "Andreas Jäger or Georg Caspar Kirchmaier." The original passage in the prooemium of Theodor Kirchmaier's *Exercitatio philologica de linguae Teutonicae aetatibus* reads as follows: "Ingenium eius [sc. linguae Germanicae] ita excelsum, ita felix est, ut nec Graecorum copiae, nec elegantiae Latinorum, nec Hispanorum majestati, nec Italorum decentiae, nec Gallorum venustae volubilitati quicquam debeat concedere. Lingua vetusta, lingua pura, lingua gravis ac Patria suâ, tot ingentium Heroum nutrice dignissima Germanica est. Lingua, cujus copiam in brevitate, et brevitatem in copia nulla fere dicendi vis satis laudare pro dignitate valet." Sijs, *Taal als mensenwerk*, 44-5 discusses the emergence of the linguistic boundary between German and Dutch. On the close historical relatedness of both dialects, see Grauwe, "Nicht-Existenz von Einheitsarealen." Rut-

This is thereupon underpinned by a reference to the preface of Goropius's *Hermathena*, written by Laevinius Torrentius (1525-95), without mentioning that the language defended in that book differed from the language spoken by Kirchmaier. This strongly suggests that many scholars considered the differences between Dutch and German far from insurmountable, and that they regarded them as different dialects of one and the same language.

Later on, at least some authors voiced the criticism that the search for a language's qualities was completely unproductive. In a remarkably concise and hard to find dissertation entitled *On the Exaggerated Study of Languages* (*De nimio in linguis studio*), the German Johannes Andreas Fabricius (1696-1769) aimed to demonstrate that the study of languages should not be considered an aim in its own right, as languages served as a mere key to unlock knowledge. In other words, language as such did not form part of the domain of knowledge. Scholars specializing in languages failed to distinguish instrument and goal, and were condemned never to cross the threshold leading to knowledge. This idea was certainly not new. I have pointed out that a similar criticism was already aired by, among many other scholars, the young Hugo Grotius. To my knowledge, nevertheless, Fabricius was the first author to systematically undermine most forms of research related to language. In one of his chapters, he stated that no language must be preferred to another one:

> the small number of roots cannot be explained as a vice of the Hebrew language, neither the fact that one word supports four or more significations of things. Anyone who is familiar with the fact that oriental people have always preferred a swift pronunciation due to the heat of their climate will also know that their speaking was accompanied by gestures and manual movements. [...] Nor can the Greek language claim glory for itself which is based, besides other things, on the invention of arts. As a matter of fact, the invention of sciences is not related to languages, and if it would be related, each people would be able to praise their language for their own inventions, thus rendering another language's prerogative doubtful. A hard pronunciation is not, and cannot be, in any sense an imperfection of our vernacular [sc. German]. The same holds regarding the soft sound of the Italian verbs. And I will leave the rest unmentioned [...]. Anyone who loves his own vernacular all too enthusiastically suffers from a certain prejudice making him think that nothing except that what is born at home is worthy of reverence.[21]

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ten, *Archimedische punten,* 303-8 offers some examples of Dutch grammarians arguing in favor of their language between c.1650 and c.1750.

[21] Fabricius & Rumpff, *De nimio*, §4: "Non vitio verti potest linguae Hebraeae parvus radicum numerus, seu quod una vox quatuor aut plura rerum significata sustineat. Cui notum est orientales pro calore climatis, celerrimam amasse pronunciationem, sciet quoque eos gestu et actione manuum locutos esse [...]. Nec laudem inde prae reliquis sola sibi arrogare potest graeca,

Nevertheless, the early modern search for linguistic 'virtues' and 'vices' was not without effect. Theories such as that of the pre-eminence and superiority of monosyllabicity remained influential up to the nineteenth century. To a certain extent, early modern evaluations of languages inspired later typological linguistics, in that particular features of different languages were contrasted irrespective of their genealogical relationships. In addition, architects of artificial and philosophical languages tried to incorporate the most promising virtues into their own projects. In his search for a philosophical language, Marin Mersenne (1588-1648) claimed that the most perfect language should be the most simple. In this respect, the Chinese language attracted much attention, to the disadvantage of the European vernaculars, from the second half of the seventeenth century onwards. Chinese was said to be very succinct. As early as the end of the sixteenth century, Justus Lipsius (1547-1606) referred to the concise Chinese language in order to reject Goropius's claims. It is unclear on which source Lipsius drew, since at that time Chinese was still almost unknown. Moreover, the Chinese ideographical script suggested that there is an iconic relation between words (i.e. their graphic representations) and their meaning. Around the same time, the different virtues ascribed to a particular European vernacular language were often grouped together and referred to with a new, rather vague, yet very influential generic term, viz. *genius* or *génie des langues*, which can be described as "an idea which established a close link between a language and its speech community." The concept would become of growing importance during the eighteenth century, and is said to have been launched for the first time around 1635 by Amable de Bourcey (1606-71).[22]

Overall, we see that many early modern treatises in defense of the Dutch language were destined for an international public, and were therefore written in Latin. As such, they can be regarded as a theoretical counterpart to, and at the same time an epistemological foundation for, a gradually increasing number of

ex artium inventionibus desumtam. Inventio enim scientiarum non ad linguas pertinet, et si pertineret, omnis gens suis inventis vernaculam suam ornare, et praerogativam alteri dubiam reddere valeret. Dura pronunciatio nulla est vernaculae nostrae imperfectio, nec esse potest, sicut Italicae non est mollis verborum sonus. Taceo ceteras. [...] Laborant autem suarum vernacularum nimii amatores praeiudicio quodam, quo nihil nisi quod domi nascitur, veneratione dignum esse sibi persuadent." On Fabricius, see Weiß et al., "Fabricius, Johann Andreas," 12-6.

[22] As to the influence of monosyllabical theory, see Sijs, *Taal als mensenwerk*, 107. I owe the comparison of early modern evaluations of languages with linguistic typology to Wal, "Early Language Typology." As to Mersenne, see Maat & Cram, "Universal Language Schemes," 1034. On Lipsius's sources of Chinese, see Deneire & Hal, *Lipsius tegen Becanus*, 118-9. The definition of 'génie des langues' here presented stems from Hüllen, "Characterization and Evaluation," 242; see also Trabant, *Mithridates im Paradies*, 150-2; and for a thorough discussion especially Schlaps, "Genius of Language."

not only literary, but also scholarly writings in the vernacular. As they reveal and display the many qualities of the Dutch language, the authors of such apologetic tracts aimed at both underpinning and further stimulating the tendency towards vernacular composition. In their opinion, the Dutch language was certainly an appropriate, if not the only appropriate, medium for conveying and transferring knowledge.*

* During the last two decades, the early modern evaluation of and attitudes towards languages has finally become a subject of historiographical research. This paper, which attempts to offer a synthesizing survey, heavily draws on previous investigations undertaken by Peter Burke, Werner Hüllen, and especially Marijke van der Wal, although some new lines of approach will have been presented as well. A similar, yet shortened account will later be published in a collection of papers dealing with the history of the Dutch language (edited by G. Rutten & P. Swiggers).

The Circulation of Historical and Political Knowledge between Britain and the Netherlands, 1600-1800: The Place of Translations

Peter Burke

This paper occupies a marginal place in this collection, concerned as it is not with knowledge of the world of nature but of history and politics.[1] Its focus is on what the two neighbours knew about each other's history and politics in this period and the function of translation in spreading this knowledge. Translation, long present in the cultural background—a well-known account of the subject speaks of the translator's "invisibility"—has been gradually coming to the fore. Translation Studies has become an independent domain, recognized in a number of universities, and the history of translation is one of its key elements.[2] The questions asked about translation have gone well beyond questions of "faithfulness" or "inaccuracy." Translations are studied as precious evidence of encounters between cultures, revealing how one culture (more exactly, individuals from one culture) perceives, understands, or indeed misunderstands another. It turns out that the standards of translation are not universal or timeless, but vary from one culture or from one period to another.

Hence we see the rise of the concept of "regimes" of translation, in other words the system of conventions according to which translators generally operate in a particular place and time.[3] Students of translation are concerned with what is translated, by whom (what kind of people), for what purposes (or with what strategies), into what languages, and according to what standards. Some translations are literal, others are "free." Some are translations at first hand, direct from the original language, others at second hand, via an intermediary. Some trans-

1 On the circulation of scientific knowledge, see Cook, *Matters of Exchange*, as well as other contributions to this volume. On the cultural background to exchanges, see Jardine, *Going Dutch*.

2 Venuti, *Translator's Invisibility*; Bassnett, *Translation Studies*.

3 On regimes, see Burke, "Cultures of Translation," 7-38.

lations "domesticate" the foreign text, attempting to give the impression that it was originally written in the language into which it has been translated, while others "foreignize," reminding the reader that the text comes from elsewhere. In early modern Europe the dominant regime was one of freedom and domestication. The Bible was treated with respect and so, most of the time, were the Greek and Latin classics, but when translating modern texts many translators considered themselves at liberty both to omit and to add passages (without making this clear to readers), as if they considered themselves co-authors.

Channels of Communication

Printed translations were of course only one means by which historical and political knowledge circulated. Other channels included rumours, letters, maps and other images. A vivid example of the latter, a print in the Wellcome Library (no. 43503i) is inscribed in English, *The brothers Johan de Witt and his brother Cornelius tortured, disembowelled and torn to pieces.* Wherever this print was produced, it was obviously intended for circulation in Britain.

The individuals who acted as cultural mediators or information brokers between the two nations included playwrights, merchants, diplomats and spies. Among playwrights, for instance, one thinks of the authors of the *Tragedy of Sir John van Olden Barnavelt* (probably John Fletcher [1579-1625] and Philip Massinger [1583-1640]).

As for merchants, the British naturally had their eyes fastened on their major trade rival and a few of them wrote pamphlets advising their colleagues how to deal with the competition: Henry Robinson (c.1604-c.1664), for instance, a mercer who had worked as a factor in the United Provinces. It was Robinson's pamphlet *England's Safety* (1641) from which Josiah Child (1630-99), who did not know the Dutch Republic so well, took the information in his more famous *Brief Observations Concerning Trade* (1668).

On the diplomatic side, one thinks not only of William Temple (1628-99), who met Jan de Witt (1625-72) in the Hague in 1667 before becoming ambassador to the Dutch Republic, 1668-70, but also of Walter Strickland (c.1598-1671), ambassador to the United Provinces 1642-50 and the expert on Dutch affairs on the British Council of State.[4]

As for spies, John Thurloe (1616-68), head of British intelligence in the 1650s, had personal experience of the Dutch Republic as secretary to the British envoys

[4] Haley, *English Diplomat*.

in 1651 and negotiated with the Dutch ambassador in 1653. He received weekly reports on the movements of Dutch warships from one agent, as well as reading letters intercepted from Dutch representatives in London.[5] Among Thurloe's agents, it should be added, was the now famous historian Lieuwe van Aitzema (1600-69).[6]

The Rise of Translations

Turning now to translations between the two vernaculars, we find—in the political and historical spheres—a gradual rise in the course of the seventeenth century to a peak in the decades 1640-69, with another peak in the 1690s and then a slow decline in the eighteenth century (recovering in the 1770s thanks to a single author, the Scottish historian William Robertson (1721-93). There is nothing surprising in this pattern, given the dramatic interest of the events in Britain during the Civil War or the connections between Britain and the Dutch Republic established after 1688. What does deserve to be noted is the asymmetry. The Dutch took an unusual interest in English history and politics, an interest that was only partly reciprocated.

The linguistic situation at this time also deserves a comment. The English were better linguists in those days than they are now. The languages that they were most likely to know were Italian, Spanish and French, but a few did know Dutch. On the other side, it was relatively unusual for texts in English to be translated into foreign languages until the second half of the seventeenth century. English was a low priority on the list of languages that educated Europeans were supposed to know.[7] For commercial reasons, Netherlanders were particularly likely to learn English.[8] It was in order to learn the language that Bernard Mandeville (1670-1733) originally came to England in his early twenties: he certainly achieved his aim.

Turning now to books listed in the appendix on page 387, it should be noted that this list of translations between the two languages over the two centuries is far from complete. In 1983 Cornelis Schoneveld listed 641 such translations published between 1600 and 1700.[9] However, the Dutch *Short-Title Catalogue* (STC) lists over two thousand translations from English into Dutch in the seventeenth

5 Aubrey, *Mr Secretary Thurloe*, 44, 173.
6 Poelhekke, "Lieuwe van Aitzema," 97-116; Rowen, "Lieuwe van Aitzema," 169-82.
7 Fabian, "Englisch als neue Fremdsprache," 178-96.
8 Osselton, "Teaching of English," 23-33; Loonen, *Learning English*.
9 For a more general study, see Schoneveld, *Intertraffic of the Mind*.

century. The STC includes both short pamphlets and successive editions of the same text, but even after making allowances for these, the total is impressive. On the other hand, this essay deliberately omits the much-translated works of Protestant piety, mainly from English into Dutch, from the age of William Perkins (1558-1602) to that of John Bunyan (1628-88). Works of religious controversy (including the translation into English of Balthasar Bekker's (1634-98) treatise on witchcraft) are likewise omitted. However, the list includes ecclesiastical history, from John Foxe's (1517-87) study of Protestant martyrs to William Cave's (1637-1713) accounts of the early Church.

Works of literature are omitted here. Among the texts translated into Dutch in this period were William Shakespeare's (1564-1616) *Taming of the Shrew*; Philip Sidney's (1554-86) *Arcadia*; some poems by John Donne (1572-1631), (which remained in manuscript); *Paradise Lost* by John Milton (1608-74); and epistolary novels by Jonathan Richardson (1694-1771). Once again, asymmetry is apparent. Milton appeared in Dutch but his opposite number Joost van den Vondel (1587-1679) did not appear in English at this time.

The list is confined to translations between two vernaculars, English and Dutch, but of course some texts circulated between the two countries in other languages. French was one language of mediation. For example, the famous and prolific Dutch translator Jan Hendriksz Glazemaker(1620-82) translated Paul Rycaut's (1629-1700) book on the Ottoman Empire from French, not from the original text. Today, this practice may shock, but in the early modern period what is known as 'translation at second hand' was quite common.[10] Latin was even more important than French as a mediating language, especially in the seventeenth century. Among the leading Dutch authors of the period, Justus Lipsius (1547-1606), Hugo Grotius (1583-1645) and Baruch Spinoza (1632-77) could all be read in Britain in Latin or in translations made from Latin.

On the other side, Thomas Hobbes's (1588-1679) *De cive* was turned into Dutch under the title *Burger-staat* (his *Leviathan* was not translated at this time). The Latin defence of Charles I (1600-49) by Claudius Salmasius (1588-1653) (*Koninckl*y*ke verdediging voor Karel de I*) and a Latin panegyric on Oliver Cromwell (1599-1658) written by a Portuguese nobleman (the *Loff-trompet* by João Rodrigues de Sá e Menezes (1619-58) were also translated into Dutch, appearing in 1650 and 1654 respectively.[11] Dutch interest in the English civil war appears to have been impartial.

[10] Stackelberg, *Übersetzungen aus zweiter Hand*.

[11] These works are listed in the Short Title Catalogue Netherlands (STCN); copies can be found in the Koninklijke Bibliotheek (KB), The Hague.

It is sometimes forgotten that translations from the vernacular into Latin played an important cultural role in the early modern period. More than eleven hundred and fifty such translations, all published between 1500 and 1799, have been discovered.[12] Among them were Emmanuel Van Meteren's (1535-1612) history, which appeared in Latin in 1598 and in English, translated from the Latin, four years later; Jan van Barneveld's (1547-1619) *Apologie*, which appeared in both Latin and English in 1618; Francis Bacon's (1561-1626) *Henry VII*, translated into Latin in 1642, and Aitzema's *Pax* (1654).

The Balance of Trade

One useful way to analyse translations into different languages is to view them in terms of what we might call the 'balance of trade', the relative importance of imports and exports. Variations and changes in this balance can tell historians something important about the cultures concerned. Generally speaking, cultural peripheries (or cultures in which some people, especially cultural elites, perceive themselves as peripheral) will import heavily from the centre, which in the case of early modern Europe meant Italy, then Spain and finally France. The case of centres is more complicated, since they may be relatively open or relatively closed. Spain, for instance, was more open to imports from Italy in the first half of the sixteenth century than it was later, when the fear of heresy led to closure.

In the case of English and Dutch, the imbalance or asymmetry has already been noted. Only ten texts on the list were translated from Dutch into English, compared to 43 from English into Dutch. The relative lack of texts translated from Dutch into English is somewhat surprising, given the close relations—both friendly and hostile—between the two countries at this time. After all, English culture was still very far from occupying the central position that it acquired in the course of the eighteenth, nineteenth and twentieth centuries. The explanation must be either that translators were hard to find, or that English interest in Dutch was lukewarm, mainly concentrated on the period from William the Silent (1533-84) to William III (1650-1702). The Barnevelt crisis attracted some attention, as we have seen: a play, a translation of the protagonist's apologia, and a text printed in London in 1619 under the title "The Arraignment of John van Olden Barnevelt ... Containing the Articles Alleadged against him, and the Reasons of his Execution."[13]

[12] Burke, "Translations into Latin," 65-80.

[13] A copy of this work can be found in the British Library.

On the other hand, the achievement and the subsequent fate of the brothers de Witt received surprising little printed comment, though a treatise did appear in London in 1672 under the title "The Dutch Remonstrance, Concerning the Proceedings and Practices of J. de W. and R. van Putten his Brother; with Others of that Faction. Drawn up by a Person of Eminency There and Printed at the Hague."[14] The *Interest van Holland*, attributed to Jan de Witt was also translated into English, but not until 1702.

However, three important travel books were translated from Dutch into English at this time. One, the *Gezantschap*, was an account of an embassy to China written by an official of the VOC (*Vereenigte Oost-Indische Compagnie* or "United East-India Company"), Johan Nieuhof (1618-72). The second was an account of the Guinea coast by Willem Bosman (1672-c.1702), who worked for the GWIC (*Geoctroyeerde Westindische Compagnie* or "Chartered West-India Company"). The third was Olfert Dapper's (c.1635-89) description of Africa.

Dutch interest in Britain was much greater, especially from 1640 to the mid-1660s. A number of English texts were translated into Dutch but into no other language. The texts included a biography of Cromwell by Samuel Carrington (translated in 1659) as well as two biographies of Charles II (1630-85). As late as 1696 a Dutch bookseller believed there was a market for a "secret history" of James I (1566-1625) and Charles I, under the title *Het hoftoneel van Jakob en Karle de Eerste, vader en zoon, kongingen van England*.[15] The Dutch were also relatively quick to discover the Scottish Enlightenment, and to make translations of David Hume (1711-76), William Robertson (1721-93) and Adam Smith (1723-90).

Most remarkable of all, the published translations from English into Dutch from this period include some occasional works: a proclamation dissolving Parliament (1622), for instance, *Proclamatie des konincx van Groot-Britanien*; a speech in Parliament in 1640 by Sir John Colepeper (c.1600-1660), *Een treffelijke oratie van sr. Iohan Cvlpepper, ridder*; the Grand Remonstrance of 1641, a list of grievances presented to King Charles, were translated in 1643 as *Remonstrantie der ingeseten van Engelant*; three letters from Thomas Fairfax (1612-71) on his victory over the Royalist army (1645), *Drie besondere missiven geschreven van ... Thomas Fairfax*; a declaration of the parliament during the Commonwealth, under the title *Het manifest van Engelandt* (1652); a petition to Cromwell from a Welsh radical prophet, Arise Evans (c.1607-c.1660), *Request van Arise Evans*; an anonymous letter to Cromwell about libels against him appeared as

[14] A copy can be found in the British Library.

[15] This work is listed in the STCN; a copy is located in the KB, The Hague.

Brief geschreven aen milord Cromwell op eenige libellen tegens Syn Hoocheyt (1656); an account of Cromwell's funeral: *Pompe ende magnificentie gepleecht, inde begraeffenis, ende funeraillien van … Olivier Cromwell* (1658); an oration by Edward Hyde (1609-74) to Parliament (1665), *Oratie van den heer cancelier Heyt [sic], gedaen in beyde de Huysen des Parlaments, in Engelant*.[16]

Hyde's speech to parliament also appeared in French and German, but the number of occasional works translated into Dutch at this time remains distinctive.[17] These publications may be viewed as a development from the tradition of corantos, which provided regular short accounts of foreign news.[18] However, the interest in detail and above all, in original sources that is revealed by these translations is unusual and so deserves emphasis.

Translators and Translations

Who were the translators? A prosopography of early modern European translators would make an extremely useful project. About 160 different individuals made the 641 translations from English into Dutch mentioned by Schoneveld.[19] In the present state of knowledge, a few individual personalities stand out, but they are only the tip of an iceberg, most of which is under water in the sense that little more is known about the majority of translators than their names and those of the books they translated.[20]

One such personality is Glazemaker, a professional translator in an age dominated by amateurs, who produced Dutch versions of nearly seventy foreign works, from Marco Polo (c.1254-1324) to Montaigne (1533-92) and from Descartes (1596-1650) to the Koran (the latter translated at second hand from the French). Another is Lambert van den Bos (1610-98), who taught at the Latin school in Dordrecht before he was dismissed for drunkenness and was active as a poet and a playwright as well as the translators of several English texts, including Carrington's biography of Cromwell.

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16 These works are listed in the STCN; copies can be found in the KB, The Hague. The last mentioned work is possibly the same as *Ootmoedige Petitie ende Addresse van Eduard, Graef van Clarendon*, without date or place of publication, in the Bibliothèque Nationale de France (BNF).

17 A copy of the French translation is located in the BNF; the German translation is listed in the *Verzeichnis der Drucke des 17. Jahrhunderts* (VD 17), a copy can be found in the Herzog August Bibliothek, Wolfenbüttel.

18 Dahl, *Dutch Corantos*, and *English Corantos*.

19 Schoneveld, *Intertraffic of the Mind*, 125, 246-9.

20 What follows summarizes points made in Burke, *Lost (and Found) in Translation*.

Some translators had a double identity. Translators are go-betweens by definition, and they often include individuals who live on the edge or between two cultures. Johannes Grindal (c.1616-96), for instance, who made some thirty translations, was born in the Netherlands of English parents, while Willem Séwel (1654-1720), a Quaker who lived in Amsterdam and translated more than twenty English books into Dutch, had an English grandfather.

Other translators from English, especially translators of religious works, had personal contacts with Britain, having taken refuge there in the days of Alba and returned to the Netherlands to become Calvinist ministers. The prolific translator Vincentius Meusevoet (1564-1624), for instance, lived for some years in Norwich. Michael Panneel (d. 1604) lived in Ipswich. Johannes Beverland (1600-65) lived in Yarmouth. Jan Lamoot (c.1570-1627) went to school in London. Willem Teelinck (1579-1629) studied in St Andrew's, lived in Banbury and married a woman from Derby. These personal experiences of Britain surely helped the translators in their task of cultural negotiation.

On the other side, two translators from English into Dutch are particularly famous. One is the bookseller Thomas Basson (1555-1613), who lived in Leiden and translated Reginald Scot's (c.1538-99) *Discovery of Witchcraft*. The other is Henry Hexham (c.1601-c.1650), an English soldier who spent some forty years in the Netherlands and compiled a Dutch-English dictionary as well as translating divines such as Joseph Hall (1574-1656).

It would of course be of interest to place these findings in comparative perspective. A thorough analysis will not be possible until a prosopography of European translators has been compiled, but it may be worth noting that in Catholic countries, especially in Spain, many translators were members of the clergy, religious orders in particular. The function of a translator is to act as a kind of linguistic go-between and it is interesting to see that early modern European translators included a number of people who were professional go-betweens of different kinds: merchants, for example, and also diplomats.[21]

So far, little has been discovered about the reasons for which particular translations were made; whether commercial, on the initiative of printers and booksellers, or political, on the initiative of governments (the motive for the translation of religious texts is of course clear enough). It is easier to say something about problems of translation, whether these problems were linguistic, cultural, or indeed both. In order to reveal some of these problems, it may be useful to make a case-study of attempts to translate Turkish culture, focussing on Glazemaker's

[21] Details in Burke, "Renaissance Translator."

translation of Paul Rycaut's *Present State of the Ottoman Empire*, 1667, as *Verhaal van de tegenwoordig Staat van het Turksche Kaizerryk*, 1670. Once again, Glazemaker made a Dutch version of a French translation.

The recurrent problem for translators of books on this subject was what to do with Turkish words for cultural items that were not to be found in Western Europe, whether they were unique to the Ottoman Empire (like *spahi*), or widespread in the Muslim world (*vizier*, for instance). Western writers about the Ottoman Empire chose between two opposite strategies. The first, confined to writers in Latin, was that of classicizing. The humanist Pietro Bembo (1470-1547), for instance, was a disciple of Cicero who was prepared to lose specificity in order to be elegant and to write what he called a "pure" Latin, similar to that of his master. In his history of Venice, which necessarily had much to say about the Ottoman Empire, Bembo therefore called the Turkish galleys *biremes*, while the *spahis* became *equites*, the admiral of the Turkish fleet *prefectus classis Thraciae* and the sultan, "the King of Thrace", *Rex Thracius.* However, even in the sixteenth century, what scholars in Translation Studies now describe as "foreignizing" was the dominant mode of vernacularizing the Turks. As Rycaut explained, "The Constitution of the Turkish Government being different from most others in the World, hath need of peculiar Maxims and Rules, whereon to establish and confirm itself." It was not only in the natural sciences that would-be translators discovered that some words, concepts or institutions are virtually impossible to translate without provoking misunderstandings.

For this reason Rycaut, for instance, decided to use many Turkish terms, explaining them in the text or margin as he goes. Some of these terms are religious (*dervish, hoja, imam, mufti, mullah, Ramazan, wakf*), some are military (*Bectas Aga, Baltagees, Jebegees, Mammelukken, Spahees*) and a high proportion are political, social and administrative terms (among them *Bey, Beglerbeg, Defterdar, Divan, Hazodabashi, Kadi, Kul, Pasha, Pashalik, Sanjak, Serail*). This use of Turkish technical terms was generally followed in the Dutch translation as it was in the French and the Italian, with occasional exceptions such as *Mahometisterei* for Islam and *besnijdenis* for circumcision (the first probably the result of prejudice, the second of devotion to the purity of Dutch). One might say that the authors of these texts believed that the best means to avoid misunderstanding in a situation requiring cultural translation was precisely the refusal to translate. To sum up: there was a dominant regime of translation in early modern Europe that included both the English and the Dutch, although what we might call the "pattern" of translation within that regime differed from country to country and from language to language, for religious and political as well as linguistic reasons.

Patterns of translation also varied according to the topics discussed in translated books. Within the group of histories translated at this time, the manner in which histories of remote cultures such as China or the Ottoman Empire were translated into European languages necessarily differed from histories of neighbouring countries such as France and Spain. There are also obvious contrasts between the translation of books on history or politics and that of books on science or "natural philosophy", two contrasts in particular. In the first place, books on history and politics were still written in a language close to ordinary educated speech, liberating translators from the problem of finding or coining vernacular equivalents for technical terms in mathematics, say, or chemistry. In the second place, there was less need to translate what we call "scientific" books because so many of them were published in an international language, Latin. When authors did choose the vernacular, as in the cases of Galileo Galilei (1564-1642) and Robert Boyle (1627-1691), it was in Latin translation that they circulated most frequently. Histories, on the other hand, were often written in the vernacular at this time, partly in order to appeal beyond the classically educated public, and translated into other vernaculars for the same reason.*

* I should like to thank the Koninklijke Bibliotheek in The Hague for the Fellowship it offered me in 2005 and the staff for the help they gave me when working there.

Print and Translation

Reading about New World Nature in the Low Countries: The Editions of *Crónicas De Indias*, 1493-1600

Maríaluz López-Terrada and José Pardo-Tomás

During the sixteenth century and the first decades of the seventeenth, books about the New World were regularly published and exchanged between the Iberian Peninsula and the Low Countries. These exchanges were undoubtedly the result of two factors. One was the interest and fascination during this period for information about what was termed "exotic," which certainly included everything to do with America. A second factor, as important as the first, though often overlooked, was the political union between the two territories. They were both part of a single patrimonial monarchy, a fact that doubtless facilitated exchanges of this kind, since the mobility of scholars was common and they belonged to the same courtly or intellectual circles. Moreover, although general works on natural history in Europe continue to pay scant attention to Spanish activity, the latter played a fundamental role in providing Europeans with information about nature in the New World, partly through the production and exchange of books.[1]

At that time the Spanish monarchy was unquestionably an expanding political and economic power with an enormous geographical area to colonise. This made it imperative that they became acquainted with the characteristics of the natural world in the new territories so as to dominate, control and exploit them. This inevitably led the Spanish Monarchy to acquire a central position in the circulation of scientific knowledge, especially in those aspects most closely connected to the conquest and exploitation of the new American territories. It is therefore no surprise that the Hispanic world was the source of the most substantial output of texts containing early descriptions of American nature.

In previous studies we have analysed in detail the channels of distribution of these descriptions, which were a fundamental vehicle for knowledge of American

[1] As it would take too long to cite them all, let us merely point out that in studies as recent as Ogilvie, *Science of Describing*, 24, Spanish activity is intentionally left out of the account.

natural species, showing how the Castilians (along with a few other subjects of the Monarchy) were the first to have access to America and were consequently the first Europeans to name, describe, catalogue and depict American nature in their texts.[2] On this occasion we shall try to show how these texts, from the outset, found an audience in the Low Countries that was enormously interested in the New World, social groups which, as Benjamin Schmidt has written: "avidly consumed the earliest Americana."[3]

The way we propose to approach this subject is twofold. Firstly, it is essential to describe the publishing history of certain Spanish texts in the Low Countries, so to enable us to understand the rhythms and phases of the circulation of knowledge about America in that territory; in other words, the "what" and the "when" of the phenomenon we are examining. Secondly, we need to ask ourselves how editors, translators and publishers used this material containing information and descriptions of American nature, in what ways these texts were adapted, translated, and printed.

Let us therefore begin by defining the kind of texts we are going to analyse and what sort of publishing history they had in the Low Countries.

The discovery, conquest and colonisation of America by the Spanish gave rise to a type of narrative located somewhere between medieval Castilian chronicles and Renaissance historiographical texts, which became known almost as soon as they first appeared as "Chronicles of the Indies." This is a literary genre that can be classified in terms of its content as a combination of geography, history, travel writing, ethnography and natural history. It comprises narratives written from the perspective of the first two generations of European colonisers and the processes of cultural, religious and political domination that they themselves carried out. Although the works are similar in a generic sense, this is a very heterogeneous group of texts, both in their internal structure and in the nature of their authors and the purposes for which they were composed. In every case, however, they offer a highly varied collection of information on American nature from the first period of European contact with the New World. It must be borne in mind that most of the chroniclers whose works we are going to mention based themselves on ancient cosmography, even though they were simultaneously refuting it, using Classical texts to find direct paradigms that could explain the Discovery, while also relying on the criterion of *auctoritas*, not only that of the Greek and Latin Classics but also Scriptural and Patristic writings. In view of the subject we are

[2] Pardo-Tomás, "Obras españolas"; López-Terrada & Pardo-Tomás, *Primeras noticias*; and López-Piñero & López-Terrada, *Influencia española*.

[3] Schmidt, *Innocence Abroad*, 8.

addressing, it is important to point out that in every chronicle of the Indies an interest in exotic nature and the description of it is just one element among many.[4]

So the image of America and the conception of New World nature that was conveyed by the chronicles of the Indies depended to a large extent (among other things) on the chroniclers' interpretation of Classical texts and how they adapted them to the description of nature that they were composing. As Edmundo O'Gorman pointed out over fifty years ago, "before becoming a reality, [America] was a fabulous prefiguration of European culture."[5] And this is a crucial point for understanding the success with which our texts circulated in a milieu like the Low Countries.

The chronicles of the Indies that we are going to analyse here have not been chosen at random; they possess certain specific features. Firstly, they are printed, which implies, in principle, that they had a potentially wider distribution and larger readership than if they had remained in manuscript. Secondly, all these texts were published in the Low Countries between 1493 and 1600, some translated into French or Dutch and others printed in the original language (Latin or Castilian) in which they were written.

On the basis of the catalogues compiled by bibliographical scholars, ranging from the work carried out long ago in the nineteenth century by Joseph Sabin (1870) on editions of the works of Bartolomé de Las Casas (1484-1566), to Jean Peeters-Fontainas's list of Spanish works printed in the Southern Low Countries (1965), and culminating in the monumental and indispensable *European Americana*, edited by John Alden and Dennis Landis (1980-1997), we have been able to take stock of the editions in the Low Countries of the chronicles of the Indies in which we are interested.[6] The overall results of the search can be summarised as follows. Between 1493 and 1600 we find forty-two editions of chronicles of the Indies in the Low Countries. Of course, the publication of each of these editions has its own history. In the first place, the reasons that led to the appearance of each edition were not necessarily the same. Indeed, there was no single group of persons or interests behind the editions of the chronicles of the Indies published in the Low Countries. One need only consider, for example, the fact that the context in which the works of Pedro Cieza de León (1520-1554) and Francisco López de Gómara (1511-1566) were produced, in Antwerp and in Spanish, in the quarter-century from 1554 to 1579, was radically different from that of the edi-

4 Berchanski, Oliver & Piuzzi, "Algunas concepciones."

5 O'Gorman, *Invención de América*, 148.

6 Sabin, *Bartolomé de las Casas*; Peeters-Fontainas, *Bibliographie des impressions espagnoles*; Alden & Landis, *European Americana*.

tions published in Dutch and in Amsterdam, from 1596, of the works of Bartolomé de Las Casas and Agustín de Zárate (1514-1560), in a strongly anti-Spanish political climate, inseparable from the political, religious and military situation of the region.

The evolution of this output, and especially the varying fortunes of each particular work, can be seen more clearly if we arrange the editions in their chronological sequence. By doing so, we can clearly distinguish three different phases in the evolution of the set of publications we are analysing.

The first phase, naturally, begins in 1493, with the appearance in Antwerp, at the presses of Thierry Martens d'Alost (c.1450-1534), of a Latin edition of Christopher Columbus's (c.1450-1506) *Carta*, written after his first transatlantic voyage. This cycle of first editions lasted until the 1530s, since in 1531 and 1536 respectively two editions of Pietro Martire d'Anghiera's (1457-1526) *De nuper repertis insulis* appeared, in the first of which the text was included in the first edition of *De disciplinis libri XX* by Juan Luis Vives (1492-1540), the Valencian humanist resident in Bruges. During these first four decades we also find three Latin editions of Amerigo Vespucci's (1454-1512) *Mundus novus* and one in Dutch, and also the French and Dutch translations of the *Carta* of Hernán Cortés (1485-1547) on the conquest of Mexico, which appeared very early, in 1522 and 1523 respectively, all printed in Antwerp by Michael Hillen von Hoochstraten (fl.1506-1546), the same printer who produced the edition of Vives that includes the work by Anghiera to which we have just referred. This first phase therefore seems to centre on texts which spoke of an unfamiliar world, dealt with the marvellous and the exotic, and, as a number of authors have pointed out and some of the library inventories seem to prove, were closely related in the minds of noble, priestly and bourgeois readers of the period in the Low Countries with the reading of romances of chivalry, *chansons de geste* and more or less imaginary travel writing of the late medieval tradition.

At any rate, all this was to be transformed, after an eighteen-year silence, by the emergence of a second phase in the editorial production of chronicles of the Indies in the Low Countries. This second phase, which started in 1554, predominantly involved editions of the works of López de Gómara, Cieza de León and Zárate, though some Dutch translations of texts from the first phase were also produced (Anghiera and Cortés in 1563, for example). Indeed, no fewer than eight editions of the chronicles of these three authors came out in 1554 and 1555 alone. Three features of this veritable explosion of publication of the chronicles of the Indies in the Low Countries are worth highlighting: the fact that those first editions were all in Castilian, that they were produced very soon after the *princeps*

editions of the works in Spain, and that they were the result of a complex rivalry between two publishing companies, one headed by Martín Nucio (c.1515-1558), which was responsible for three editions, and the other by Juan Lacio (c.1524-1566), who brought out the other five editions with the assistance of the printers Jan Steelsius (fl.1533-1562) and Jean Bellère (1526-1595). The monopoly of Antwerp, already demonstrated in the first phase, was clearly confirmed in the second.

But the situation was to change radically in the third phase. As is well known, the first outbreak of the rebellion against the Crown in the Low Countries occurred in 1568. It was a rebellion which initiated a long period of eighty years of religious, political and military conflict and which culminated in 1648 in the permanent division of the region, with the southern territories remaining subject to Habsburg power while the northern territories became permanently emancipated from it. This is the context in which this third phase must be placed, both in terms of the gap in printing activity between 1584 and 1596 and with respect to the characteristics of the production of editions of the chronicles of the Indies which was resumed in the latter year, with editions of the works of Zárate and Las Casas in Dutch, now printed in Amsterdam. Indeed, it was this city that from now on displayed a publishing hegemony almost as complete as that which Antwerp had exercised in the two previous phases. However, there is one notable exception: the editions of the Dutch translation of José de Acosta's (1539/40-1600) *Historia natural y moral de las Indias* published at Haarlem and Enkhuizen in 1598. The work of this Jesuit had an enormous European readership, especially following its inclusion in the anthology volume on *America* by Theodor De Bry (1528-1598) (in both the German and the Latin editions). Its dissemination and impact were much greater than those of any chronicle of the Indies in terms of scientific knowledge of the New World. Let us now set out some characteristic features of each of these editions and of the specific contexts in which they were produced.

First News of the New World: Columbus, Vespucci, Cortés and Pietro Martire D'Anghiera

As we have already pointed out, the first texts containing information from the New World arrived very quickly, and in large numbers, in the Low Countries, where the most important ones were translated into Latin, French or Dutch and published at an early date. This dual process—reception and dissemination—offers us evidence of a dual phenomenon: not only did Flemish readers prove receptive to the earliest accounts and descriptions of the new territories, but in

addition Flemish printers produced a large number of editions of some of those accounts and descriptions, in a process that ran parallel to the consolidation of Antwerp as a centre for the production and distribution of printed books in Atlantic Europe.

The first accounts of America that reached the Low Countries did so, of course, in the form of texts. As in the rest of Europe, therefore, knowledge of the New World was acquired through reading texts of a more or less descriptive character. In accordance with the rhetoric of seducing the reading public by narrating adventures, these embodied a view of American nature primarily as "fabulous." They encouraged amazement at the exotic, and depended on the ambivalent attraction exerted by the unknown and the extraordinary. Although it is true that the "Low Countries model" of description of the natural world in America later developed according to its own particular pattern and with different criteria, the fact is that for the first forty years readers in the Low Countries took pleasure in reading a series of editions whose texts and images (the latter based, in many cases, on reused illustrations derived from other works that had nothing to do with the New World) were still closely connected to a certain "late medieval" imagination, prone to associate the marvellous with the monstrous and chivalry with piety: a type of worldview, incidentally, that is very similar to that which the actual "Discoverer" of the New World exhibited throughout his life, in his readings and in his writings.

Columbus's Letter

The first edition of a text relating to America published in the Low Countries was Columbus's *Epistola*, printed in Antwerp in 1493. This printing reproduces the text of Columbus's first letter from the Rome edition by Stephanus Plannck (fl.1480-1500), in a Latin translation by Leander Cosco (fl.1493). The original Flemish edition, four sheets without engravings printed in semi-Gothic type, has no indication of the place of printing, the date or the printer's name, but according to the study by Charles Ruelens which precedes the edition of the facsimile, based on a comparison of the type, it can be determined that the text was printed in the workshop of Martens, "introducteur de la typographie aux Pays-Bas."[7] At the time when this edition was printed the workshop was in Antwerp, although there are also texts published by this printer in Aalst (Alost) and Louvain. However, not all the bibliophiles who studied the text, including Ruelens himself, regarded the attribution to the so-called "first Belgian printer" as proved.

[7] Columbus, *Epistola*, 9.

Thierry Martens was born in Aalst around 1450 and died in 1534. His first works date from 1473, after his return from Venice, where he learned the printing trade. With reference to his output in those first twenty years of activity, up to the publication of the Columbus *Epistola* in 1493, it is worth mentioning that it began with the *Speculum conversionis peccatorum*; that in 1478 he produced a Latin edition of the *Thesaurus pauperum* of Petrus Hispanus (c.1215-1277), working by now in Antwerp, where he had settled the year before; and that before 1484 he printed an *Itinerarius a terra Anglie in partes Ierosolimitanas*; after the Columbus letter, Martens continued publishing editions of the *Thesaurus pauperum* and of accounts of journeys to the Holy Land, among many other things, but he did not bring out another edition of the text on the New World. Martens always published in Latin up to 1500, when he printed a sermon for Lent in French. Finally, it is worth mentioning that from 1504 onwards Martens began to publish a series of writings by Erasmus (1466-1536), including the *Enchiridion* (1509), as well as works by Giovanni Pico della Mirandola (1463-1494), and other humanists. In total, his presses produced some 210 titles during the nearly fifty years he was active, as he stopped working in 1529.[8]

In all that extensive output America makes no further appearance in Martens's catalogue, and yet with his edition of Columbus's *Epistola* the Belgian printer gave his readers, avid for news of what the Spanish and Portuguese were getting up to on their transatlantic voyages, a first glimpse of the other side of that ocean, the first description of the natural world in lands that not only offered luxuriant vegetation and timorous, amenable natives but opened up immense possibilities of wealth, the clearest sign of which was the constant presence of gold in the mind and the pen of the Admiral.[9]

The Writings of Amerigo Vespucci

The second obligatory reference among early Americana printed in the Low Countries must be to the writings of Amerigo Vespucci (1451-1512). Unlike Columbus, who was convinced that the lands he was seeing were Asian, Vespucci emphasised that the territories discovered were new. Both his *Mundus Novus* (first printed around 1503) and his *Lettera* (also known as *Quatuor navigationes* and published around 1505) were received with enormous anticipation all over Europe; this radical difference from the first account by Columbus was doubtless

[8] Iseghem, *Biographie de Thierry Martens*.

[9] Flint, *Imaginative Landscape*; López-Terrada & Pardo-Tomás, *Primeras noticias*, 38-44.

what turned Vespucci's writings, rather than Columbus's, into the first bestseller on America in the European printed book market.

Indeed, Vespucci's writings were published, in various languages and European cities, on sixty occasions between 1503 and 1529, nearly three times as many as Columbus's *Letter*.[10] In other words, the novelty of Vespucci's works lay not only in the content, in their convincing advocacy of the idea that the recently discovered lands were a New World, but also—and most especially—in the way he produced and publicised his writings. In his strategy for composing and disseminating them, Vespucci displayed a shrewd understanding of the vital importance of printing as a new technology aiding in the communication and circulation of knowledge. In other words, rather than discovering America as a new world, what Vespucci did—in association with his publishers in Florence and then later with those who brought out his works elsewhere—was to respond to the public appetite for discoveries in Renaissance Europe, which meant recognising the existence of a potential and growing market for texts of a geographical and cosmographical character.

The first edition of Vespucci's *Mundus novus* in the Low Countries was published barely a year after the original Florentine edition; it came from Antwerp, from the presses of Jan van Doesborch (?-1536), who immediately followed up the Latin edition by also printing the first edition in Dutch.[11] Although there are authors who consider that this Dutch translation was based on the Latin edition, since both were printed, by van Doesborch around 1505, it seems more plausible that the original text used for the edition in Dutch was that of a French translation produced in Paris by Felix Baligault (fl.1493-1500), and Jehan Lambert (1493-1513), in 1503, which was translated in turn from the original manuscript in Italian.

The engravings in this edition deserve special mention; all of them are from plates used in other earlier publications: the image of a sea monster with a mouth full of teeth threatening a ship from below is derived from an illustration of the biblical story of Jonas; the picture representing a naked couple comes, in turn, from another work on the Garden of Eden, thus turning Adam and Eve into two natives of the New World; the two images depicting women and men naked and armed served in a different context to illustrate the temptations and dangers facing the Christian pilgrim. Some time ago Anne Rouzet highlighted the frequent use of the same woodcuts, which van Doesborch shared with other printers in the city,[12]

[10] Zamora, *Reading Columbus*.

[11] Vespucci, *Van der Nieuwer Werelt*. For the dating, see Proctor, *Jan van Doesborgh*.

[12] Rouzet, *Dictionnaire des imprimeurs*, 57.

including Michael Hillerius (c.1476-1558), the printer of Cortés's letter in 1522 and 1523, as we shall see. As for the text in Dutch, it introduces a few changes as compared with the original version, designed to make the content more accessible to a Flemish readership, and not only the text, but also, quite clearly, the author, since a reference was inserted into it mentioning that Vespucci intended to embark on a fourth transatlantic voyage using ships built in the Low Countries.[13]

The editions of Vespucci were one of the first projects completed by van Doesborch, who was active in Antwerp between 1502 and 1525, as well as in London, between 1523 and 1524. By 1510 he had published 55 books in Antwerp, in Flemish and English, mostly popular devotional or didactic works, but also romances of chivalry, travel literature and curious books of a popular character, all illustrated by fairly crude woodcuts. The rest of van Doesborch's output in Dutch is notable for a high proportion of local chronicles (Brabant, Zeeland, Holland, etc.), as well as several medical texts, including *Den groten herbarius*, published in 1532, when the printer had already settled in Utrecht, where he worked until his death in 1536.[14]

This second edition of a text by Vespucci produced by van Doesborch around 1510 was actually a complex work in its composition, in which Vespucci's original is only one ingredient; indeed, after a section that amounts to a summary of the narrative of Vespucci's third voyage, we find another derived from the account of the voyage to the East Indies undertaken by Balthasar Springer (fl.1509) under the command of the Portuguese explorer Francisco de Almeida (c.1450-1521) in 1505. Springer was an agent of the Welser and Fugger trading company who had close links with the Portuguese monarchy, and his account of the voyage had already been published in 1508. Van Doesborch's edition concluded with a page which once again summarised a text by Vespucci, the same one that had been included in the well-known *Cosmographiae introductio* of Martin Waldseemüller (c.1470-1521), printed in 1507. So for Flemish readers in this first decade of the sixteenth century, Asia, Africa and America were able to coexist in a single, concise work on geographical novelties, since what they had in common in the eyes of those readers was precisely their exotic geographical novelty.

Speaking of translations, it is worth pointing out that van Doesborch was a notable exponent of the practice of publishing works in Flemish and English in parallel, which was not unusual in Antwerp in those early years, and also, especially, between 1525 and 1540, when many books were produced for sale in

[13] Schmidt, *Innocence Abroad,* 15-6.
[14] Rouzet, *Dictionnaire des imprimeurs*, 56-7.

England.[15] Between 1505 and 1525 only three printers in Antwerp seem to have maintained regular contact with the English market, but van Doesborch was undoubtedly the most diligent and industrious of them, not only as a printer and exporter, but also as a translator (there is evidence of at least one work translated by him into English). The translators he used include one "Nicholas Longwater" or "Nic. de Aqualonga", who was actually a Dutchman, Claes vanden Langhe Water (fl.1515-1516), who translated into English and Latin, and also a certain Lawrence Andreve (dates unknown), later a printer in London. Between 1505 and 1530, van Doesborch printed twenty-two texts in English, almost a quarter of the total production of English books in Antwerp; of these, the only one about voyages, discoveries or similar is the English translation of the edition of Vespucci-Springer, though van Doesborch did issue several books on natural history, notably a *Hortus sanitatis*, specifically devoted to animal medical matters.[16] This English translation of Vespucci printed by van Doesborch in Antwerp in 1522 was presumably one of the frequent cases of parallel editions among the output from his print shop, since the content is practically the same as that of the Flemish edition.[17]

In short, this history of the publication of Vespucci's texts in the Low Countries is a good illustration of the two main characteristics of the first phase of accounts of the transatlantic voyages, developed between 1492 and 1510: rapid appearance of the original texts, but conditioned by a publishing policy geared more to the demand for exotic narratives and chivalresque adventures than to geographical or naturalistic accuracy.

The Rapid Reception of Cortés's Letters

The presses of the Low Countries afforded an equally prompt reception to the *Cartas de relación* of Cortés, the conqueror of Mexico. Indeed, the earliest accounts of the Mesoamerican territories became known almost simultaneously in the Low Countries and in the Iberian Peninsula, thanks to the French and Dutch translations of Cortés's first *Letters*. The first translation was done in Antwerp, in French,[18] and was produced only a few months after the first Spanish edition.[19] A second translation, this time into Flemish, from the French version, was com-

15 Nijhoff & Kronenberg, *Nederlandsche bibliographie*.
16 Franssen & Simoni, "Jan van Doesborch."
17 Harrisse, *Americus Vespuccius*.
18 Cortés, *Marches, îles et pays*.
19 Cortés, *Carta de relación*.

pleted the following year.[20] Both were the work of Michiel von Hoochstraten, or Michael Hillerius Hoochstratanus (c.1476-1558), active in Antwerp from 1506 until he stopped working in 1546, transferring his whole business to his son-in-law Steelsius, who had married his daughter Margarita in 1535.[21] The text printed by Hoochstraten in these two versions was not a literal translation but a compressed summary of the first two *Cartas de relación*, as Harrisse pointed out long ago when describing the Flemish translation.[22]

The Dutch version was the first known edition to have a frontispiece, though the French edition may have had one like it, despite the fact that it is not present in the only two known copies. On that title page it is notable how Hoochstraten consciously frames the text with an engraving which clearly shows the imperial motifs of the narrative. In that sense, the Antwerp edition is in line with those produced later in Nuremberg (two printings, both in 1524) and Cologne (1532), both of which have the imperial arms of Charles V on their title pages.

The clear political intention behind the rapid and widespread dissemination of Cortés's first letters in various parts of the Empire doubtless ensured that the descriptions the conqueror addressed to the Emperor made a special impact: new territories, also differing in more than one fundamental respect from those in the Caribbean, hitherto the object of the most detailed descriptions, but above all a description of the city of Tenochtitlan, that exotic Venice of the New World, with its palaces built in the middle of the lake, surrounded by volcanoes and high mountains. That impact did not take long to manifest itself, not only in the widespread circulation of the so-called "Cortés map" depicting the capital of the Mexica empire and its surrounding lagoon,[23] but also in the decoration of sumptuary objects made by Flemish craftsmen who read these editions.[24]

Finally, we should not forget that the success of Cortés's text in Dutch was extended, in a later period, through Cornelis Ablijn's Flemish translation, first

[20] Cortés, *Contreyen vanden eylanden*.

[21] Rouzet, *Dictionnaire des imprimeurs*, 94-6, who, by the way, makes no mention of the editions of Cortés.

[22] Harrisse, *Bibliotheca Americana*, 86.

[23] Also called the "Nuremberg map" after the copy held in the National Library, Washington DC, which was printed in that German city in 1524, along with the Latin translation of Cortés's first two *Cartas de relación*. See Mundy, "Mapping the Aztec Capital."

[24] Ginzburg, "Hybrids," 123-4, after noting how quickly accounts of the conquest of Mexico reached Antwerp, points out that the description of the landscape around Tenochtitlan could have inspired the decoration (mountains, buildings and boats crossing lakes) on the lid of a gilded silver beaker made in Antwerp between 1524 and 1525 and now on display in the Schatzkammer of the Residenz in Munich.

published in Antwerp in 1563, of the texts collected by Simon Grynaeus, which we shall discuss later.

The Arrival of Pietro Martire d'Anghiera's *Decades* in the Low Countries

The essential characteristics of the publication of Americana in the Low Countries, as we have outlined them in relation to Vespucci, remained virtually unchanged with the early editions of Cortés's letters. However, after a gap of nearly a decade in which the Flemish output of Americana was practically non-existent, for reasons that have not been properly explained, these characteristics began to change markedly a few years later with the distribution in the Low Countries of the work of the Italian humanist resident in Castile, Anghiera. The interest of Flemish humanists in Anghiera's work, as in many other European humanist circles, centred, on the one hand, on the dissemination of his Latin letters, but above all on that of his *De orbe novo decades*, a lengthy narrative devoted to compiling all the information he could find on America, from his privileged position at the court of Castile.[25] The first extended account based on the contents of the *Decades* was that of Vives in his *De disciplinis*, a text in which Anghiera is the sole source of information on America.[26]

Leaving aside Vives's personal adaptation in 1531, the first edition of Anghiera in the Low Countries was the one in Latin published in Antwerp by Steelsio in 1536, under the title *Novis insulis nuper repertis*. No Dutch translation was published during this first period, but the Latin edition, as was to be expected, enjoyed a very wide distribution in humanist circles, as is demonstrated by the frequent quotations from it in atlases, travel chronicles and cosmographies of the second half of the sixteenth century, as well as the presence of copies in numerous libraries, including the most important humanist ones.[27]

Although we have to wait until 1563 to find the first Dutch translation, in the collection of accounts of voyages compiled in Dutch by Grynaeus, the Latin edition of the *Decades* was a turning point in the dissemination of information on America in Flanders, as in the rest of Europe. It was the gateway through which humanist circles gained access to American nature. This is an important point for an understanding of how that natural world was first assimilated into the culture of European intellectual elites, because it reached them through the medium of texts in which it was described in a fairly stylised form by someone who had

[25] López-Terrada & Pardo-Tomás, *Primeras noticias*, 51.
[26] Vives, *De disciplinis*.
[27] Lechner, "Dutch Humanists' Knowledge."

not witnessed that reality at first hand and who did so in prose full of continual comparisons with the natural world of reference in Classical culture, based on Anghiera's extensive knowledge of Greek and Latin authors.[28]

Chronicles of the Indies in Large-Scale Editions of Travel Compilations: The Case of Simon Grynaeus's *Novus Orbis* in the Low Countries

With such novel material on little-known territories as that offered by the texts we are examining, it is no surprise to find that a series of summaries, fragments or complete copies of chronicles of the Indies were translated and included in the numerous collections of accounts of voyages and descriptions of exotic lands that were published in various European countries. The most famous collection was undoubtedly the one published in Frankfurt by Théodore De Bry and his sons (a family actually originating from the Low Countries), starting in 1590. But in the Low Countries some of these travel collections were also translated and printed before that of the De Brys.[29]

For example, a Dutch translation of one of those collections of exotic voyages that had proliferated in Europe since the early sixteenth century was published in Antwerp in 1563.[30] This translation, published by the printer Jan van de Loe (fl.1545-1565), was the work of Ablijn, a notary from Brabant, and was dedicated to William of Orange (1533-1584).[31] It drew together a series of narratives of journeys in lands unknown to Europeans until very recently, mostly written in the early sixteenth century by a range of authors with very varied perspectives and intentions.

Originally, this collection of travel accounts had been assembled by Johann Huttich (c.1480-1544) and published in Latin by Grynaeus, a German Protestant humanist and theologian and the author of the prologue.[32] It was first published in 1532, in Basle, by Johann Hervagius (1497-c.1558) with the title *Novus orbis regionum ac insularum veteribus incognitarum: una cum tabula cosmographica & aliquot aliis consimilis argumenti lebellis*, and it included what has become

28 Schmidt, *Innocence Abroad*, 23; López-Terrada & Pardo-Tomás, *Primeras noticias*, 52-7.

29 Bry, *Collectiones peregrinatiorum*. On De Bry's editions, see the chapter by Michiel van Groesen in this volume.

30 Anonymous, *Nieuwe Weerelt.*

31 Rouzet, *Dictionnaire des imprimeurs*, 131-2; see also Griffin, *Journeymen-Printers*, 103-4.

32 Bietenholz & Deutscher, *Contemporaries of Erasmus*, vol. II, 142-6; Lach, *Asia*, vol. I, 69, 331, 340; and Johnson, "Idolatrous Cultures," 597-622.

known as "Münster's world map."[33] It was an edition prompted more by the Basel bookseller's commercial instincts than by a desire to add something new to what had already been circulating in Europe, since it did not contain anything that had not been published before.[34] Among those disparate and already familiar contents, what we are concerned to highlight is the inclusion of a series of Americana that we have already seen published in the Low Countries: Columbus's letter, Vespucci's account and Anghiera's fourth decade, the only one of those texts that was not translated, as it was originally written in Latin. Indeed, in the preface Grynaeus explicitly addressed a learned readership, justifying the fact that the book was in Latin by arguing that in this way the accounts written in other languages could be read and appreciated by learned European readers in any sphere.

Two years later, in 1534, the *Novus orbis regionum* was translated into German by the Protestant physician Michael Herr (c.1505-c.1550), adding a complete translation of Anghiera's *Decades*, as well as the same author's *Legatio Babylonica*. Herr made a very free translation of the texts collected by Grynaeus; for his part, the German publisher, Huttich, who did not include the famous world map, dedicated the work to the Duke of Hanau (1508-1534), among the German princes one of the staunchest supporters of the Protestant Reformation. So Herr's not very faithful German translation, while serving as a source of information for less cultured and erudite readers than those of Grynaeus on the geographical and cultural characteristics of the new regions discovered by Europeans, also used the supposed differences of attitude towards the "exotic" to confirm the evils of Catholicism and the virtues of Protestantism.[35]

It was this German version of the compilation of voyages published in Latin by Grynaeus that the Brabant notary Ablijn translated directly into Dutch thirty years later, in 1563, precisely at a time of bitter confrontation between Catholics and Protestants in the Low Countries. Thus the chronicle of the Indies texts included in this book, originally written with no connection to the problems and dialectics of the Reformation versus the Counter-Reformation, were used once again in the Flemish context to confirm the utility of this kind of text relating to non-European lands for the purpose of spreading religious propaganda, both against and in favour of Rome and Spanish power, its main defender in Flemish territory. Indeed, the 1563 edition we are discussing presents an obvious paradox in this respect.

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[33] Muller, *Catalogue of Books*, 215-6. Later editions included maps by other authors; the one published in Paris the same year had the polar projection world map, entitled "Nova, et integra universi orbis descriptio," by Oronce Finé.

[34] Lach, *Asia*, vol. I, 180.

[35] Gelders, "Genealogy of Colonial Discourse," 574-5.

On the one hand, the acerbic and violently anti-Catholic discourse of Herr's German translation was faithfully reproduced in the Dutch version; moreoever, an *Epistola dedicatoria* was inserted, signed by the translator himself and addressed to William of Orange, the Protestant noble who rebelled against the Spanish Crown. On the other hand, however, as Schmidt has pointed out,[36] Ablijn's discourse does not seem to conform to what was to become, only a few years later, the *topos* of Spanish tyranny in America as a "mirror"—to use a trope very familiar in moralising discourse and subsequently adopted by the disseminators of Las Casas, as we shall see shortly—of the situation in the Low Countries. At this stage, in the early 1560s, the Dutch translator's prologue and epistle dedicatory argue that one of the reasons for and benefits of reading the book is that it enables all Christians to become aware of the valuable work done by the Spanish in spreading Christianity in America. In contrast to how they were to be presented in the Dutch translations of Las Casas's texts, the conquistadors were still regarded in the dedication to William of Orange as loyal, brave and pious, and there was no apparent contradiction, therefore, in extolling the evangelising activity of the Spanish in America while defending Protestantism and criticising Catholicism.

Finally, let us note that the Antwerp edition of this travel collection was the most complete of all those published, expanding the original text with more recent material. Thus in addition to including Anghiera's complete *Decades* and *De legatione Babylonica*, from the 1555 Latin edition,[37] as had already been done in the German version, van de Loe also decided to include the Dutch translations of Cortés's second and third *Cartas de relación*, as well as a text of unknown authorship entitled *Historia de las Islas Canarias recientemente descubiertas*, not included in any other edition.[38] These three texts were translated by Ablijn directly from Castilian, but the others, as we have explained, underwent a more complex translation process from the Spanish or Italian in which they were originally written to the eventual version in Dutch. Thus Columbus's letter, Vespucci's *Navigationes* and Cortés's *Cartas de relación* were initially translated into humanistic Latin for a learned readership interested in learning about the New World, and were then freely rendered into German in order not only to provide information on lands unknown to Europeans but also to defend Protestantism. Finally, they were translated once more from that language into Dutch for a readership with an interest in the "exotic" but also in a dangerous situation at the beginning of what was to be a long war against the power of a Catholic king.

36 Schmidt, *Innocence Abroad,* 70-2.
37 Anonymous, *Nieuwe Weerelt*, 678-705.
38 Anonymous, *Nieuwe Weerelt*, 504-21.

Las Casas: The Chronicle of the Indies as a "Mirror" of the Revolt.

Of all the writings that make up the chronicles of the Indies, the most successful in the Low Countries in publishing terms was the *Brevísima relación* of Las Casas, though for reasons very different from the interest that might have been aroused among readers by acquiring information on the nature and characteristics of the American territories. First published in Spanish in Seville in 1552, the work did not appear in the Flemish language until over twenty-five years later, in 1578. No printing details are indicated in this edition and it is not known in which print shop it was produced, nor whether it came from Antwerp or Brussels.[39] Nor do we know who was responsible for the second edition of this same Flemish translation, which dates from the following year; this time, however, it was printed with a change of title, which was certainly a very good choice, as the metaphor of the *Spieghel der Spaenscher tirannije* was to enjoy lasting success as a familiar element in the history of anti-Spanish propaganda in the Low Countries, serving as a slogan for denouncing the cruelties inflicted on the American natives, a "mirror of the tyranny" that those same Spaniards were exercising in the Low Countries.[40]

Moreover, the same year that the *Spieghel* of Las Casas appeared in Flemish, François de Ravelenghien (Franciscus Raphelengius) (1539-1597), published the equally successful French version of Las Casas's text, translated by Jacques de Miggrode (or Miggerode), in Antwerp. The preface that this French Protestant wrote for his 1579 translation confirmed the commonplace view of Spaniards as the "bouc émissaire de toutes les turpitudes du monde."[41] The Spanish, successors in equal measure of the Goths and the Saracens, are described by the editors of Las Casas as paradigms of cruelty, guilty of an "orgueil insupportable," engaged in destroying the New World and crushing the true Christians, in other words the Protestants, of the Low Countries.[42]

Miggerode, a Huguenot preacher and a convinced Orangist, therefore made no attempt to conceal either the purpose of his work as a translator or the audience to whom he wished to address his efforts as a publicist. At the same time, the specific situation in 1579 makes Miggerode's edition of Las Casas inseparable from the signing of the Treaty of Arras with Spain by the (French-speaking) Walloon provinces of Artois and Hainault that same year. Two of the seventeen provinces

[39] Casas, *Seer cort verhael*; Sabin, *Bartolomé de las Casas*, 23.

[40] Casas, *Spieghel der Spaenscher tirannije*; Sabin, *Bartolomé de las Casas*, 24, established that the text is identical to that of the edition published the year before, despite the change of title.

[41] Casas, *Tyrannies et cruautez.*

[42] Miggrode, "Au lecteur," [8]. See Duviols, "Visions infernales," 423; and Lestringant, "Sacrement de discorde," 169-170.

declared themselves loyal to Philip II and the Catholic faith, and consequently the urgent need to find a means of persuading French-speaking readers who dissented from that decision explains why that moment was chosen to bring out the *Tyrannies et cruautez des Espagnols perpétrées ès Indes occidentales*. Following on from Miggerode's efforts as a translator, many other editions were published in French, in Geneva, Lyon, Paris, Rouen, etc., as well as the English translation, based on the French version and published at a moment coinciding with the events of the so-called "Invincible" Spanish Armada. The enormous success of Miggerode's version reached its climax in 1598, as it was this French text that served as the basis for the Latin version of the *Brevíssima relación,* produced by De Bry in Frankfurt, to which we shall return later.[43]

Raphelengius, the printer of this first edition in French, was educated in Classical and Oriental languages in Ghent, Nuremberg and Paris and was Christoffel Plantijn's (c.1520-89) son-in-law as of 1565, when he married Plantin's daughter Margaretha (c.1540-1599).[44] Moreover, he was related to the Leiden apothecary Christian Porret (1554-1627), an agent of Plantin and a collector of *naturalia* and *exotica*, as well a correspondent of Carolus Clusius (1525-1609), who mentions him on several occasions.[45] In this way, the reception of Las Casas in the Low Countries is connected, to some extent, with the circle of humanists around Plantin.

At any rate, neither Raphelengius nor Plantin took any further part in editions of Las Casas's text, either in French or in Dutch. In the latter language, the initiative passed to another bookseller and printer from the southern Low Countries who had fled to the northern provinces to escape war and religious intolerance. We are referring to Cornelis Claesz (c.1550-1609), who settled in Amsterdam, where he brought out a new edition of the *Spieghel des Spaenscher tyrannye in West Indien*, but not until 1596.[46] Indeed, although the chronology of the dissemination of the Flemish version of Las Casas's *Brevísima relación* is compatible with the notion that the text continued to exert a constant and lasting influence, this should not be allowed to obscure the fact that it took place in two phases, clearly separated by an extended period in which no new editions appeared. In other words, a first brief period of dissemination (1578-1579) was followed by a gap of sev-

43 See also Van Groeten's chapter in this volume.

44 Rouzet, *Dictionnaire des imprimeurs*, 183-4; Voet, *Golden Compasses, passim.*

45 Egmond, *Natural History in the Making*, 162-3.

46 Casas, *Spieghel der Spaenscher tirannije*; Sabin, *Bartolomé de las Casas*, 25: "The title to this edition contains a map of America from an octavo atlas of Claesz. It is a reprint, word for word, of the previous edition."

enteen years, precisely the years in which a major part of the revolt and war in the Low Countries against the power of the Habsburgs took place, as a direct consequence of which the dominance of Antwerp as a centre of book production was also eclipsed. It seems clear that the first "wave" of Las Casas's reception, both in the French and the Flemish version, lies at the mid-point of the so-called "Third Revolt" of the provinces against the power of the Spanish Crown, which lasted from the Spanish Fury of 1576 until the publication of William of Orange's *Apologie* in 1581. Indeed, William's barely veiled use of Las Casas's denunciation in his *Apologie* is common knowledge, so the corresponding "documentary reference" was circulating in very recent editions during those same years. The 1596 edition, in turn, marks the end of that long break, which was to be followed by as many as over a dozen new editions in the next fifteen years. In the light of this, the interval of silence is something that requires an explanation, as the question has not yet been satisfactorily answered by those who have addressed the issue.

As we have already indicated, the printer of the 1596 Amsterdam edition, and of seven of the twelve further editions that followed, was Claesz. He was one of a large and important contingent of booksellers, printers, correctors and publishers who emigrated en masse towards the northern provinces after the fall of Antwerp. As Benjamin Schmidt has reminded us, more than two thirds of the booksellers in the northern Low Countries between 1570 and 1630 were of southern origin, including the most prolific and preeminent among them. Plantin, who spent just two brief years in Leiden, managed to establish Elzevier and Raphelengius there. Claesz and Jodocus Hondius (?-1626), for their part, brought their experience as printers of books on geography and voyages to Amsterdam, which rapidly replaced Antwerp as the leading producer of maps, atlases and travel literature.[47] Among other things, Claesz was to take it upon himself to continue the republication in Flemish of the chronicle of Zárate, begun in Antwerp by Willem Silvius (fl.1562-1578), another notable émigré who had moved north, in this case to Leiden, as we shall see in the next section.

Two Heavyweights in the Dutch Reception of the Chronicles of the Indies: The Works of Agustín de Zárate and José de Acosta

Zárate and the History of Peru

One of the chronicles of the Indies that was most frequently published and translated in the Low Countries was Zárate's *Historia del descubrimiento y conquista*

[47] Schmidt, *Innocence Abroad*, 140-1.

del Perú. Moreover, the original edition in Spanish was actually published in Antwerp, as its author was in the Low Countries at the time, occupying the post of royal comptroller, having been appointed by the Emperor Charles V (1500-1558).[48] This first edition contained a dedication dated 30 March 1555 in Antwerp and addressed to the then Prince Philip (1527-1598)—though he was also, incidentally, "King of England," as he is called by the author, who signs as "Agustín de Çárate, contador de mercedes de la Magestad Cesárea."

A second edition of the work in its original Spanish was not published until 1577, this time in Seville. However, a translation into Italian[49] and another into Dutch had already been issued in 1563; the list of translations before 1600 was completed by the English version, which came out in 1581.[50] Of these, the 1563 Dutch version undoubtedly achieved the greatest success, for by the end of the sixteenth century it had already been republished on three occasions, in 1564, 1573 and 1596.[51]

To all these editions of Zárate's chronicle must be added the curious Latin translation, published in 1567, in Antwerp, by Jean Bellère. The work appeared under the authorship of one Levinus Apollonius Gandobruganus (fl.1567), who also wrote the initial *Epistola nuncupatoria*, signed in Bruges at the end of October 1566, in which he mentions the availability in his *Belgarum terris* of the Latin texts of Anghiera's *Decades*, Cortés's letters and Sebastian Münster's *Cosmographia*, going on to point out that the publication of "his" book offered the great novelty of dealing with the territories of Peru, which had not hitherto been addressed in Latin works circulating in the Low Countries.[52] Zárate, the true author of the original text, is not even mentioned, although reference is made to the appropriateness of making an elegant Latin version of an original text written in the "hard" or "harsh" Spanish language, a description that recurs in the list of names of cities in Spanish (although many of these place names are in pre-Columbian languages), with Latinised translations, at the end of the above-mentioned dedication, addressed to the Flemish nobleman Jacob Claerhout (1530-1566), lord of Maldegem and Pittem. Some of these Latinisations are truly startling and most of them were not taken up in later works; for example: *Vatimalia* for Guatemala,

48 Zárate, *Historia del descubrimiento*.

49 Zárate, *Scoprimento et conquista*. On the reception of Zárate's work in Italy, see Pardo-Tomás, "Obras españolas", 53-5.

50 Zárate, *Discoverie and Conquest*.

51 Zárate, *Historie vant coninckrijck vã Peru*. Further editions: Antwerp, 1564, 1573 and Amsterdam, 1596.

52 Apollonius, *De Peruuiæ regionis*, 2r-7r, at fols. 3v-4r.

Themistithana for Mexico (obviously inspired by "Tenochtitlán") and *Argyropolis* for Villa de La Plata.[53]

This false authorship presents us with a new and distinctive channel of distribution of the chronicles of the Indies in the Low Countries, examples of which are also to be found in other latitudes. The edition actually coincides so closely with Zárate's text that it must inevitably be regarded as plagiarism, even though the term should be used with caution in this period.[54] And yet the work has been and continues to be attributed to the little-known Apollonius and his supposed journey to Peru (since the first-hand narration, naturally enough, is not concealed in the Latin translation), without relating the text to Zárate's original.[55] The person ultimately responsible for this edition may well have been the notable bookseller Bellère, active in Antwerp between 1553 and 1595. He began his career as an agent for another bookseller whom we have already encountered in these pages, Steelsius, and he went on to produce over a hundred titles. Bellère's catalogue, like that of any of the leading Antwerp booksellers in those years, is full of devotional, didactic and legal works, mostly in Latin; but in his case the production of musical editions is especially prominent.[56]

Returning to the Dutch translation of Zárate's chronicle, we must mention that in the first printing in 1563 and all three of the subsequent editions already cited, the text on the *Conquest of Peru* is accompanied by a number of engravings, as well as a copy of a map apparently produced on the presses of Bellère himself, the publisher of the Latin version we have just been examining, attributed to Apollonius. As for the Dutch translation, it is signed in all the editions by a certain Runaldus de Bacquere, *Tabelio Regius Mechliniae*, in other words, a royal notary from Mechelen, on whom no one, to our knowledge, has yet managed to find any information. On the other hand, we know a great deal about the bookseller and printer Silvius, in whose print shop the 1563, 1564 and 1573 editions were produced, as he published nearly seventy works in seventy-eight editions and six different languages, as well as writing several introductory texts for some of these editions himself.

Silvius's status as a royal printer led him to publish frequent edicts and or-

53 Apollonius, *De Peruuiæ regionis*, 7v-8r.

54 This issue has been widely discussed. We shall confine ourselves here to recalling the classic study by White, *Plagiarism and Imitation*; the recent summary of historical debate on the subject in Marsh, *Plagiarism*, 31-47; and also the illuminating chapter by Johns, "Ambivalence of Authorship."

55 Santa, "Obra de Levinus Apollonius", and Verlinden, "Fausse source", 307-15.

56 Rouzet, *Dictionnaire des imprimeurs*, 8-10.

dinances and, for years, the canons and decrees of the Council of Trent. This activity, however, did not prevent him from being arrested on suspicion of heresy on 2 March 1568. At the end of May he was fined two thousand guilders and set free; the two months in prison, however, seem to have caused him considerable economic hardship, since he published virtually nothing from 1568 to 1571. Perhaps this is reason enough to explain the temporal sequence of the new editions he produced of Zárate's work, in which, as we have already indicated, the first two, published very close together (1563 and 1564), were followed by a gap of nine years, which ended in 1573 with the appearance of the third edition. It is important to remember that as Benjamin Schmidt and Dorothy MacMahon have pointed out, Silvius presented his edition of Zárate's *History* in Flemish as "a mirror and example" of what had been achieved in pagan America by the good governance of Spanish Christians; the Flemish edition went so far as to suppress passages of Zárate's original text that might be considered offensive to the Spanish authorities.[57] This enthusiastic attitude becomes all the more significant bearing in mind that the dedication was addressed to the city authorities of Antwerp and to its leading citizens, who were reminded, doubtless with a view to arousing their interest as good merchants, of the existence of that New World of exploitable riches. This attitude of Silvius towards the exploits of the Spanish in America, is similar, as we have seen, to that reflected in Claesz's prologue to the Dutch translation of Grynaeus's compilation, published that same year, 1563, which was to be very short-lived. Indeed, the editions of 1563 and 1564 marked the end of that harmonious reading of the chronicles of the Indies in the Low Countries. The religious and political events unleashed from the following year finally reversed the situation, so that very soon after this it would have been highly unlikely that anyone would have repeated such enthusiastic comments.

For this reason, the second phase of the publication of Zárate's work in its Dutch version took place in the territory of the United Provinces and in a clearly different context. Twenty-three years after Silvius's last edition in Antwerp, *De wonderlijcke ende warachtighe historie vant coninckrijck van Peru* was republished, this time in Amsterdam, by Claesz, another bookseller who had emigrated to the north.[58] Two years later, Claesz printed it again. There was to be yet a third reprint (including the engravings) as late as 1623. So this second wave of editions took place at a time when the revolt in the Low Countries was well advanced, at least in the northern provinces, and when the inhabitants of that region had begun

[57] McMahon, "Some Observations"; Schmidt, *Innocence Abroad*, 69-70.
[58] Zárate, *Conqueste van Indien*.

to formulate their own ideas about the New World, marked by the parameters of the supposed "innocence" of the American world and of the ferocious tyranny exerted over its inhabitants by the Spanish. What we might call "Zárate mark two", the one published by Claesz, therefore coincides with the triumphant second phase in the Flemish translation of Las Casas. The appropriation of the two works by Dutch readers, despite the markedly divergent orientation of the original texts, is closely linked to the construction of a Dutch image of America, which in principle had little in common with the reading interests that prompted the first editions of Zárate in the Low Countries.

In conclusion, the reception of the texts of the chronicles of the Indies in those central years of the sixteenth century seems to be articulated along three axes, since interest in the wonders of exotic American nature is presented in association with three programmatic ideas: possibilities for lucrative trade, taste for the chivalresque and heroic adventures of Spaniards—subjects of the same monarch as Zárate's Flemish readers—and devout optimism about the unstoppable spread of Christendom to embrace millions of pagans converted into new believers. However—and this is what makes the case of the Low Countries more interesting than those of other European territories—after an inevitable pause those same texts of the chronicles of the Indies were to lend themselves to readings of a very different political and religious orientation. Those texts were therefore appropriated in plural and even opposing ways within the same territory, sometimes among the same individual receivers and the same groups of readers.

The Flemish Translation of José de Acosta's *Historia natural y moral de las Indias*

The initial phase in the process of formulating a Dutch narrative on America, one element of which, as we have just pointed out, was reprinting texts, had another essential component: the translation and publication of new works on America of a very different character, with narratives that no longer hinged solely on a fascination for the marvellous and exotic or a defence of the heroic nature of the conquest. Almost a century after the first accounts, the intention of these new works was to provide a rigorous scientific description of the geography, natural history and inhabitants of the New World. A fundamental landmark in this new chronicle of the Indies was undoubtedly the *Historia natural y moral de las Indias* by the Jesuit de Acosta.[59] The first Dutch translation was printed in 1598, eight years

[59] Acosta, *Historia natural*.

after the original Spanish.[60] The edition was produced on the presses of Gillis Rooman (fl.1587-1610), who had begun working as a printer in Haarlem in 1587 and remained active until 1611, producing a considerable number of Mennonite texts, especially letters and confessions of martyrs, as well as the Schottland Bible for Krijn Vermeulen (?-c.1610), and it was sold by Jacob Lenartsz (fl.1584-1637), a bookseller in the city of Enkhuizen itself. The translation was the work of Jan Huygen van Linschoten (c.1563-1611), to whom we shall return presently.

This edition, moreover, must be seen in a new context: the beginnings of the colonial and commercial expansion of the Protestant United Provinces, now de facto independent of the Spanish Crown. Acosta's work and the texts of Walter Raleigh (c.1552-1618) and Laurence Kemys (?-1618), all of which appeared in the same year, 1598, were translated and published at a time when English and Dutch ships were embarking on the exploration (and commercial exploitation) of some regions of North America. Nor, for that matter, was it a mere coincidence that Acosta's book was translated and published in a city like Enkhuizen. Firstly, it was a safe city amidst the war against the Spanish Crown; secondly, it was one of the ports where ships arrived from the East Indies loaded with exotic naturalia and where there was a group of scholars and collectors interested in this material, as Florike Egmond has pointed out.[61] Egmond has highlighted the essential role that the physician Berent van den Broecke [Bernardus Paludanus], resident in Enkhuizen from 1586, played in this group. Paludanus, who had taken a doctorate in Padua, had travelled extensively in Europe, Asia and Africa before settling in Enkhuizen, where he kept one of the leading collections of curiosities and exotica in the Low Countries, with objects obtained on his own travels and through exchanges with his correspondents, who included the Seville doctor Simón de Tovar (1528-1596) and Clusius.[62]

The Dutch *Historia natural y moral de las Indias* was printed in Gothic type and with no engravings, apart from the vignettes with the printer's mark on the title page and in the initial capitals of some chapters; the translation faithfully follows the structure of books and chapters, as well as the contents of the original, except for a small discrepancy in the numbering of the chapters in Books 3 and 5. The paratextual elements of this edition merit some comment, however. The extract of the resolution of the States-General granting a ten-year printing privilege, which Linschoten had requested, shows us that the work was already formulated as a project at least four years before its publication, since the document is dated

60 Acosta, *Historie naturael*.

61 Egmond, *Natural History in the Making*, 152-4; Gelder, "Paradijsvogels in Enkhuizen."

62 López-Piñero & López-Terrada, *Influencia española*, 72.

8 October 1594. This demonstrates that the reception of Acosta's original work (and all the signs are that this was through copies of the second Seville edition, of 1591) took place very rapidly in the territory of the United Provinces. As for the dedication, written by the translator and dated 1 May 1598, it was addressed to the Mayor, Pieter Cornelisz Keyser (fl.1555-1599), and to the "wise and prudent gentlemen" Willem Cornelisz the Younger (1555-1618), Meynert Simonsz Simeins (c.1539-1606), Lucas Gerritsz (?-1622) and Jacob Siverts Schipper (?-1625), aldermen of the city of Enkhuizen, as well as to the rest of the city's governing corporation.[63] Linschoten starts by saying that he was very pleased with the publication the previous year of the account of the journey to the East Indies [i.e. the *Itinerario*] and even more pleased by the fact that his account was proved to be true by later experience, that is, of those who went there afterwards and found that he had not invented things. He was also pleased now to have been able to add a similar account on the West Indies thanks to his friend the very erudite Dr Paludanus. Nonetheless, Linschoten, in a display of modesty typical of the rhetoric of this kind of writing, confesses to the reader that his own publication has not given him as much pleasure as the fact that he can now present a new one by somebody else [i.e. Acosta] which sets higher aims, is written more elegantly, and is executed with sharper intelligence than his own poor workmanship. His eulogy of the author, whom he does not name or identify as a Jesuit, clearly centres on his excellent knowledge of American nature and on his vast learning both in the natural sciences and in moral philosophy, law and religion. Linschoten therefore assures his readers of the reliability of the text he has chosen to translate, investing the result with the virtue of credibility when dealing with the "secrets of nature", so as to make it instructive and entertaining to Dutch readers. In conclusion, Linschoten admits that his own translation is not as elegant as the original, but hopes that his readers will enjoy and delight in the amazing stories, which are everyday events in the countries described here, almost on the other side of the world—stories that have never been recounted here before, about people who were previously quite unknown.

There is no doubt that the context of the production and reception of this Dutch edition of Acosta was very different from those of the Dutch editions of previous chronicles of the Indies. This *Historie naturael ende morael van de Westersche Indien*, in our opinion, perfectly exemplifies the new nexus of political, religious, commercial and intellectual interests that would henceforth govern the appropriation of texts of the chronicles of the Indies by dominant groups in the new United

[63] Acosta, *Historie naturael* [3], [7].

Provinces, who played the leading role in formulating a view of American nature now ready to be explored and exploited by them without taking account of those who had previously mediated it, but also without being able to abandon what had been accumulated by them over the course of a century.*

* The authors wish to express their gratitude to Florike Egmond for her invaluable help in reaching a proper understanding of Linschoten's original text. This work is an outcome of a research project (HAR2009-11030-C02-02) founded by the Direccíon General de Investigación of the Spanish Ministry of Education and Science.

The Limits of Language and the Challenges of Exotica: Pictures, Words, and Global Knowledge in Early Modern Europe

Benjamin Schmidt

Introduction: A Global Gallery

A popular conceit in early modern Europe maintained that global travel could be made immeasurably easier through the mechanism of print: books, particularly illustrated volumes of print geography, might offer armchair voyagers the means to explore the expanding world from the comfort of their home. Another conceit held that the globe could be especially enjoyed in visual form, as spectacle or "theatrum," a drama staged for the European viewer: "All the world's a stage," in the Bard's immortal phrasing. These two conceits come together brilliantly in a stupendous "gallery" of global imagery—a premodern form of globalism, as it were—constructed in the opening decades of the eighteenth century. The gallery in question was hardly a run-of-the-mill space, but one of the premiere collections of its day, teeming with pictures and chock-a-block with objects, piled one on top of another: the space was stuffed to the gills. Or rather this "virtual" space was incomparably crammed with visual material, since the gallery in question was a purely bibliogonic phenomenon. It was published around 1730 by one of the great impresarios of early modern print, Pieter van der Aa (1659-1733), who ran a flourishing atelier at the turn of the eighteenth century in the university town of Leiden; and it bears the telling title, *La galerie agreable du monde*. For the *Galerie agreable* was indeed both agreeable and global. It offered a tour of the world through the medium, principally, of pictures. It was, moreover, immense in scale and luxurious in its presentation. It comprised sixty-six "tomes," typically bound together in thirty or so individual volumes—the final product could vary according to the purchaser's preferences—and these tomes contained well over four thousand illustrations. These prosaic numbers merit our attention, since they

tell a truly astonishing tale of premodern (or, for that matter, modern) publication. Van der Aa's global "gallery" spanned some thirty folio volumes, each one superbly printed; and its production entailed a staggering three thousand copper plates, most of these spanning full or even double-page folios, many of the others with multiple illustrations per plate, and all of the ensemble expertly engraved or etched (figure 4.1).[1]



Figure 4.1. *Romeyn de Hooghe, frontispiece (engraved) to Pieter van der Aa,* La Galerie agréable du monde *(Leiden, ca. 1730)*

The *Galerie agreable* presented for the visitor's pleasure and edification a stunning assemblage of images. It housed maps of various sorts, including local and national cartography, continental and world maps, oceanic and astronomical charts. It boasted city-views, port perspectives, and miscellaneous *vedute*, all

[1] The literature on Pieter van der Aa's massive *Galerie agreable* is surprisingly meager, yet see the brief discussion in Hoftijzer, *Pieter van der Aa*.

smartly designed. And it featured landscapes and architectural plans of famous sites, landmarks, and buildings of the world—and much, much more. Along with these generally geographical images, the *Galerie agreable* also included pictures pertaining to world history and ethnography; depictions of religious practices and social ceremonies from around the globe; and engravings of sumptuary "habits" and exotic "races." It further highlighted the natural phenomena of Europe's expanding world: flora and fauna recently revealed, natural features of far-away places, curious medical practices along with their *materia medica*, and so on.[2] In short, the *Galerie agreable* delivered to its readers, in a grand if also concrete and manageable form, the whole of early modern Europe's known world. Or rather, it offered this not so much to "readers" as to *viewers* of the early eighteenth century, since the *Galerie agreable* was mostly, sumptuously, and overwhelmingly built on visual foundations. There were minimal captions, to be sure, and scattered paratexts to introduce this or that volume. Yet the bulk of the business was accessible, as advertised, in an "agreeable" pictorial form, with many of these pictures engraved with *trompe l'oeil* "frames" that further enhanced their visual effect (figure 4.6). The *Galerie agreable* offered a spectacular survey of the late-Baroque, early-Enlightenment world, and it presented that world as spectacle: as something to be comprehended in visual form, something meant to be seen. It offers historians, accordingly, outstanding evidence of an epic effort to collect and construct the world in a single space and to circulate this global knowledge throughout early modern Europe.

The *Galerie agreable* stands as a towering summa of early modern geography and marks the pinnacle of an exceptionally dynamic period for that discipline, particularly the subfield of exotic geography. Over the final decades of the seventeenth century and first few of the eighteenth—from the 1660s through the 1730s, more or less—exotic geography flourished in Europe as never before; and it flourished in the Netherlands as nowhere else in Europe (as the case of van der Aa might suggest). The Dutch produced, in this brief stretch of time, an astonishing corpus of consumable wares dedicated to the non-European world: books, maps, globes, prints, paintings, decorative arts, natural specimens, and more, all of which engaged, in one way or another, with the exotic world. These materials spanned several fields—geography, naturally, yet also cartography, natural history, medicine, religious anthropology, comparative sociology, to name but a

[2] There is nothing like an index to the contents of the *Galerie agreable* or even an adequate carto-bibliography. A starting point, however, might be Koeman, *Atlantes Neerlandici*, which summarizes some of the most vital cartographic material (often including the number of copies printed, the price, and other valuable data).



Figure 4.2. *Frontispiece (woodcut) to Gonzalo Fernández de Oviedo,* De la natural hystoria de las Indias *(Toledo, 1526)*

few. And these materials appealed broadly across Europe, consumed in multiple forms, editions (this regarding books), and translations. Indeed, the fact of their wide translation, undertaken in the Netherlands for non-Dutch consumers, is itself extraordinary—translations are typically done in the domestic markets where they circulate. Yet also noteworthy is the strikingly visual content of these materials, which rendered the matter of translation largely moot. Whatever their language, Holland-made books of this period were lavishly and expressly illustrated—thousands of pictures were deemed to be worth far more than the proverbial thousand words—a fact effectively demonstrated by the extravagant *Galerie agreable du monde*, the very title of which underscores the visual formula of its presentation. And these Dutch-made books—along with the maps, globes, paintings, and specimens, likewise produced in the Netherlands—sold briskly and broadly, as van der Aa's project, once again, would suggest. The enterprise of global geography in this period, as executed in the Netherlands, was big business.

This essay considers why this should be so: why geography, why the Dutch, and why pictures? It refines these inquiries by invoking the themes of this volume in order to focus on issues pertaining to mediation and translation of (in this case) "global" knowledge. Most fundamentally, how did sources of geography function to convey to—to *translate* for—early modern Europeans knowledge of their lately expanding world? How did the Dutch, more particularly, come to play such a pivotal role as go-betweens, or mediators, for consumers of exotic geography? And how and why did pictures become the preferred vehicle, and visual forms the language of choice, for this mediation? The field of geography, which expanded dramatically in the decades approaching 1700—a period that, not unrelated, also witnessed the expansion of colonial efforts by England and France, who would henceforth vie with Spain and Portugal for the mantle of Europe's leading imperial power—has a distinctive profile when it comes to the circulation-of-knowledge themes explored in this volume. These distinctions can be instructive. Early modern geography poses its own set of questions to the problems of knowledge production and knowledge distribution; and the solutions that develop to address these challenges are revealing: first, for what they say about the production and circulation of knowledge, in general; and, second, for how they highlight the function of pictures, in particular, as a medium of geography—as an important "go-between," to invoke the operative metaphor for this collection, for knowledge of the world.

Exotic Geography and its Discontents

The challenges faced by early modern producers of global, or "exotic," knowledge, especially those who wished to pitch their products to an expressly European audience, were considerable. The first and most basic demand of the discipline of exotic geography was to convey data from a distance: to bring to its audience—scholars, of course, yet by the Renaissance and post 1492 also merchants and a growing range of consumers—information on the overseas world. This meant, almost by definition, to describe *new* things: to delineate never-before-seen places and alien ("exotic" in the sense of non-native) specimens; to report curious customs and wondrous artifacts; to explicate mysterious religions and unfamiliar governments; and so on. This is not necessarily an unusual problem in the history of knowledge production—questions of viability, claims of credit, and presumptions of truth could pose a challenge in the premodern world even when it came to what might be thought of as "domestic" knowledge. Yet it is a problem compounded, in the case of early modern geography, by two additional factors. First was the simple matter of not-so-easily-bridged distance. As Europeans voyaged further abroad, they faced the growing predicament of convincing those back home of the validity of far-fetched facts—of data not merely from a distance, but with a built in time lag of perhaps two years (the time it could take to journey to the Indies and back), along with other standard impediments to verification.[3] This difficulty arose from at least 1492, and it led to rhetorical experimentation by Spanish reporters and others who had recourse to what Anthony Pagden has described as the "autoptic imagination" (a notion that borrows from Clifford Geertz's concept of "eye/I-witnessing"): the literary onus assumed by the author to persuade the reader to trust him, as a distant narrator, for his putatively eyewitness reporting.[4]

Second and more specific to the genre of overseas geography was the inherent difficulty of the material, the very "exotic" nature of the knowledge imported. Print geography generally entailed the artful assimilation, into broader textual and graphic accounts, of travelers' overseas description: fresh, if scattered, reports from abroad might be blended with older materials in an effort to create a coherent whole. It was precisely the freshness of the product that publishers chose to advertise. Yet these more valuable, sought-after, and original reports often challenged—almost ipso facto—commonly-held beliefs, long-cherished traditions, and accepted knowledge. They proposed natural histories that had been

[3] On data from a distance, see Law, "Methods of Long Distance Control." Compare also Rennie, *Far-Fetched Facts*; and Bourguet, *Instruments, Travel and Science.*

[4] Pagden, *European Encounters*.

hitherto unknown, described medicinal practices that would have been mostly unfamiliar, painted landscapes that had never before been seen, and the like. Travelers' journals also introduced novel—what printers typically labeled "marvelous" or "curious"—mores of a social, political, and economic ilk; and this posed not merely rhetorical challenges but also epistemological ones. How—and why—would readers accept the novel? A famous case in point is the *Travels* of Marco Polo. Polo, who journeyed to Asia and recorded his impressions from a seventeen-year sojourn, was branded "*il Milione*" for his reputed fabrications—for the million tall-tales he reputedly peddled in his *Travels*. This reputation might be understood to reflect, in retrospect, Polo's inability convincingly to convey data from a distance. Meanwhile, the far less reliable Sir John Mandeville had relatively fewer problems legitimating his travels, which, while taken by modern critics (from at least the eighteenth century) to be fictional, had a comparatively trouble-free reception in the first two or three centuries following their initial appearance. In fact, the fictitious narrator "John Mandeville" enjoyed broader circulation in print than the bona fide traveler Marco Polo.[5]

A third challenge, which barely touched the Polo-Mandeville generation, was the contested nature of extra-European geography in the early modern period. This relates not so much to truth claims over this or that foreign specimen, exotic habit, or religious practice (much as these may have sparked debate in certain quarters). Nor does it pertain to disputes over territory *per se*, or blunt claims of colonial authority put forward by one or another European power. Such matters, perhaps counter intuitively, did not typically make their way into most published products of geography, at least not those that enjoyed commercial success. To invoke the qualifying context of the market, however, and to highlight the group of products that did succeed commercially (and in print) is also to pinpoint more specifically where those sources of geography made circa 1700 would have distinguished themselves from earlier brands. Early modern geography certainly could lend itself to claims of political and territorial control; forms of geographic description, whether textual or graphic, could easily devolve into assertions of territorial hegemony. More basically, the production of geographic knowledge is almost invariably complicit in discourses of power—the only question being the nature, extent, and direction of that power. Earlier examples of extra-European geography habitually adopt a national or imperial perspective: an assertion of this or that imperial presence in the particular non-European space described. This is a practice that

[5] Mandeville was published deep into the seventeenth century—for example, alongside Sir Walter Raleigh's account of Guiana (in which Raleigh cited Mandeville on the matter of the war-like Amazons), in an anthology printed around 1670. See Higgins, *Writing East*.

goes back at least to the earliest Spanish accounts of America and to those that soon appeared from their imperial challengers. Gonzalo Fernández de Oviedo's (1478-1557) *De la natural hystoria de las Indias* (1526) was conceived (as Jesús Carillo has recently described it) "as imperial propaganda," a point plainly emblazoned on its frontispiece in the form of a Habsburg coat of arms (figure 4.2).[6] The frontispiece of Francisco López de Gómara's (c.1511-c.1564) *La historia de las Indias* (1552) (also known as the "Hispania victrix") makes much the same point with a double-headed (Habsburg) eagle and other imperial insignia crowning the book's title. And likewise do several other patriotic geographies produced in the Renaissance flaunt their imperial messages: Richard Hakluyt's (c.1552-1616) *Principall Navigations* (1598), which was famously dubbed "the prose epic of the modern English nation"; André Thevet's (1516-90) mid sixteenth-century geography of America, which carried the distinctly Gallic title, *Les singularitez de la France Antarctique* (1558); and numerous other perhaps less well known Renaissance products.[7] In all these cases, works of geography carry a notably parochial orientation; they convey a national, dynastic, or quasi-imperial message.[8]

This can hardly be said, by contrast, of van der Aa's global "gallery" and the other works of its ilk produced in Dutch ateliers a century or two later. The frontispiece of the *Galerie agreable du monde* featured an allegory of Europe, who takes the form of a maiden ("Europa") receiving the riches of the globe from the other, largely submissive continents. The pitch is pointedly *European*, and the intent is to transcend unambiguously the parochial, national, and imperial rivalries—and tastes—of an earlier generation of European consumers of geography.[9] Compare, as well, Engelbert Kaempfer's (1651-1716) *Amoenitatum exoticarum* (1712) or "Exotic Pleasures"—the author served as a physician for the Dutch East India Company—which invokes the concept of "pleasure" (rather than politics) and deploys the relatively fresh word *exotic* in its title. Like van der Aa's,

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6 Carillo, "The World is Only One and Not Many." See also Battista Agnese's so-called "Charles V Atlas," which, if a manuscript source, indicates all the same the approach taken by Spanish-endorsed sources of geography.

7 Full titles can be found in Alden & Landis, *European Americana*. Note the origin of the Hakluyt comment in the writings of J. A. Foude: Quinn, "Hakluyt's Reputation." See also Johnson, *German Discovery*, and Schmidt, *Innocence Abroad*, on earlier German and Dutch geography, respectively.

8 A notable exception would have been the work of Theodor de Bry, which is analyzed by Michiel van Groesen: see his essay in this volume, "Entrepreneurs of Translation."

9 On the exceptionality of this approach—and the development of a European sensibility in geography—see Hay, *Europe*, and Pagden, *Idea of Europe* (esp. the introductory essay and the chapter "Europe: Conceptualizing a Continent").

Kaempfer's frontispiece depicts the maiden *Europa*, here flanked by Poseidon and an allegorical bull, as she receives the treasures of the Indies served up on a platter. It is not that these Dutch-derived sources are politically disinterested, or that allegorical images of this form lack ideological content or imperial design: that can hardly have been the case. It is rather that their perspective is *European* and their message more broadly pitched than the earlier forms of geography; they are what might be thought of as *pan*-colonial or perhaps *hyper*-imperial. The ideological bent of these new sources, in all events, was ultimately more catholic than the earlier Habsburg, British, French, or even Russian forays into the field of overseas geography.[10] And these Dutch-made volumes of the late-seventeenth and early-eighteenth century quickly came to dominate the field of exotic geography.

Made-In-Holland Geography circa 1700

The Dutch imprimatur was stamped frequently, if relatively discreetly, on the many products of geography made in the ateliers of Holland during the decades that bookend 1700. This assertion of *Dutchness*, however, needs to be both underscored and qualified in two important ways. First, a simple but important assertion: The sources of geography that circulated most widely and most conspicuously in the decades surrounding 1700 *were Dutch*—which is as much a statement of what they were as what they were not. These materials did not originate, that is to say, with English or French producers, who might have had good reason to describe a world in which they were increasingly active and interested. Nor did they obtain from Spain and Portugal, which might have had the best access to—and therefore have been ideally situated to assemble—knowledge of the Indies. While these competing colonial powers certainly had a critical role in the collection and circulation of exotic knowledge, the *final products*—the published books, prints, and maps that landed in most consumers' hands—derived disproportionately from workshops in Holland. Second, a nuanced contention, which mildly complicates the first assertion: even as these sources, in their ultimate published form, may be called "Dutch," they did not necessarily begin their lives with Dutch-born travelers, Dutch draftsmen, Dutch naturalists, or even Dutch authors. They are Dutch in terms of commercial, rather than personal (or authorial), modes of production. Engelbert Kaempfer, to cite a quick example, was German born; and he and his publisher collaboratively mined, as did most authors and publishers of this genre,

[10] The rather less well known Muscovy variant of this phenomenon is explored in Kivelson, *Cartographies of Tsardom*.

numerous other sources of geography to produce his "exotic pleasures."[11] Van der Aa obviously borrowed—compulsively—to construct his 66-tome gallery of the world; his massive project of description, that is, rested almost entirely on recycled materials. That said, it should be stressed that the finished product was largely fabricated by Dutch printers, designers, ghost writers, and so on. This is a critical point, and it brings us back to the volume's central themes by making a larger point: that in this period, the Dutch became the most crucial conduits, go-betweens, and translators of printed, public, circulated materials focused on the non-European world; and that the Netherlands simultaneously became the central factory, clearinghouse, and *entrepôt* for early modern knowledge of the world. This applies particularly to the field of geography, which incorporated as well the fields of medicine, natural history, comparative religion, and much more.[12]

These Holland-made materials were impressive for their quantity as well as their quality. They span genres and media, occur in multiple forms and languages, and cover vast expanses of the globe. Books of various genres, embellished maps and globes, still-life and landscape paintings, ceramics both imported and domestic, decorated textiles and carved woods, exquisite foreign artifacts, precious natural specimens: these are some of the many exotica processed in the Netherlands and then exported for consumption across Europe, particularly to the northwest parts of Europe that had a mounting interest in overseas affairs. The production of printed matter—books, prints, maps—offers a useful case in point. For exotic print material, the surge in production (and in consumption) commenced around 1665, when Jacob van Meurs (c.1617-80) published Johan Nieuhof's (1618-72) phenomenally popular description of China. This launched a series of large, lavishly illustrated books from van Meurs's Amsterdam atelier, which described an enormous swath of Europe's known world. These volumes were translated at once into French, German, English, and Latin; and they had an enduring influence, accordingly, on subsequent works of European geography. Books on America, Africa, and Asia appeared regularly over the coming decade, each carrying a similar design or "look" (figure 4.3), which suggests a premodern form of "branding."[13] The fairly representative frontispiece to van Meurs's volume on "Asia" (chiefly covering Central and South Asia) assembles a host of ersatz-Asian ethnicities and displays heaps of precious commercial products, presumably from the Orient.[14] The swirling format, also typical for these books, centers on emblematic figures:

[11] Haberland, *Engelbert Kaempfer*.
[12] Cook, *Matters of Exchange*; see also Hochstrasser, *Still Life and Trade*.
[13] Schmidt, "Geography Unbound."
[14] Dapper, *Asia*.



Figure 4.3. Asia, *frontispiece (engraved) to Olfert Dapper,* Asia: of Naukeurige beschryving van het rijk des Grooten Mogols, en een groote gedeelte van Indiën *(Amsterdam, 1672)*

the elephant, mahout, and turbaned prince (a progenitor of the "Oriental despot" of the later eighteenth and nineteenth century). And the blank cartouche at the bottom permitted easy insertion of other imprints, which allowed not only translation but also the transfer of "credit" to other authors and printers. Van Meurs published volumes on Turkey, Syria, Persia, India, China, and Africa—all composed by Olfert Dapper (c.1635-89), all from the comfort of his Amsterdam home.[15] These, in turn, formed the basis of the famous London "Atlases," which, if nominally authored by the British Royal Geographer John Ogilby (1600-76), almost wholly derive from Amsterdam sources.

Along with van Meurs, several other entrepreneurial bookmakers soon got into the act, sometimes in collusion with van Meurs—Johannes van Someren (d.1678), for example, collaborated on books describing Central Asia and the Indies, each of which went through multiple translations and boasted ample illustrations—and sometimes in competition. Johannes Janssonius van Waesberge (1616-81) and van Someren teamed up to produce, among other volumes, a bestselling description of South India.[16] We know of their rivalry with van Meurs—and of the fiercely competitive business of print geography—partly due to pictures: a legal dustup over the highly sought-after draftsman Coenraet Decker (1651-1709), who signed an exclusive contract with van Waesberge and van Someren that prohibited his undertaking any engravings for van Meurs.[17] We also know from these contracts of the premium placed on pictures. For in stipulating the number and nature of illustrations for specific publications, these contracts offer archival commentary on what is obvious even to the most inexpert observer: that these volumes are visually stunning, packed with pictures of exotic peoples, maps of all formats, illustrated *naturalia*, and so on.

And this points, once more, toward the most salient quality of the Dutch brand of printed geography, namely its pictorial presentation. Geography books made in the Netherlands almost invariably boasted of their ample, "original," and skillfully crafted illustrations. Volumes manufactured in these years typically depicted the peoples and products of the Indies, the "peoples" exhibited in the manner of ethnographic costume books and the "products" spread out like so many items in a mail-order catalogue (figure 4.4). They also illustrated, almost obsessively, the ports of the world, typically with ships lying in the harbor's road (hinting, perhaps, at the commercial potential of the non-European world). Yet there is also recourse

15 Wills, "Author, Publisher, Patron, World."

16 See, for example, Struys, *Drie aanmerkelijke en seer rampspoedige reysen* (1676); and Baldaeus, *Naauwkeurige beschryvinge* (1672).

17 Eeghen, *Amsterdamse boekhandel*.



Figure 4.4. Verscheiden slagen van bonetten *(engraved), in Olfert Dapper,* Gedenckwaerdig bedryf der Nederlansche Oost-Indische Maetschappye, op de kuste en in het keizerrijk van Taising of Sina *(Amsterdam, 1670)*

to pictures for the sake of pictures, a display of technical virtuosity that surely was among the chief selling points of these volumes. Cornelis de Bruyn (c.1652-c.1727), perhaps the finest early-modern draftsman to take to the road, produced extravagant *vedute* of the East for his geographies. And while some of his engravings may have had strategic value—a colossal depiction of Smyrna emphasizes its harbor and trade—others make the point of sheer graphic mastery: a gargantuan view of Moscow, for example, which spanned a full ten engraved folios (figure 4.5).[18] In fact, the preponderance of works issuing from Dutch ateliers contain magnificent illustration programs, which drew attention to themselves on the title pages (which invariably advertise the pictures); in the paratexts (which meticulously detail the pictures); and through the pictures themselves. The volumes of van der Aa contain, among their thousands of prints, many pictures engraved with ingenious devices intended solely to draw notice to their visual presence: engraved "frames" that enhance a picture's status; *trompe l'oeil* details that play with the viewer's sense of visual experience; outside "viewers" who peer in to admire the illustrated subject matter, and so on (figure 4.6). "Metapicture" is the term used by the critic Hung Wu (and adapted by W. J. T. Mitchell) for this kind of heightened pictorial presentation and intensely visual approach.[19] "Picture book" would be the layman's term for volumes of such design, overflowing with beautifully designed, expertly "cut," lavishly illustrated ensembles of geography. And "coffee-table book" might be the modern and more bluntly commercial phrasing. These, in short, were coffee-table books produced at the dawn of the age of coffee.

Dutch-made geography books lured customers with pictures, yet their easy accessibility was also amplified by their efficient translation into other languages and other printed forms. This took place at various levels. First and most fundamentally, books were quickly and routinely translated into other languages, although this took place, rather exceptionally, under the auspices of the Dutch bookmaker rather than a publisher-printer living in the country of translation. French, German, and English books, accordingly, came from Holland, as had for many years standard Latin editions. When they did not—when a London bookseller, for example, undertook a translation himself (typically from a French text already prepared in Amsterdam)—the plates or pressed pages of illustrations (folios imprinted with pictures, yet without the text) would be shipped from Holland. This meant, first,

[18] Bruijn, *Reizen over Moskovie*. See also Drijvers, *Ik hadde de nieusgierigheid*.
[19] Hung, *Double Screen*; see also Mitchell, *Picture Theory*.



Figure 4.5. *Cornelis de Bruijn,* Moscow *(engraved), in* Cornelis de Bruins Reizen over Moskovie, door Persie en Indie *(Amsterdam, 1711)*



Figure 4.6. *Jan Goereé, Views of Greek cities (engraved), in Pieter van der Aa,* La Galerie agréable du monde *(Leiden, ca. 1730)*

that Dutch publishers maintained exceptional control over their product; and, second, that Dutch-made geography enjoyed a remarkably extensive reach.

The process of Dutch publishing demonstrates not only the careful organization and canny production practices of Dutch printers, but also their expansive roles as mediators and circulators of global geography. To cite a quick example: Knowledge of South Asia in this period came to consumers most commonly from Philip Baldaeus's (1632-72) *Naauwkeurige Beschryvinge van Malabar en Choromandel* (rendered into English as the "True and exact description of Malabar and Coromandel"), a study of the southern coasts of India which also covered the hotly contested island of Sri Lanka.[20] The lavishly illustrated volume was the product of the dynamic publishing duo Janssonius van Waesberge and van Someren, who personally oversaw the first-edition Dutch text's translation into German, incorporating in the new edition all of the images of the old (figure 4.7). The publishers also commissioned a characteristic frontispiece—exotic animals, luxurious prod-

[20] Baldaeus, *Naauwkeurige beschryvinge*.

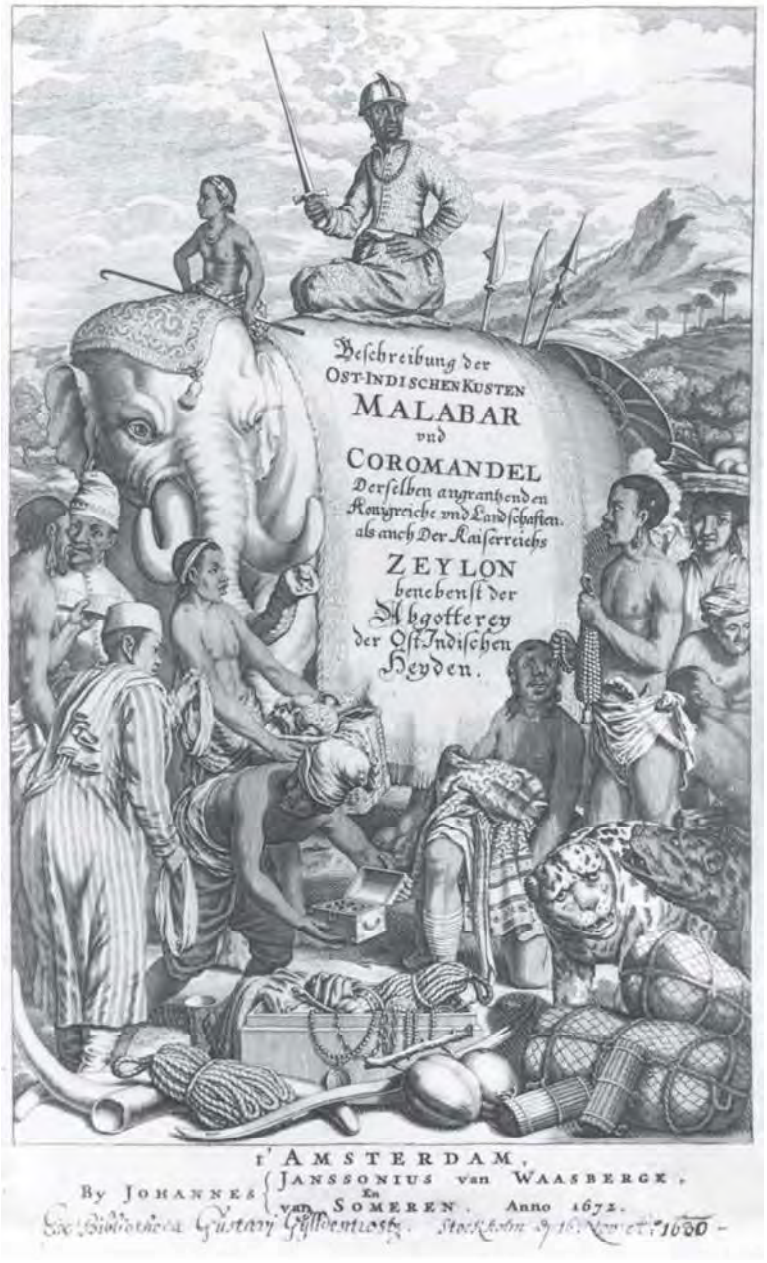


Figure 4.7. *Frontispiece (engraved) to Philip Baldaeus,* Wahrhaftige ausführliche Beschreibung der berühmten Ost-Indischen Küsten Malabar und Coromandel, als auch der Insel Zeylon *(Amsterdam, 1672)*

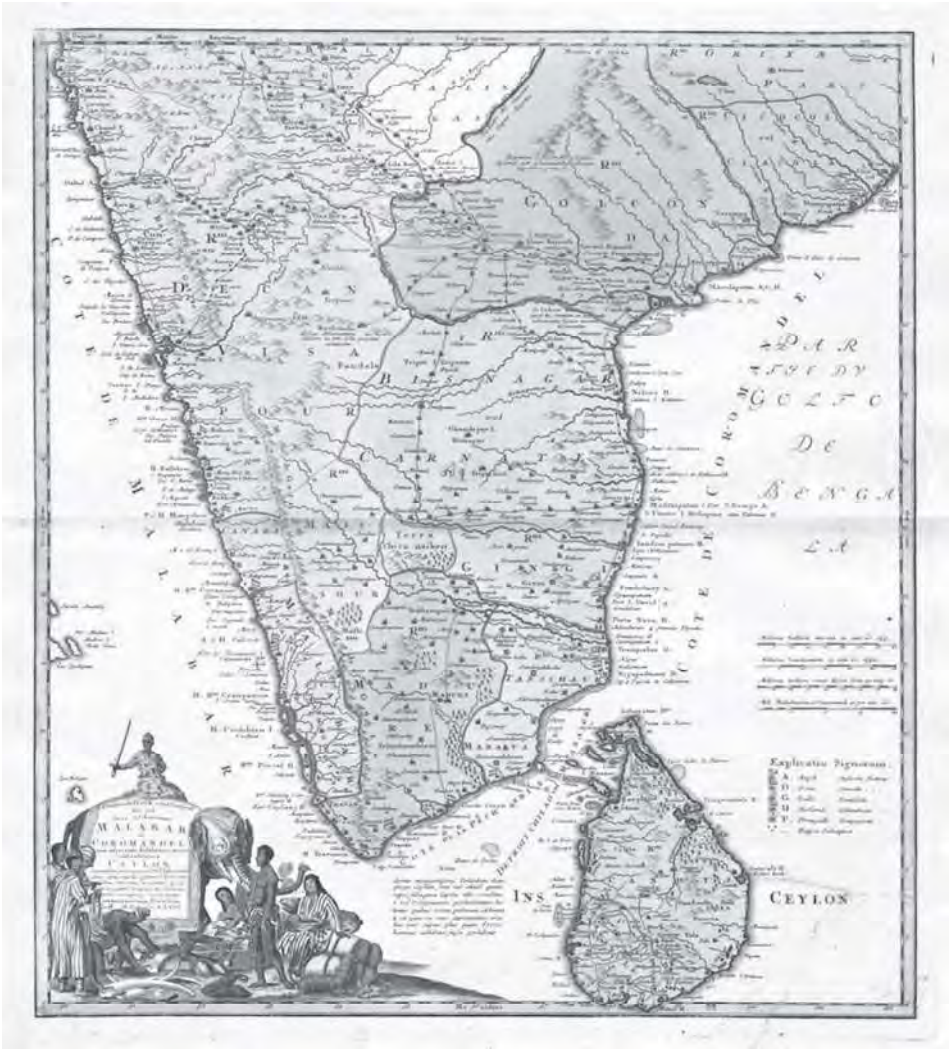


Figure 4.8. *Johann Baptist Homann ("Homann Erben"),* Peninsula Indiæcitra Gangem hoc est Orae celeberrimae Malabar & Coromandel cum adjacente insula non minus celebratissima Ceylon *(1733)*

ucts, princely rulers—for which they took care to design a durable cartouche, which could accommodate the book's changing titles: the fabric draping the elephant provides the publishers with an erasable sketchpad for the German title and whichever further titles might follow. This German edition, in turn, served an exceptionally broad Northern-European constituency. One extant copy was sold in Stockholm, for example, where the owner conveniently left his tracks on 16 November 1680 in the form of a manuscript annotation (figure 4.7); one can presume there was further circulation in the old Hanseatic ports and the urban centers of Scandinavia.[21] The plates of the original Amsterdam edition, already once recycled for the German volume, also made their way to London, where they came into the hands of Awnsham Churchill (1658-1728), the great English printer of "voyages and travels," who highlighted precisely the superior visual impression made by what he cunningly claimed as "his" edition. The "exact Delineation" of the "cuts," Churchill boasted, made his the best book on the topic. Finally, the images endured in cartography, including a widely-circulated map of India, which offers a variation of the original frontispiece now reconfigured for an entirely new genre and for a wider audience (figure 4.8).[22]

This last iteration suggests another, perhaps more figurative yet no less critical, form of translation. Major portions of Baldaeus's book derived, unbeknownst to most of its early modern readers, from a Jesuit-authored account penned about a half-century prior to Baldaeus's arrival in India.[23] (There is a strong dose of irony to its publication under the name of Philip Baldaeus, the putative author, who proudly advertised in the text his status as a Calvinist *predikant*—but this is an entirely different tale of mediation.)[24] The volume also incorporated illustrations that came from other sources; and many of these were prepared by the Dutch artist Philips Angel (c.1616-after 1683) (figure 4.9), who copied his images from an Italian manuscript that he had obtained in India (likely, too, the work of a Jesuit author). This latter, European-prepared manuscript relied, in turn, on sketches from an indigenous hand, likely Gujarati in origin (that is, from northwest India rather than Malabar or Coromandel). All of this implies a far more convoluted arc of translation and mediation, both for the words and the images of "Baldaeus's

[21] The manuscript notation is on a German edition (Amsterdam, 1672), which is held in the "Gross" collection of the Rosenfeld Library of the University of California, Los Angeles (shelf number *DS 411.1 B19w).

[22] Churchill, *Voyages and Travels* [Preface]. The derivative map was issued in several editions: see, for example, Delisle & Homann, *Peninsula Indiæ citra Gangem* (1733).

[23] See Bergvelt, *Wereld binnen handbereik*, cat. 413.

[24] Schmidt, "Mediating Malabar."

book." For the ultimate, Holland-made description of South India, one can say with only shaky confidence, was at best a third- if not fourth-hand account. It was certainly much handled, much manipulated, much translated, and much mediated en route to the consumer. And so it went with many, if not most, of the products assembled in the bustling workshops of Dutch print geography; and this underscores a larger point: the role of Dutch print ateliers as vital go-betweens in the production and circulation of knowledge of the non-European world, particularly through their distinctive brand of richly illustrated volumes of exotic geography.

Pictures and Translations, or How to See the Exotic World

The distinctiveness of the Dutch brand—its "market niche," to invoke the language of modern consumer culture—had much to do with its success, and this leads back to the framing questions of this essay: How did Dutch producers manage to surmount the challenges of exotic geography, and why were their sources so pervasively effective? How, in other words, did they successfully—and, of course, profitably—"translate" the exotic world for a European audience? Pictures have been the common thread running through the many publications thus far invoked in this essay, and they are in fact the most striking feature of Dutch print geography from this period. Dutch-made volumes are almost universally larded with illustrations. Pieter Van der Aa's immense picture "gallery" expresses this proclivity most dramatically, yet it may be understood simply as the most stupendously graphic structure in a metropolis of amazing pictorial edifices. The question might therefore be recalibrated: How did the Dutch so productively make *picture* books, and why did pictures prove such an effective way to present and circulate knowledge of the non-European world?

One answer may be simply technical: because they could. The Dutch, that is to say, had already developed by the mid-seventeenth century the best infrastructure in Europe for printing handsomely illustrated books. The Dutch Republic possessed the highest number of printing presses per capita; the most (and best-trained) engravers and typesetters; the greatest access to type founders and to high quality paper (the latter originally imported from France, yet made domestically after 1685 in paper mills in the Veluwe and along the river Zaan); the best economic model for book manufacture (the innovative system of prepublication subscription); the highest literacy rates (which generated a broad class of consumers of books); the most relaxed printing laws; the most favorable guild regulations; and, ultimately, the best ability to print large-format, lavishly illus-



Figure 4.9. *After Philips Angel [?],* First Avatar of the God Vishnu *(engraved), in Philip Baldaeus,* Naauwkeurige beschryvinge van Malabar en Choromandel, der zelver aangrenzende ryken, en het machtige eyland Ceylon *(Amsterdam, 1672)*

trated books.[25] The Dutch Republic had also developed by this time an excellent supply system, more particularly, for knowledge of the exotic world. They cultivated an open market for manuscripts and charts, stocked by soldiers and seamen who had voyaged abroad; they imported a steady stream of natural specimens from merchants and naturalists, often in the employ of the Dutch East India and Dutch West India Companies; they possessed a community of patrons and *liefhebbers* (roughly "amateurs"), who themselves commissioned networks of scientists, draftsmen, and overseas agents to generate a rich store of geographic data and exotic artifacts; and they hosted in the Netherlands a thriving populations of naturalists, physicians, apothecaries, antiquarians, craftsmen, and collectors who shared an avid interest in the overseas world.[26] All of these factors made the Dutch Republic, precisely in the final decades of the seventeenth century and the opening years of the eighteenth, the most favorable place in Europe, in terms of technical know-how and overseas networks, to produce exotic knowledge. The commercial orientation of their overseas trading companies and the strength of their print ateliers alike made the Dutch ideally situated to make geography.

All of this, however, while addressing the Dutch role in this enterprise—their modes of production—still skirts the matter of pictures as such, which is also a question of consumption. While producers in the Netherlands were perfectly outfitted to supply illustrations, it is not necessarily the case that consumers in Europe (or at least northwestern Europe, where geography books circulated most widely) would favor illustrations. A final response to these questions, also from the perspective of consumption, might further consider both the programmatic presentation of these products by their makers—the printers' sales pitch, so to speak—along with an analysis of how these volumes actually worked: how this brand of print geography ultimately enticed and satisfied its customers. This approach might offer food for thought not only on the purpose of pictures in exotic geography, but also on the process of mediation and the function of go-betweens in the circulation of early modern knowledge.

Why then pictures? Pictures are purposefully made, to be sure, yet pictures are also seen, enjoyed, and processed by the viewer; and *seeing* certainly played a role in the reception of exotic geography. "Seeing is believing," ran the proverbial wisdom, which was codified in the English language precisely in this period. The adage was alive and well in the world of early modern print, too, particularly in the business of knowledge production—what we would call "science."

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[25] Berkvens-Stevelinck, *Magasin de l'univers*; and Hoftijzer, "Metropolis of Print."

[26] Cook, *Matters of Exchange*.

John Ray (1627-1705), who combined studies of ichthyology and ornithology with lexicography and orthography, placed the maxim in his *Collection of English Proverbs*, whose publication in 1670 coincides with some of Ray's most important work in natural history.[27] Early modern science placed a premium on sight, and an expressly visual strategy also motivated those toiling in the field of geography. Bookmakers took note. They presented their audience with an opportunity for *autopsia*—"self-seeing"—as so many of these volumes posited in their prefatory remarks. They gave consumers a chance to see with their own eyes and to marvel at, through the medium of pictures, the wonders of the world. Prefaces contended, furthermore, that exotic geography in particular demanded visual accounting. "All who are curious," wrote Jean de Thévenot (1633-67) in his mid seventeenth-century account of travels through Asia, "delight in the Rarities they *see*; and there are but few, who, if they were not otherwise engaged, would not willingly be themselves the *witnesses* and *spectatours* of them."[28] Thévenot's uncle Melchisédec (c.1620-92), a highly-regarded Parisian printer, tried to make this possible in his own publications; yet he deferred to the Dutch, who excelled precisely on this score: "they describe things as they are [...] they report only what they *see*."[29] Kaempfer's publisher noted—and here it is valuable to distinguish between the putative author of a *text* and the actual producers of a *book*—that copper engravings had been laboriously furnished for his volume, "since exotica are very difficult to comprehend without the help of clarifying illustrations." Readers needed clarity to see such things with their own eyes.[30] And then there is the case of Cornelis de Bruyn, the Hague-born artist-cum-traveler who produced exquisite engravings derived from the drawings that he made during lengthy sojourns in the Near East and Central Asia. Scholars had hitherto "let their ears be filled with embellished stories [*verzierde vertellingen*]," de Bruyn averred, yet he had witnessed with his own eyes and recorded in his own sketchpad (in the best

[27] See the entry in the *Oxford English Dictionary* under "seeing," which cites John Ray's 1670 *Collection of English Proverbs* (140)—"Seeing is believing"—as well as John Arbuthnot, who combined science with satire: "There's nothing like Matter of Fact; Seeing is Believing" (from "History of John Bull" ["Lewis Baboon," iv, 21] published in 1712). Note, further, that there were earlier instances of the proverb that relate it to a Latin precursor, for example John Clarke's 1639 *Paræmiologia anglo-latina* ("Seeing is beleeving," 90), which borrows, of course, from Erasmus's "Adages." Ray's other work included, perhaps most famously, his history of fishes, which was generously illustrated, albeit with some difficulties. See Kusukawa, "Historia piscium."

[28] Thévenot, *Travels*, 1 (emphasis added and punctuation modified).

[29] Cited in Blussé & Falkenburg, *Beelden van een Chinareis*, 13.

[30] Kaempfer, *Amoenitatum exoticarum* [Preface] ("quam ut Icones illis adderem, aeri prius incidendas, sine quarum lumine & adminiculo exotica difficilime intelliguntur").

Baconian fashion) the wonders of the world. He would thus "show" the reader in visual form—through his laboriously crafted illustrations—the "true" Levant.[31] *Autopsia* in this way constituted a gateway to bona fide exotica, and volumes of Dutch geography provided access through this gateway by dint of their ample and excellent illustrations.

Pictures, another editor commented, were "the Soul of performances of this kind," by which he meant to stress the relative primacy of images in a bookish world otherwise awash in text.[32] In volumes of exotic geography, by contrast, pictures made things true and real in ways that were thought to transcend the limitations of textual language and to circumvent the restrictions of textual description, which may have inhibited genuine sight. According to the English editor of John Nieuhof's description of China, the plentiful illustrations of his book "so plainly represent[ed] all things *observable* ... that with the help of the Cuts we seem to be conversing with the People of those parts, to *see* all their Towns and living Creatures, and ... be thoroughly acquainted with their Habits, Customs, and Superstitions."[33] Pictures would seem here to *surpass* textual description. In this regard, geography borrowed from natural history. The two were related, of course. Natural history served as a vital ingredient in the genre of geography, incorporated into most full-service descriptions of other places and their natural environments. More to the point, concerns for visual validation applied equally to both disciplines. Ray made the case in the 1680s for the efficacy of pictures, as he toiled to obtain illustrations for his fish book: "Now a good *Figure* having this advantage [over] a verbal description," he wrote, "that it conveys speedily to the mind, with ease & pleasure, a clearer & truer *Idea* of the thing delineated, then the understanding can with much labour & in a long time form to itself in a description."[34] "Those things that are presented to the eyes and depicted on panels or paper," wrote the sixteenth-century naturalist Leonhart Fuchs (1501-66), "become fixed more firmly in the mind than those that are described in bare words." Pictures can take precedence over prose; visual cues establish or "fix" in the mind's eye natural historical matters. "[They] communicate information much more clearly than the words of even the most eloquent man," Fuchs added.[35]

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31 Cited in Sancisi-Weerdenburg, "Yver, aendacht en naerstigheit," 133.

32 Kaempfer, *History of Japan*, sig. xliij-iv.

33 Churchill, *Voyages and Travels* [Preface] (emphasis added). Churchill is referring to the English version of Nieuhof, *Remarkable Voyages & Travells*.

34 Ray, *Historia piscium*, cited in Kusukawa, "Historia piscium," 192 (see note 68; emphasis in the original).

35 Fuchs, preface to *De historia stirpium comentarii insignes* (Paris, 1543), x-xi (emphasis added); quoted in Ackerman, "Early Renaissance Naturalism," 17.

A similar case obtained for geography—at least the lushly visual variant that was produced in Holland over this period. And here an additional argument was proposed: that pictures did not merely transcend words, but also surmounted the fundamental obstacles of written communication. For pictures not only communicated to a wider audience; they also spoke a transcendent "universal language." Here the key figure was not a naturalist, geographer, or bookmaker, but the Czech educator and Amsterdam expatriate Johann Amos Comenius (1592-1670), who became a leading advocate of teaching through pictures. A religious refugee and highly original thinker on matters of pedagogy, Comenius counts among early modern Europe's more fascinating and multi-dimensional figures, not least for what he had to say about translation and mediation. For our purposes, two simple facets of his profile need emphasizing: first, his irenicist aspirations for Christian Europe, born of his own unhappy experiences of the bloody wars of religion; and, second, his championing of "universal education" (as we would call it), namely an educational system that extended to the broadest possible audience. Toward this latter goal, he composed and designed a textbook that taught chiefly through pictures. The aptly titled *Orbis pictus* (Nuremburg, 1658) was a picture book, pure and simple, with large woodblocks captioned by meager text. Its motivating principle was straightforward: to instruct through the eye, with visual prompts, rather than through the ear, with intricate texts (compare De Bruyn's comments on the relative value of aural and visual reports of global wonders). Pictures had the ability to transcend parochial boundaries, Comenius proposed, since visual language was common to all. His approach was neatly epitomized in the remarks of John Evelyn (1620-1706), the famous English diarist and a founding member of the Royal Society, who admired the textbook and commented succinctly that "[a] picture is a kind of Universal Language."

The *Orbis sensualium pictus*—"the visible world in pictures," to use its full and perfectly apt title—placed great trust in the explanatory power of pictures. Comenius imagined in pictures a most perfect vehicle of communication: a cross-cultural, cross-confessional, transnational medium that conveyed the essence of things. Pictures, furthermore, rendered translation moot. Comenius judged pictures, consequently, as *preferable* to words—as did producers of Dutch-made geography. Pictures made it easier to convey the most rudimentary elements of a child's education, according to Comenius, just as pictures might translate the most basic truths of the Christian faith. They made matters "clearer and truer," as Ray put it, in his case regarding natural history. Pictures, it was also understood, offered the truest means to present to Europeans the expanding and complex world, and in this sense Comenius's *Orbis sensualium pictus* might be seen as a ped-

agogic partner to the geography "text" of van der Aa, the picture-rich *Galerie agreable du monde*. Both rendered their "global" subjects into visual forms that could be easily "read," and both pitched their products (or so they hoped) to a broad-minded audience that transcended parochial interests. Van der Aa, in other words, designed his books as Comenius did with a *European* consumer in mind, in a form that he hoped would obviate the need for translation. The world that he and Comenius aspired to describe was the non-European world, displayed for a pan-European audience. This ecumenical approach encouraged both men to revert to pictures, which they understood to constitute not only an appealing but also a widely accessible medium.

And this suggests a final proposition, which pertains directly to the broad attraction of Dutch geography, a genre that circulated in numerous editions, in multiple translations, across several media, and, not least, in strikingly pictorial forms that scarcely needed mediation—or so it was presumed. This presumption of wide appeal was commercial as well as strategic. Picture books sold well, and Dutch-made volumes of image-rich geography became a highly profitable "brand." Van der Aa died a rich man.[36] This market-oriented approach, however, was not based simply on epistemological concerns pertaining to the circulation of knowledge, but also on knowledge of the market and of how products circulated. The visual formula of exotic geography turned out to be a highly successful way to pitch the world to an increasingly competitive and imperially-minded Europe; and Dutch producers pioneered a mode of production—of formulating and distributing descriptions and depictions of the globe—that seemed to transcend Europe's traditionally parochial boundaries. Their products crossed linguistic, national, and even imperial lines. They mediated among the emerging colonial powers-cum-consumers of Europe by appealing to their sense of "pleasure" in an "agreeable" world, which had lately been reconstituted as a "gallery" of appealing pictures. And this calls to mind one more motive of go-betweens, namely profit. Middlemen, by intent, make money. They endeavor further to smooth out matters of exchange and to ease the transfer of products, in this case potentially prickly knowledge products. Middlemen try precisely *not* to meddle. A pictorial approach was consequently a non-historical approach: the works of van der Aa and his cohort traded in atelier-made and readily-reproduced images, which were rendered clichés and stereotypes (jargon, to be sure, from the world of print) that offered "timeless" vignettes of the world. Pictures provided a strategy of representation to

[36] His widow "was one of the richest women of Leiden"; his daughter and heir was worth over 100,000 gulden. See Hoftijzer, *Pieter van der Aa*, 87.

surmount the ideological complexities of geographic knowledge by transforming global matters—or what might be called "globalism"—into a mostly agreeable gallery. It is a strategy and a brand whose impact is felt to this day.

Entrepreneurs of Translation: Latin and the Vernacular in the Editorial Strategy of the De Bry Publishing House

Michiel van Groesen

In a 2005 article, Peter Burke described the early modern Frankfurt publisher Theodore de Bry (1527/28-1598) and his son Johan Theodore de Bry (1563-1623) as "entrepreneurs of translation."[1] The De Brys, he explained, were printers who commissioned German and Latin translations of travel books. Here, Burke referred to the so-called De Bry collection of voyages—one of the most monumental publications in early modern Europe. In twenty-five prestigious folio-volumes, lavishly illustrated with around six hundred copper engravings, the De Brys issued a comprehensive panorama of Asia, Africa, and the New World. The accounts they included and translated into Latin and German were written by travelers from all over Europe. For sheer size and impact, the collection must be ranked among the major works of overseas geography published in early modern Europe, alongside books such as Abraham Ortelius's (1527-1598) *Theatrum orbis terrarum* and Joan Blaeu's (1596-1673) *Atlas maior*. By the time Burke's article appeared, my own research had shown that the process of translation was in fact the cornerstone of the careful editorial policy of the De Bry firm.[2] The diversification of language and the occasional use of multilingualism were key elements in the family's commercial strategy. In this article I will argue that while 'entrepreneurs of translation' is an apt categorization of the De Brys, the publishers used different languages in ways almost certainly more intricate than Burke could have envisaged when he first coined the term. As a case study, this analysis can offer some tentative answers to questions of primary interest to the practice of early modern translation.

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1 Burke, "Renaissance Translator," 20. See also Burke, "Cultures of Translation," 16.

2 Groesen, *Representations of the Overseas World*. This article discusses some of the more intricate problems I was not able to address in detail in my book.

Michiel van Groesen

The De Bry Publishing House: Their Books and Their Translators

Theodore De Bry and his two sons Johan Theodore and Johan Israel (1565-1609) published their first books in 1590. Two years earlier they had settled in Frankfurt, the birthplace of Theodore's second wife and the centre of the early modern book trade. Theodore had been born in Liège in 1527 or 1528, where he was trained as a goldsmith. He had worked his trade in Strasbourg, where his sons were born in the early 1560s, and in Antwerp, where he completed his transition from goldsmith to copper engraver. After a three-year sojourn in London, making book illustrations for *The Mariners Mirrour* and for a prestigious publication on the funeral procession of Sir Philip Sidney (1554-1586), he established a publishing house in Frankfurt, where he lived until his death in 1598. His two sons continued the enterprise, and turned the family firm into one of the most successful publishing houses of early modern Europe. In Frankfurt the De Brys were part of a Netherlandish community that numbered around 3.500, making up roughly one fifth of the town's population. This immigrant community was more influential than the numbers suggest. Having learned their trades in Antwerp, immigrants from the Low Countries were infinitely more skillful and more commercially astute than local artists and artisans. Supported by Frankfurt magistrates who readily embraced the affluent group with connections within the Netherlandish diaspora, they were permitted to operate outside the local guild structure. Their arrival created tensions as they outperformed local competition by bringing their technical skills and new business methods to the trades. The De Brys, for example, introduced the technique of including copper engravings into printed books to Germany. Their works were best known for these high-quality images. Many of their publications were large, attractive 'coffee-table' books, often produced as part of a series that increased the likelihood of selling multiple volumes to enthusiastic customers across Europe.[3]

The appeal of the De Bry images, discussed by many cultural historians and used regularly to decorate twenty-first-century scholarly publications, has obscured the importance of the texts as a means of understanding the family's editorial strategy. From the very start of the publishing firm, many of the books appeared in various languages, enabling the De Brys to make the most of the cele-

[3] On Netherlandish immigration to Frankfurt in the late sixteenth century, see Schilling, *Niederländische Exulanten*, 52-9, 125-35, 152-5. On their subsequent dominance over the trades and industry, see Schilling, "Innovation through Migration." On the network of Netherlandish artists, publishers, and engravers in Frankfurt, see Vignau-Wilberg, "Niederländische Emigranten." On the De Brys and their position in Frankfurt society, see Groesen, *Representations of the Overseas World*, 51-105.

brated (yet expensive) copper engravings, and at the same time reach out to an international readership from their bookshop in Frankfurt. Some books, mostly emblem books like *Emblemata secularia* (1596) and *Kosmographia iconica moralis* (1614) were multilingual publications, addressing various readerships in a single copy. But the majority of the works were published in two different languages. From the 1590s onwards, the firm's preferred languages were Latin and German, aimed at international and domestic readers. Works could be based on a volume first issued in another language by another publisher, but more often the titles were produced exclusively by the De Brys. Such books include *Historia chronologica Pannoniae*, a history of Pannonia issued in both German and Latin quartos in 1596, and *Außführlicher Bericht von Ankunfft, Zunehmen, Gesatzen, Regirung und jämmerlichen absterben Mechmeti I*—with as its Latin equivalent *Acta Mechmeti I*—both issued in 1597 at the height of political tensions over an Ottoman breakthrough in Central Europe. Both works appeared without a designated author. Two titles by the humanist Jean-Jacques Boissard (1528-1602), one of the leading authors of the firm, were also issued in both languages in the 1590s. *Vitae & icones sultanorum turcicorum* (or *Leben und Contrafeiten der Türckischen und Persischen Sultanen*) of 1596 also anticipated an increasing interest in all things Ottoman. *Theatrum vitae humanae* or *Schawspiel Menschlisches Lebens*, published in 1596 and 1597 respectively, was a standard emblem book which was part of the staple of the De Bry output in the final years of the sixteenth century.

The multilingual approach of the 1590s was successfully followed up after the turn of the century, but the nature of the strategy slightly changed in the hands of Johan Theodore and Johan Israel de Bry. In 1602 the brothers published French and German editions of the military architect Jacques Perret's (died c.1619) *Architectura et perspectiva*. Apparently, for an applied art like the building of fortifications, a Latin edition was considered unnecessary or unmarketable. Instead the De Brys preferred a French version, a remarkable decision given the publication of an original and largely identical French edition in Paris one year earlier. Yet the strategy must have paid off, as two years later, in 1604, another twin set of books on fortifications appeared, *La fortification reduicte* or *Fortificatio* by the Huguenot mathematician and engineer Jean Errard (c. 1554-1610), who like Perret was part of the entourage of King Henri IV (1553-1610). Once again the recent appearance of an original French edition, in 1600, was no reason to withhold the publication of a new version in French. By the middle of the second decade of the seventeenth century, as the Empire was on a collision course towards the devastations of the Thirty Years' War, the De Brys were producing richly illustrated books by military tacticians such as Giorgio Basta (1544-1607), Diego Ufano (died 1613),

and Johan Jacob Wallhausen (c.1580-1627). Each time, the books were issued simultaneously in German and French. Meanwhile for two medical treatises by the physician Johann Schenck von Grafenberg (c.1560-1620), published shortly before 1610, Latin was again considered the preferred 'second' language, alongside German. Clearly the contents of the books determined the choice of languages.[4]

This type of decision-making reveals an editorial consistency throughout the three decades of Theodore and Johan Theodore's executive leadership of the firm. Alongside other specialists like printers and engravers, the family employed various translators who ultimately depended on the approval of the publishers. Judging from the information on title-pages, in prefaces, and in scantily available archival sources, five translators contributed to volumes of the De Bry family on more than just an occasional basis: Carolus Clusius (1526-1609), Bilibaldus Strobaeus, Johan Adam Lonicer (*1557), August Cassiodorus Reyna (1520-1594), and Gotthard Artus von Dantzig (c.1570-c.1630). Clusius was the first to perform translating work for the firm. He translated books during his stay in Frankfurt between 1588 and 1593, when he was already widely recognized as one of the world's leading naturalists. After his departure to Leiden, Clusius may have recommended Strobaeus to the De Brys, about whom little else is known other than his Silesian origins. Lonicer also joined up in the early 1590s, and his previous experience with editing and translating must have been welcome to the De Brys, who had hitherto focused solely on engraving. Cassiodorus Reyna and Artus von Dantzig were both Lutheran schoolteachers in Frankfurt. The latter should be considered the only (semi-) professional translator of the publishing house. He translated texts for the De Brys between 1601 and 1620, and possibly longer, and was practically the only translator working for the firm in this period, regardless of the subject matter of the books or the languages involved in the translation process. The names of the translators were invariably mentioned on the works' title pages. Although their influence on the editorial strategy of the De Brys was limited, it was certainly bigger than the influence an author could exert once the De Brys prepared a manuscript for the presses, as Jean-Jacques Boissard's (1528-1602) increasingly desperate letters to Clusius demonstrate.[5] The different assets of two translators—Clusius and Artus—will be discussed in more detail below.

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4 Groesen, *Representations of the Overseas World*, 389-491, includes a list of all books published by the De Bry firm between 1590 and 1623.

5 Groesen, "Boissard, Clusius, De Bry."

Editorial Strategy: The Collection of Voyages

The collection of voyages was by all accounts the firm's flagship publication, both in terms of what Stephen Greenblatt has so famously called 'self-fashioning', and in terms of the firm's financial prosperity.[6] When Johan Theodore de Bry made a self-portrait in 1615, at the peak of his success as a publisher, it was no surprise that he included copies of the collection of voyages on the table in front of him, despite not having issued a new volume for several years (Fig. 5.1).

When it was finished in 1634, the collection extended to twenty-five folio volumes. These volumes were published in two nearly identical series: the *America*-series (13 vols.) included voyages to the New World and circumnavigations, while the *India Orientalis*-series (12 vols.) contained reports on Africa and Asia. The number of engravings, six-hundred in total, varied from volume to volume. All books were published both in Latin and in German. Attempts to also produce English and French versions were abandoned after the appearance of the first volume, *America* I, almost certainly for commercial reasons. The De Brys must have estimated, and rightly so as it turned out, that the Latin volumes would meet the demands of English and French readers who were rich enough to purchase a copy of the works. The travel accounts included in the collection, with just a single exception, had all been previously published. Occasionally the De Brys made 'second-hand translations': their two versions of Jose de Acosta's (1539/40-1600) book on the nature of the New World were based on an earlier Dutch translation, not on the original issued in Spanish. In short, the differences between the accounts included are such that it is impossible to compose a definite set of criteria which served as a guideline for acquiring narratives. What is clear is that Theodore de Bry relied on older and often re-published favourites such as the reports of René de Laudonnière (c.1529-1574), Jean de Léry (1536-1613), Hans Staden (1525-1579), and Girolamo Benzoni (born c.1519), while his sons preferred recently published accounts—and therefore increasingly focused on voyages from the United Provinces. The language of the original account was clearly not a discriminating factor: narratives written in English, French, German, Spanish, Italian, and Dutch were all deemed appropriate for inclusion. As a result, the collection covered most regions of the overseas world 'discovered' by Europeans.

The De Brys significantly reworked the accounts before they issued them as part of their collection. In order to fully appreciate the editorial strategy, it is helpful to look at the sales figures of the firm's publications. These figures are

[6] Greenblatt, *Renaissance Self-Fashioning*. In his work on the discovery of the New World, Greenblatt mentions the De Bry collection only once: *Marvelous Possessions*, 153 note 8.



Figure 5.1. *Theodore de Bry,* America I *(Frankfurt, 1590), title-page*

based on the records of the publisher and bookseller Jan I Moretus (1543-1610) and his brother Balthasar I Moretus (1574-1641) at the Museum Plantin-Moretus in Antwerp.[7] Jan Moretus travelled to the Frankfurt book fair twice a year, and purchased books from the De Bry firm to sell to his customers in Antwerp. The records, which are complete for the period between 1590 and 1623, show that some sixty percent of the money Moretus spent in the De Bry bookshop went to the purchase of volumes of the collection of voyages—not just in the 1590s when the collection was the only prestigious work the De Brys had on offer, but also in the 1610s when there were plenty of other attractive titles in the De Bry catalogue, and no new volumes of the collection were produced. It was therefore crucial for the De Brys to make sure that the volumes could be sold to customers in all corners of Europe, and this brings us to the core of the editorial strategy. The De Bry collection of voyages has traditionally been interpreted by scholars as a vehicle of Protestant propaganda, disseminating the Black Legend of Spanish tyranny in the Americas at a time of increasing religious turmoil.[8] Yet it was not in the interest of the De Brys as entrepreneurs to alienate the potentially substantial Catholic readership of their works by including anti-Catholic rhetoric. When analyzing the De Bry collection, all scholars have automatically looked at the most eye-catching parts of the volumes, the copper engravings. Focusing on the illustrations alone, however, has obscured the objectives of the De Brys in making the collection, and there is no better way to understand the editorial strategy behind the volumes than to look at the process of translation.

What follows is based on examples taken from three different volumes in the collection. These examples will demonstrate how translation was turned into an instrument to manipulate the image of the non-European world while keeping in mind at all times the diversity of the early modern readership. The volumes discussed here are *America* III and IX, and *India Orientalis* VII, but what is argued here, based on these three parts, is representative of the collection as a whole. *America* IX includes the account of the first Dutch attempt, ultimately unsuc-

[7] Museum Plantijn-Moretus, Antwerp, Arch. MPM nos. 969-1037 ("Cahiers de Francfort," 1590-1623).

[8] See Bucher, *Icon and Conquest*; Gossiaux, "Hiérarchie du monde sauvage"; and the contributions in Duchet, *L'Amérique de Théodore de Bry*. Through these detailed studies, the misconception of the collection as an instrument of Protestant propaganda has reached the wider realm of cultural history. For two of the more influential works, see Grafton, *New Worlds, Ancient Texts*, 128-9 ("[De Bry's] political agenda pitted the Protestant nations of Europe against the sixteenth-century superpower and defender of Catholic orthodoxy, Spain") and Schmidt, *Innocence Abroad*, 40, who refers to the De Bry collection as an instrument to broaden the "Protestant canon of anti-Catholic literature."

cessful, to circumnavigate the world, written by the Amsterdam physician Barent Jansz Potgieter (born c.1574). First published in Dutch in 1600, the De Brys issued a German edition in 1601 and a Latin edition in 1602. As part of his account, the author told the story of an encounter between the Dutch and a group of West Africans living near Cape Lopez, in what is currently the country of Gabon. The Dutch established cordial relations, and were invited to spend the night in the quarters of the indigenous chief. The next morning, according to the author, the Dutch captain woke up after a good night's sleep. The first sentence of the next paragraph reads, "When in the morning, the Captain, standing in the doorway, intended to return to the King, he was approached by an old woman [...]."[9] In the German edition of the De Brys, the same woman was presented to readers again, but this time it was added that she was "ugly" and "entirely naked." The Latin edition of the next year followed the German text, and consequently both De Bry editions gave a markedly different representation of the indigenous people of Cape Lopez, especially when we consider that the original account made no suggestion at all that some or all of the West Africans were naked.[10] That the De Brys insisted that this was the case can be seen in one of the engravings which accompany the narrative. The original Dutch edition had included a woodcut of the encounter (Fig. 5.2), the De Brys reworked the design for one of their copper engravings (Fig. 5.3).

The illustrations in the De Bry collection were always accompanied by a caption, either in Latin or German depending on the language used in the full text of the account. Here a similar modification took place. Whereas the original Dutch text had stated only that the West African chief was surrounded "by his nobility," both the German and Latin captions emphasized that these noblemen were "entirely naked." In their reworked image, the De Brys made sure the illustration corresponded with the text—literally undressing the indigenous elite.[11] The De Bry collection, in this way, systematically enhanced the contrast between civilized Europeans and uncivilized non-Christians in Africa, America, and Asia. The

[9] Potgieter, *Wijdtloopigh verhael*, C4r: "Des morghens de Capiteijn inde dore staende, van meyninghe weder na den Koningh te gaen, quam tot hem een out wijf [...]."

[10] Bry, *America*, vol. IX (Ger), 21: "Deß Morgens als der Hauptmann in der Thür stundt, im willens wider zum König zugehen, kam zu ihm ein heßlich alt Weib, welches sehr scheußlich außsahe, gantz nacket [...]"; Bry, *America*, vol. IX (Lat), 18: "Mane cum in foribus staret Capitaneus, ad regem pergere se accingens, aspectus foedi ac horridi foemina, tota nuda ad eum propius aggressa [...]."

[11] Potgieter, *Wijdtloopigh verhael*, C3v: "Achter hem int ronde sat zynen Adel"; Bry, *America*, vol. IX, ill. xviii (caption, Ger): "hinter ihm saß der Adel gantz nacket"; Bry, *America*, vol. IX, ill. xviii (caption, Lat): "Post ipsum omnes eius nobiles, in totum nudi consederant."



Figure 5.2. *Barent Jansz,* Wijdtloopigh Verhael *(Amsterdam, 1600), ill. 3*



Figure 5.3. *Johan Theodore de Bry,* America IX *(Frankfurt, 1601), ill. xviii (detail)*

strategy to emphasize the heathendom or the outright savagery of the people encountered overseas resulted in a message that was acceptable to both Protestants and Catholics in a confessionally divided Europe.[12]

In the process of translation, the De Brys often had to come to terms with the fact that the travelers were openly referring to their own religious denominations—whether Protestant or Catholic. Looking at the adjustments they made to the account of the Venetian merchant Gasparo Balbi (1550-1621/25) for Volume VII of the *India Orientalis*-series, translator and publisher were extremely careful to steer clear of anything that could be perceived as controversial, even if it concerned only everyday religious terminology. The Venetian's account of his voyage across the Middle East to South East Asia was first published in Italian in 1590, and was selected and then reworked by the De Brys some fifteen years later, when it was still relatively unknown outside the Italian peninsula.[13] The German edition appeared in 1605; the Latin translation became available the next year. When Balbi encountered indigenous clerics in Pegu, part of modern-day Myanmar, he compared them in his description to "our religious friars." Such direct comparisons with Catholic orders were considered inconvenient by the De Brys, and the analogy was therefore omitted from both the German and the Latin translations.[14] Elsewhere in his account, Balbi expressed surprise that when visiting temples in Pegu "to go inside is also open to us." The De Brys in this case wanted to leave no doubt that Balbi was not speaking as a Catholic but as a Christian—and they made this explicit in their translations by changing the word "us" into "Christians."[15] Although this was probably what Balbi had meant to say in the first place, these types of modifications show just how prudent the De Brys were or felt they had to be when editing the travel accounts. There are literally many hundreds of these small changes made in the process of translation that can be found throughout the De Bry volumes.

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12 For another close-up analysis of the De Bry modifications to Potgieter's account, see Burghartz, "Aneignungen des Fremden."

13 It was not translated into another vernacular language before the De Brys published their versions in German and Latin. Balbi's report is as good an example as any to illustrate that travelers themselves also faced linguistic problems. See King, "Delmephialmas and Sicorcor."

14 Balbi, *Viaggio dell' Indie orientali*, fol. 123v: "e sono come i nostri Frati religiosi"; Bry, *India orientalis*, vol. VII (Ger), 92; Bry, *India orientalis*, vol. VII (Lat), 113.

15 Balbi, *Viaggio dell' Indie orientali*, fol. 97v: "& è libera l'andata per noi anchora"; Bry, *India orientalis*, vol. VII (Ger), 71: "und derowegen auch den Christen erlaubt hinzu zugehen"; Bry, *India orientalis*, vol. VII (Lat), 97: "licitumque est omnibus, etiam Christianis."

Two Translators: Gotthard Artus and Carolus Clusius

Both examples mentioned above are the work of the main translator of the De Bry firm, the Lutheran schoolteacher Gotthard Artus von Dantzig. Artus (or Arthus) has remained an elusive character: he was responsible for another well-known publication, the *Mercurius Gallo-Belgicus*, a work that was controversial and was not published by the De Brys, but little else is known about him. Between 1601 and 1620 he appears to have spent a lot of his time in the De Bry workshop. In this period, he was the only person responsible for the German and Latin translations in the collection of voyages. But he contributed to the enterprise in other ways as well. He almost certainly selected suitable accounts for the collection, and in one case even provided the De Brys with a manuscript of a Dutch voyage to the East Indies that was printed in their collection for the first time. Much more important, however, was his role as one of the official censors of the town of Frankfurt—and this may go a long way towards explaining why the De Brys favoured Lutheran translators. Beginning in 1601, Artus invariably gave permission—on behalf of the city—for the publication of the volumes he had first translated himself for the De Brys. A typical slip of approval, found in the Frankfurt city archives, reads as follows:

> This little book, which I have translated from Dutch into German, is nothing more than a historical description of the voyage of the Dutch through the Strait of Magellan to the Moluccas, and is highly readable for the dangers which they encountered. M. Gotthard Artus.[16]

The arrangement appears to have been successful. When working on a translation, Artus could foresee the concerns of the censor, whereas after the end of the production process, as censor, he could intimately understand the choices made by the translator. The value to the De Brys of Artus's position as censor can be demonstrated by looking at an incident of six years earlier. Twice in the summer of 1595, Johan Israel de Bry, who was responsible for the financial and legal side of the publishing business, had clashed with local censors in Frankfurt over the publication of a book. On both occasions the censors rejected a request for publication, because they considered the work "papist," and the De Brys eventually

[16] Stadtarchiv Frankfurt am Main, Akten "Zensur, Buchhandel, Buchdruck, Presse" 37, no. 12: "Dieses buchlein, welches ich aus hollendischer Sprach in unser deutsche sprach transferirt habe, ist nur ein historische beschreibung der schiffart der hollender durch das Fretius Magellanius, nach dem Molukischen Inseln, wohl zulesen wegen der gefahr so ihnen begegnet. M. Gothardt Artus."

issued the book—written by the Jesuit Julius Roscius—in Montbéliard.[17] The incident implies that the De Brys were well aware of the sensitivities involved in the publication of works with religiously biased contents, and since many of the publications in this era could be qualified as such, this was a pressing concern for many early modern publishing houses in towns like Frankfurt.[18] By employing Artus in or shortly before 1601, the brothers made sure that the firm would no longer face problems of this nature. Were the De Brys, by inventing this scheme, more ingenious entrepreneurs than their rivals in the early modern book market? This question can not yet be answered. In Frankfurt for the period around 1600, I have not been able to find another case of one person with the dual responsibilities of 'entrepreneurial' translating and government censoring.[19]

Judging by this example, the translator appears to have been a key figure in the early modern publishing business, one who could not only decide on how information was phrased and presented, but also influence which information was presented to early modern readers, and even determine whether some of the knowledge was fit to reach the wider public at all. Good connections to the local authorities appear to have been an important asset for a translator in early modern Europe, if the case of Artus is anything to go by. This may explain why the De Brys, despite their relatively isolated position in the Netherlandish (and thus Reformed) community in Frankfurt preferred to employ Lutheran translators—not just Artus but also August Cassiodorus Reyna. Johan Adam Lonicer, possibly a Lutheran too, was in any event well embedded in the higher echelons of the Frankfurt intellectual milieu, and had gained previous experience as an employee in Sigmund Feyerabend's (1528-1590) publishing house, which provided the blueprint for Theodore de Bry when he set up his business shortly before

[17] The book is titled *Opera misericordiae ad corpus pertinentia*. The slips of rejection from July and August 1595 are in the Stadtarchiv Frankfurt am Main, Akten "Zensur, Buchhandel, Buchdruck, Presse" 24, fol. 8r (August 1595); and 20, no. 35 (July 1595). The latter, the initial rejection, reads: "Of dise Censuram is Johann Israheln de Brij. alss pabtisch alhie zutrucken abgeschlagen worden." ("Permission to print this book here has been refused to Johan Israel de Bry because it is too papist." My translation.) In this case there was no translator involved as the De Brys were the first to issue the book.

[18] Eire, "Piety in Translation," presents a first survey of the problems related to the early modern translation of religious texts. He inevitably mentions Erasmus (88), but also points out that many of the related questions await further analysis (99-100).

[19] I find it very unlikely, however, that Artus was the only censor who could not resist the temptation to exempt his own work from rigid control. For the vaguely similar and equally intriguing case of the Counter-Reformation priest Johannes Rasser in the Alsace in the 1590s, see Frymire, *Primacy of the Postils*, 327-8.

1590.[20] There were also obvious practical advantages in hiring local schoolmasters or other learned men, who lived and worked in the town and were likely to be available to do translating work for a considerable period of time.

Sometimes, however, other reasons for selecting a translator prevailed, as the case of Clusius shows. Like the De Brys, Clusius arrived in Frankfurt in the late 1580s, where he stayed until the University of Leiden appointed him as prefect of the new botanical garden in 1593. During this period, he translated accounts into Latin for the first two *America*-volumes, and also contributed to Volume III. Unlike Artus and the other translators working for the De Bry family, Clusius had a profound knowledge of the material entrusted to him. The text written by the Englishman Thomas Harriot (c.1560-1621) in particular, used for *America* I, contained a wealth of information on the natural world that was assembled in the Roanoke colony in modern-day North Carolina. Clusius alone is credited as the translator on the Latin title-page (Fig. 5.4), but this is not a fair reflection of the translating work for the collection's opening volume. According to Clusius's correspondence, at least two others, the London apothecary James Garet Jr. and the naturalist Richard Garth, also made significant contributions. Both men were close friends of Clusius, and both also shared an interest in Richard Hakluyt's (c.1552-1616) program to find a wider, international readership for Harriot's treatise.[21] With the help of another Englishman, a certain Francis Rogers, they made an adequate Latin translation of the account first published in English in 1588. At one stage, no fewer than four different Latin translations circulated. In one letter, Garet called Garth's translation "more accurate than the other one," referring to the version by Rogers already in the possession of the De Brys.[22] The issue is further complicated by the fact that Clusius was not proficient enough in English to translate Harriot's treatise! It is likely that Clusius coordinated the project and took responsibility for the final version of the translated account, while his prox-

[20] Groesen, *Representations of the Overseas World*, 72-3. On the Feyerabend firm and the rise of Frankfurt as a printing metropolis, see Terrahe, "Frankfurts Aufstieg."

[21] Quinn, *Roanoke Voyages*, vol. I, 329, 337-40.

[22] University Library Leiden, MS Vulc. 101, contains four letters from Garet to Clusius and two from Garth to Clusius. All letters are written in 1589 and 1590, and deal with the Latin translations of Harriot's treatise for *America*, vol. I. On 19 January, 1589, Garet writes: "Je vous envoye celuy de Mr. Garfe car il est plus correct que lautre." ("I am sending you the version by Mr Garth, because it is more correct than the other one." My translation.) See Groesen, *Representations of the Overseas World*, 112-6. I have been unable to further identify Francis Rogers.



Figure 5.4. *Johan Theodore de Bry,* Self-Portrait *(1615)*

imity to the De Brys probably explains why his name alone is mentioned on the title-page of *America* I.[23]

Although Clusius formed a friendship with the De Brys, and corresponded with them for many years after leaving Frankfurt, he maintained a certain reserve about the publishers. In two letters Clusius wrote to Justus Lipsius (1547-1606) in 1594, he portrayed the De Brys as ill-advised entrepreneurs who "in true German fashion" would do anything to increase the sale of their works.[24] Commerce may also have been the main reason the De Brys credited Clusius with the translation of *America* I, despite his insufficient knowledge of English. Clusius was widely acknowledged to be the leading expert on exotic naturalia, and had been interested in Americana since the 1560s.[25] Printing his name or at least his initials C.C.A. (Carolus Clusius Atrebatensis) on the title-page as the translator of Harriot's work must have been extremely important for a new publishing firm trying to make a good first impression in a competitive international market. It cannot be established how many customers acquired a copy of the volume because they recognized Clusius's contribution, but scholarly friends like Benito Arias Montano (1527-1598) and Simon de Tovar (1528-1596) ordered Jan Moretus to send copies of the first three volumes to Seville in 1592.[26] Judging from Clusius's correspondence with Joachim II Camerarius (1534-1598) in Nuremberg, the latter considered Clusius the *auctor intellectualis* of 'Historiae Virginiae', but when Clusius wanted to send his friend a copy of *America* I, the translator still had to pay for it, albeit at a reduced price. Moreover, if Friedrich Hunger's estimation is correct, the De Brys did not allow Clusius to reissue the Latin texts of *America* I and II as part of a projected volume of travel accounts he had translated, some fifteen

[23] On Clusius's sketchy knowledge of English, see Egmond, "Clusius and Friends," 34. In 1571, Clusius proudly recorded that "Henry Lyte [the naturalist] taught me to speake Englishe" (cited by Hunger, *Charles de l'Escluse*, vol. I, 117) but it is unlikely that in the late 1580s he still understood a language he had not actively used for nearly twenty years. Aelius Vorstius, in his 1611 obituary of Clusius, did not mention English as one of the languages Clusius understood. I am indebted to Esther van Gelder for refreshing my memory on this and other issues relating to Clusius. On Clusius and his relation to Garet and Garth, see Egmond, *Natural History in the Making*, 175-81. Clusius also acted as proofreader of the volumes he translated, see Hunger, *Charles de l'Escluse*, vol. II, 173, 429.

[24] Landtsheer, *Iusti Lipsi epistolae*, vol. VII, 92, 241 ("Nosti Germanorum ingenia"); and "Justus Lipsius and Carolus Clusius," 293.

[25] Mason, "Americana," 198.

[26] Groesen, *Representations of the Overseas World*, 317.

years later.[27] It is obvious that different parties had different perceptions of the importance of the translator in early modern Europe.

To some extent, translators like Clusius and Artus may have viewed themselves as co-authors, who had the right to modify the original texts and earned the legitimate intellectual prestige that this entailed. Publishers must have accepted that customers did not regard them as the ones primarily responsible for books—a sentiment made easier if a translator's reputation promoted the sale of the works. But for the De Brys there was never any doubt that *they* were in charge of the collection. Although the translator was mentioned on the title-page, the names of the publishers were the only ones to feature on every volume's frontispiece. The De Brys acquired official privileges and permissions for publication, they wrote the prefaces and 'epistles to the readers' which preceded many of the volumes, and, perhaps most importantly, they also wrote the letters dedicating the prestigious books to generous patrons across the Holy Roman Empire. In these paratextual sections of the volumes the translators disappear from view, giving the publishers the opportunity to shine as the intellectual 'entrepreneurs' who created these monuments of knowledge. The dedicatory letters, apart from being obvious platforms for self-aggrandizement, are also strong indicators of the De Brys's prudent editorial strategy. Whereas the De Brys invariably dedicated the German volumes to Protestant princes and noblemen in the Empire, they sometimes dedicated Latin volumes to influential Catholics. *India Orientalis* VI and VII, for example, were dedicated to Johan Schweikard von Kronberg, the Archbishop of Mainz (1553-1626). These dedications coincided with the first appearance of a special Frankfurt fair catalogue, which included only Catholic and 'unsuspected' books.[28] This strategy of different Latin and German dedications foreshadows the differences between the main texts, and this brings us back to the actual translations.

The Strategy of Translation: Latin and the Vernacular

Crucial to the editorial strategy of the De Bry collection are the differences between the German and Latin translations of each travel account. These variations transcend matters of terminology, as the translators appear to have enjoyed relative freedom to decide which exact words or phrases to use. In general terms, the

[27] On Clusius's payment for Camerarius's copy, see Hunger, *Charles de l'Escluse*, vol. II, 173, 430. On the De Brys's refusal to allow another edition of the translations for *America*, vols. I and II, see Hunger, *Charles de l'Escluse*, vol. II, 228-9.

[28] For the post-Tridentine campaign against 'unacceptable' publications at the Frankfurt book fairs, and the difficulties of the Imperial Book Commissioner in implementing this policy, see Brückner, "Gegenreformation"; and Heitjan, "Zur Arbeit Valentin Leuchts."

main objective of the editorial strategy was more ambitious: to create different translations for different readerships. The Latin translation was modified to enhance its appeal to a humanist readership, while at the same time making sure that the volumes would not be prohibited in Catholic parts of Europe. The corresponding German translation was also modified, and stripped of the most polemical, usually anti-Catholic passages. The Holy Roman Empire, after all, remained divided between Catholics and Protestants, and many readers in Southern Germany who had stayed loyal to Rome were still prepared to purchase the German edition of the collection. But the vernacular edition was not as ruthless in omitting potentially controversial episodes. One further difference is that the German translations tended to stress the spectacular and marvelous parts of the travel accounts, whereas the Latin translations emphasized information on the natural world and other themes that would appeal to a more scholarly readership. Since the volumes were expensive, very few readers would have been in a position to compare the two versions. Judging from the title-pages of the books, the two editions appear to be identical.

Instead the translations were creative, and this can best be shown by looking at Volume III of the *America*-series. The second part of this volume was devoted to Jean de Léry's *Histoire d'un voyage fait en la terre du Bresil*, first published in French in La Rochelle in 1578, but based on a voyage fifteen Huguenot ministers made to Brazil in the 1550s.[29] The original account had a strongly polemical tone, and had already been translated into Latin in Geneva, with annotations by the rabid Calvinist Urbain Chauveton. This Latin edition of 1586, however, was considered unacceptable by the Inquisition in Portugal, where accounts of Brazil were under close scrutiny.[30] Yet it was this very account the De Bry's used for their edition. A collision with the Inquisition was something they wanted to avoid at all costs. An entry of one of the collection's volumes on the Portuguese Index could easily draw the attention of inquisitors in Spain, and perhaps even Rome, with potentially serious consequences. So there was a lot at stake when, in 1592, the De Bry firm started the process of reworking De Léry's account. The Latin edition received priority and was published first, while the German edition followed the next year, in 1593; both were edited and translated by Lonicer. His brief for the Latin edition must have been fairly straightforward: omit or mitigate all passages that could be perceived as controversial in Catholic parts of Europe. The German edition of

[29] On De Léry, see Frisch, "In a Sacramental Mode"; and Lestringant, *Jean de Léry*.

[30] *Index auctorum damnatae memoriae*, 226. On the impact of Chauveton's annotations and additions, see Keen, "Vision of America."

1593 did not invite the same amount of editing, but here too the most controversial passages were—literally but ever so conveniently—lost in translation.

De Léry's *Histoire* opened with a substantial number of poems, psalms, and other preliminary material, and several of the most momentous alterations took place here. Part of De Léry's preface was dedicated to Psalm 107, cherished by Calvinists for emphasizing Divine providence and the need for all humans to respect and fear God. Its seventeen verses were prominently printed in the Geneva edition, and occupied five folio-pages in the German De Bry edition of 1593. Yet the verses were absent altogether from the Latin volume, considered too partisan for inclusion.[31] In the first few pages of his report, De Léry paid ample attention to the sending of Huguenot missionaries to Brazil, devoting some five pages to the religious objectives of the operation in which he took part. Once again the German De Bry translation copied this statement of intent, the Latin volume did not.[32] A little further on, Chapter Six of the Huguenot's account discussed the growing rift between the colony's crypto-Catholic leader Nicolas Durand de Villegagnon (1510-1571) and De Léry's party. It recorded a detailed theological debate between the Genevan ministers and Villegagnon about explosive themes like the Eucharist and the notion of transubstantiation, which De Léry implicitly linked to cannibalism in Brazil.[33] Faced with such polemics, Lonicer and the De Brys decided to omit the entire chapter from the Latin *America*-volume. Yet controversy dogged De Léry's treatise, as the rift between Catholics and Huguenots grew. Lonicer and the De Brys consequently must have put in long hours in order to prepare the text for the presses.

Adding up all these omissions, some twenty-two pages of De Léry's preliminaries and report available in the German translation were missing from *America* III in Latin, making this volume significantly less hefty than its counterpart in the vernacular. This was a problem if the De Brys wanted to sell their copies as identical versions of the same account. They added nine extra engravings to the depleted Latin edition, but this only partly compensated for the textual omissions. The plates, moreover, were merely copies of illustrations already featuring elsewhere in the book—a practice already old-fashioned in the book trade in this period. The De Brys therefore included an additional travel account, written by another traveller, in the Latin volume. Hence the Latin collection contained two

[31] Léry, *Historia navigationis*, [****6r-****7r]; Bry, *America*, vol. III (Ger), [D1r]-[D3r].

[32] Léry, *Historia navigationis*, 2-6; Bry, *America*, vol. III (Ger), 93-6; Bry, *America*, vol. III (Lat), 145.

[33] Léry, *Historia navigationis*, 42-71; Bry, *America*, vol. III (Ger), 118-33; Bry, *America*, vol. III (Lat), 162.

letters by the French Minim friar Nicolas Barré (died c.1566), first published in 1557, and translated into Latin for the De Brys by Clusius.[34] Barré's version of events in Brazil in the late 1550s neutralised De Léry's bitter criticism of French Catholics. In the Latin version of *America* III, then, and in contrast to the German volume, the De Brys not only watered down the strongly Calvinist nature of De Léry's report on French Brazil, but also included the testimony of a Catholic traveler who put the credibility of De Léry's claims under serious scrutiny.

The success of the De Brys in avoiding the wrath of the Catholic readership can be determined by looking at the collection's entry on the Spanish and Portuguese Indices. The Iberian inquisitory tribunals, unlike the Holy Office in Rome, were not only in the position to forbid books altogether, but could also impose the expurgation of selected passages in order to allow the sale of the books. While the De Brys managed to include narratives such as De Léry's *Histoire* without inflaming Rome's Congregation of the Index to the point where *America* III, or even the collection as a whole by association, was forbidden, the Iberian inquisitors were more alert to works describing their colonies. The Portuguese *Index Librorum Prohibitorum* which had proscribed the Geneva edition of 1586 merely required the purgation of selected passages from the corresponding De Bry edition, but, crucially, not the harmful prohibition of the entire work. In Spain, too, the De Bry volume had to be corrected, but could subsequently be sold. The textual modifications made in the De Bry workshop had neutralised the unacceptable excerpts sufficiently to earn a lenient inquisitorial assessment. The sale of the volumes in the Iberian monarchies remained possible, albeit conditional. The Indices also attracted attention north of the Pyrenees, where Protestant readers were eager to find out which passages had angered inquisitors in Madrid and Lisbon. Identical editions of the Indices re-appeared in Geneva and Oxford. Thus the De Brys had the best of both worlds. Their books remained on the shelves of the Iberian bookstores, while those harbouring anti-Habsburg sentiments in the North were even more prepared to buy the controversial literature.[35]

The eventual success should not obscure the difficulties publisher and translator faced in the early 1590s. They made mistakes, but it appears that they very quickly learned from them. One such correction was made when reworking an episode where De Léry discusses the Tupi belief that deceased relatives and

[34] Bry, *America*, vol. III (Lat), 285-95. On Barré, De Léry, and the struggle for French Brazil, see McGrath, "Polemic and History."

[35] *Index librorum prohibitorum*, 49-52; *Index auctorum damnatae memoriae*, 226-9. For the Protestant reprints of Catholic Indices in the 1610s and 1620s, see Bonnant, "Les Index prohibitifs," 634-8.

friends could send them birds as a sign of good luck. He made a thinly veiled comparison to the teachings of the Roman Catholic Church, alluding to "those who believe and teach that the souls of the deceased return from purgatory to warn them of their duty." The passage in the original Latin edition from 1586 is quoted here in full:

> Remembering those who believe and teach that the souls of the deceased return from purgatory (*e purgatorio igne*) to warn them of their duty, it occurred to me that what our poor blind Americans do in this respect is more tolerable: for as I shall describe when I speak of their religion, although they confess a belief in the immortality of the souls, they do not go so far as to believe that souls return after being separated from their bodies, but say only that these birds are their messengers.[36]

In the eyes of the De Brys, this passage was too controversial, and in Lonicer's reworked Latin translation of 1592, the words "e purgatorio igne" were omitted.[37]

As it turned out, the omission of these three words was not enough to take the sting out of the episode. The part of the paragraph that remained, from the words "In mentem" to the words "tantummodo fingunt," was still perceived as too offensive several decades later by the Inquisitors in Spain and Portugal.[38] Yet Lonicer and the De Brys must have been aware of their editorial negligence much sooner. In the German translation which appeared the next year, this passage, and *only* this precise passage, was missing.[39] The sudden upgrade in the level of self-censorship in the De Bry workshop can be confirmed by comparing other passages of the Latin and German translations of this particular volume; a similar pattern emerges. So what happened in late 1592 or early 1593? Did translator and publisher gradually realize that this paragraph was too contentious, after or perhaps even during the production of the Latin translation? Or did the authorities ask for moderation of this part of the account when the book was ready? If the De Brys were indeed advised to omit this paragraph from later editions, the third party responsible must have resided in Frankfurt, given the timetable of the production process. But Frankfurt did not witness the arrival of a resident Imperial

[36] Léry, *Historia navigationis*, 133: "In mentem tamen mihi tum veniebat eorum opinio, qui asserunt animas e purgatorio igne ad suos officii monendos devolare, Barbarorumque nostrorum figmentum ea tolerabilius esse iudicabam. Etenim, ut suo dicetur loco, quamvis animas credant immortales eo tamen dementiae non veniunt, ut e corporibus semel egressas ad patrios lares redire dicant, aves istas earum esse nuntias tantummodo fingunt." The English translation I use is made by Janet Whatley: Léry, *History of a Voyage*, 91.

[37] Bry, *America*, vol. III (Lat), 188.

[38] *Index librorum prohibitorum*, 49-50; *Index auctorum damnatae memoriae*, 226.

[39] Bry, *America*, vol. III (Ger), 165.

Book Commissioner until the first decade of the seventeenth century, more than ten years later. Could it have been the work of one of the Lutheran censors in Frankfurt? If so, then perhaps it was this type of interference that led the De Brys to search for a translator who could also censor the volumes on behalf of the city.

Conclusion

This case study shows several of the criteria a good translator in early modern Europe had to meet. Firstly, and perhaps most importantly, a translator had to appreciate that different languages and different readerships required different translations. He had to be able to use this knowledge when translating a text into multiple languages, and had to recognize that some information that may have been ideally suited for a vernacular text was perhaps not considered desirable by readers of Latin, or vice versa. Ideally, a translator also had a good, international reputation. When Clusius attached his name to the collection of voyages as the translator of Harriot's text on the Roanoke colony in the early 1590s, there were readers who regarded the resulting volumes as his intellectual output. Clusius's activities probably increased the sales of the collection in humanist circles, and this was of course a very welcome side-effect for a fledgling publisher like Theodore de Bry. But Clusius was not a (semi-) professional translator, and he left Frankfurt for Leiden as soon as a better, more prestigious job came along. Given the choice, publishers would probably have preferred a translator with a lesser reputation who was immediately available when called upon to a learned celebrity with too many other involvements. For this reason schoolteachers and other civil servants often made translations, as their job security and stable incomes ensured that they were likely to remain in a certain town for a prolonged period of time.

Also a translator had to be reliable. Publishers were ultimately responsible for a work's contents. The De Brys cooperated very closely with the translators: Texts and illustrations were intricately linked, and different translators all followed the same editorial strategy that was constructed around 1590 and remained in place until the 1630s. Of course, a willful translator could always slip in some controversial phrases or paragraphs, so there had to be at least a minimum of mutual trust and confidence. Translators who had performed satisfactorily in the past were likely to be asked again. Any good translator was also well-informed and well-connected, and this also favoured persons who had an intimate knowledge of local institutions. A translator who was in the position to censor the books on behalf of the authorities was extremely useful in a religiously volatile city like early seventeenth-century Frankfurt. Particularly in the case of the De Bry collec-

tion of voyages, where translation became an instrument in the manipulation of knowledge—a reliable translator with friends in the right places was a major asset. And finally, both Clusius and Artus translated travel accounts written in various languages. For a translator working in a leading international publishing house like the De Bry firm, a working knowledge of as many languages as possible was arguably the most important requirement.

Multilinguism, Naming and the Invention of Vocabulary

Names of Naturalia in the Early Modern Period: Between the Vernacular and Latin, Identification and Classification

Florike Egmond

No sixteenth-century author has expressed in more detail than François Rabelais (c.1494-1553) how incredibly varied were the sources current in his period from which the names of plants derived.

> I find that plants have their names given and bestowed upon them after several ways. Some got the name of him who first found them out, knew them, sowed them, improved them by culture, qualified them to tractability, and appropriated them to the uses and subserviences they were fit for [. . .] Other herbs and plants there are which retain the names of the countries from whence they were transported [. . .] Some others, again, have obtained their denominations by way of antiphrasis, or contrariety [. . .] There are some other sorts of herbs which have got their names [. . .] from the admirable qualities that are found to be in them, as Heliotropium, which is the marigold, because it followeth the sun, [. . .] Adianton, because, although it grow near unto watery places, and albeit you should let it lie in water a long time, it will nevertheless retain no moisture nor humidity; [. . .] There are also a great many herbs and plants which have retained the very same names of the men and women who have been metamorphosed and transformed in them [. . .] .
>
> Many herbs likewise have got their names of those things which they seem to have some resemblance to [. . .] In some plants and herbs the resemblance or likeness hath been taken from a higher mark or object, as when we say Venus' navel, Venus' hair [. . .] Others, again, have received their denomination from their forms, such as the Trefoil, because it is three-leaved [. . .] .[1]

As the references to "Adianton" and "Venus' hair" (or in the original French to "Adiantum" and "cheveux de Venus") show, Rabelais included plant names based

[1] I have used the English translation by Urquhart, *Heroick Deeds of Pantagruel*, ch. III/L. For the original French, see Rabelais, *Noble Pantagruel*, 336-7.

on Latin or Greek as well as vernacular names among his examples.[2] This reflected the contemporary situation in which nearly every plant had various names. The number of names depended on many factors, including the range of its geographical distribution, how familiar Europeans were with it, the coexistence of vernacular languages and regional or local dialects, and the degree of Latinisation.

In this respect there are strikingly few differences between early modern and modern times: vernacular and dialect names still follow no particular system and still coexist with Latin ones. The great difference between then and now lies in the changed status of Latin names with respect to the vernacular ones. By the mid sixteenth-century—not only Rabelais's time but also the age of the Botanical Renaissance—Latin had long been internationally recognized as the language of learning. Publications in Latin for an international readership thus had to use Latin plant names, even if these had only had vernacular names until then. In that sense botany underwent a first wave of Latinisation in the sixteenth century. Only the Linnaean reform of the eighteenth century, however, which entailed the introduction of a hierarchically organized Latin and binomial plant naming system, gave Latin plant names of this particular kind scientific status. Vernacular and dialect names were relegated to the domains of non-scientific knowledge and folklore.[3]

In the following pages we will step back to well before these Linnaean reforms and explore some aspects of plant names and naming in the late sixteenth and early seventeenth centuries in the context of the changing focus of early modern botanical studies. Were Latin plant names translations of vernacular ones? How did Europeans find names (and what kind of names) for non-European plants? How were Latin and vernacular plant names connected with the main purposes of botanical research of this period? Did Latinisation of plant names in early modern botany also involve a conceptual transition and new organization of botanical knowledge? The main questions here are therefore not directed at immediate translation from one language into another, but rather at the relation between the organization of knowledge and a change of language over a long period of time.

While it is more usual to regard the sixteenth century as a phase in which vernacular languages were beginning to 'undermine' the supremacy of Latin, in part via translations into the vernacular, we can also observe counter movements and signs of new forms of co-existence. Given the continued use of vernacular plant

[2] They are one and the same plant: adiantum fern, maidenhair fern, or in Italian *capelvenere* (Venus' hair).

[3] On plant naming, see Pavord, *Naming of Names*, which is richly documented and full of interesting information, but also tends to pronounce anachronistic judgements on the early modern naturalists for not being modern.

names up to the present it is interesting to see that even during the first wave of Latinisation, Latin never came to dominate the domain of plant knowledge completely. Some very influential botanical surveys of the Botanical Renaissance—Rembert Dodoens's (1517-85) *Cruijdeboeck* of 1554 (Antwerp); Garcia da Orta's (c.1501-68) *Colóquios dos simples e drogas he cousas medicinais da Índia* of 1563 (Goa), and John Gerard's (1545-1612) *Herball* of 1597 (London)—first appeared in the vernacular.[4] Then as now, plants belonged not only (and not even primarily) to the domain of science, and these works were written at least in part for a non-university trained audience which needed and appreciated information about plants and plant-based medicinal substances. We should therefore certainly add plant and animal knowledge (a wider domain than natural science) to the worlds of politics, diplomacy and commerce distinguished, according to Boutcher, by the use of a continuum of (vernacular) languages and by the appearance of multilingual guides.[5] But in this case, Latin, and sometimes Greek and even Hebrew joined the various vernacular languages, resulting in a curious linguistic co-existence. The more important surveys of plants and animals that first appeared in the vernacular during the sixteenth century were quickly translated into Latin, and, together with the ones that were exclusively published in Latin, entered the expanding domain of the new and very international science of botany. Thus, right from the beginning of the history of botany as a scientific discipline, expert authors and readers had to deal with a situation in which plant names in various languages coexisted, not only in everyday practice but also in printed works.

Most early modern naturalists recognized that it was important to find some form of concordance. That was precisely the function of the *Catalogus plantarum* (1542) published by the famous Swiss naturalist Conrad Gessner (1516-65). It formed a concordance of plant names in Greek, Latin, German, French and the professional languages of apothecaries.[6] Next to detailed verbal descriptions images played a crucial role in this period, providing a common ground for identification where names in a multitude of languages could not. Nearly all great printed botanical surveys of the sixteenth century consist of both text and image.[7] And im-

4 Respectively in Flemish, Portuguese, and English. The years and places given here are those of the first editions.

5 Boutcher, "Vernacular Humanism."

6 Zoller, "Conrad Gessner als Botaniker," 223.

7 This was not only for scientific reasons, however. See on text-image relations in this field especially Kusukawa, "Leonhart Fuchs on the Importance of Pictures," "Illustrating Nature," "Formation of Learned Knowledge," and "Uses of Pictures in Printed Books."

ages were even more important in the great collections of botanical watercolours of the sixteenth century, which likewise formed visual surveys of the world of plants but were usually created for or commissioned by an aristocratic public. Text naturally plays a subservient role in such watercolours and consists rarely of more than brief annotation. It does, however, often provide crucial information precisely about plant names in various languages.

The issues involved in plant naming were not in any way specific to the Netherlands and concerned naturalists from all over Europe, but we will mainly focus here on manuscript sources from the Northern and Southern Netherlands because of their exceptional quality that allows us to look at translation and transfer of information in progress. Together with Italy the Southern Netherlands were a core area in the Botanical Renaissance in terms of both botanical and horticultural expertise, gardening practice, the creation of collections of rare naturalia, artistic representation of naturalia (in watercolours, tapestries, painting, and various decorative arts) and the production (generally at the Plantin presses) of the major printed works by the great Flemish trio of botanists of the second half of the sixteenth century: Carolus Clusius (1526-1609), Dodoens, and Mathieu de Lobel (1538-1616).[8] All of the primary sources used here are connected directly or indirectly with these three men.

Naming and Identification

In 1597 the young physician and promising naturalist Tobias Roels (died 1602) from Middelburg in Zealand sent Clusius a lengthy account of various tropical plants, in which he went deeply into the question of how to distinguish the roots of the yam and the manioc. Roels had completed his medical studies in Padua, botanized in the Alps, visited the famous garden of the Elector Palatine in Heidelberg and personally met the prominent Italian naturalist Ulisse Aldrovandi (1522-1605) in Bologna. After his return to Middelburg, where as junior town physician he became a colleague of de Lobel, he increasingly focused on the exotic plants and other naturalia that were just beginning to arrive there from West Africa and the East Indies.[9] Roels had managed to get his hands on a tropical root, which a friend took for the *inhame* or *yam*. To find out more about it, Roels went to interview the black African slaves in the household of a Dutchman in Middelburg whom Roels calls the *Prefect of the Indies*.

[8] For a more extensive discussion of the special role of the Southern Netherlands, see Egmond, *Natural History in the Making*, ch. I-II.

[9] For further information on Roels, see Egmond, *Natural History in the Making*, 141-55.

Roels wrote to Clusius:

One of them stated that this root was the one from which a flour is made that is called the flour of the *Manyouca* root, and which foreigners incorrectly call *Mandioca*. The *Manyouca* root produces neither flowers nor fruits, but is planted with its roots after it has been cut into pieces. Once these have been planted, they grow to be a thick and big root. [...]. The *Manyouca* was brought some years ago from Brazil to the island Sao Tome which lies near the equator at 33 degrees longitude. The common name among the inhabitants of this island is *Manyouca*. But some of them declare that the Brazilians call it *Yuca*.[10]

Among the first things that Roels thus wanted to establish about this plant were the correct name and its geographical origin. The former was the sign of correct identification, which was all the more important in this case since the manioc is poisonous but the yam is not. Roels continues:

The root is for them an indispensable foodstuff. It contains a poisonous juice, but they nonetheless do not abstain from it. They know how to prepare it in such a way that the flour and the bread made with it can be eaten without harm. [...] The afore-mentioned negroes told me that this juice cannot be turned into something that can be used, not even by boiling it, as has been stated by the learned Spanish physician Nicolaus de Monardes in his book about the simples of the New World [...] I have also questioned others about the *Manyouca,* in particular that sailor who was a prisoner for three years on Hispaniola, an island in the New World, and the Portuguese surgeon who reached us some days ago from the town San Domenico [Santo Domingo] [...] They assured me that this juice is most harmful and even lethal in its raw condition, but loses all its harmful effects when the fresh roots are cooked together with meat, as they had often observed. This, however, is unknown to many negroes. Possibly, another, harmless root has been taken for the *Yuca*.

[...] A second root from the island St Thomas [São Tomé] is there called *inhame.* In the case of this inhame several rather thick and succulent stems sprout from one root, as can be seen from the plant that I sent you [...] In my opinion both roots were unknown to the Ancients, so that no Greek or Latin name is known. The West Indians and Spaniards call the one *Inhame*, the other *Manyouca*. I have asked as many Indians as possible about it and have not found one who gave it a different name.[11]

As was typical of Clusius himself and many of his expert friends, Roels highly valued first-hand information and consequently approached those who were as close to direct eyewitnesses as he could find: black slaves from West Africa in Middelburg (and it is significant indeed that their extremely low social status apparently

[10] Clusius, *Rariorum plantarum historia*, cccxv-cccxx; Roels's original letter of 8 May, 1597, no longer exists.

[11] Clusius, *Rariorum plantarum historia*, cccxv-cccxx.

in no way influenced the value of their knowledge), and European travellers who could be presumed to know these foreign countries well. As was equally typical of the period, Roels's interest in the correct plant names extended to the question of whether the Ancient Greeks or Romans could have known (and named) these roots. It is noteworthy, moreover, that he thought it relevant to mention different (Brazilian, West-African) non-European vernacular names of these roots and specified which one was used where.

This example evinces an unusually direct transfer of information from native (African) informants—questioned in Middelburg, presumably with the help of an interpreter—to Roels, who himself wrote down his description in Latin in his report to Clusius. The latter thought this information so important that he included the whole of Roels's report verbatim and without further editing as a special appendix in his *Rariorum plantarum historia* of 1601. The translator here—in the sense of language, streamlining information, and choosing the style of reporting—was thus Roels and not Clusius. Significantly, Roels did *not* invent Latin names for the tropical roots.

More than just written information was transmitted in this case, as mentioned by Roels. The piece of yam that he sent to Clusius may well have been the model for the illustration in Clusius's *Rariorum* (see figure 6.1). This was only one of the many dozens of cases in which descriptive letters to Clusius were accompanied by either parts of plants or what were commonly called their 'portraits'—that is, drawings or watercolours—to underpin the verbal evidence and facilitate identification of the plant.

The extensive descriptions that are characteristic of Roels, Clusius and almost every other sixteenth-century naturalist writing about plants (in either printed or manuscript texts) generally included details about the morphology of the stem, leaves, roots, flowers, fruits, about the flowering period and less often the habitat. Many of them contain (implicit or explicit) references to other, similar plants. Identification and naming were thus based on a comparative method in which only the elements of comparison differed, not the method itself.[12] Obviously, a comparative approach was less easily followed in the case of exotic plants. Roels seems to have had no European roots in mind, for instance, with which he could compare the yam or manioc. Yet, as is known from many different examples ranging from *materia medica* to exotic animals, Europeans usually tried to interpret and understand exotic plants and animals by approximating them to European categories.[13] The American sunflower was in the sixteenth century known both as *flos*

[12] As rightly emphasized in Lowood, "New World."

[13] See, for example, Pardo-Tomás & López-Piñero, *Influencia de Francisco Hernández*; Pardo-

solis (sunflower) and as *chrysanthemum Peruvianum.*[14] And Gessner designates the South American llama as *allocamelus* (other camel) or *ovis Indica* (Indian sheep), and the exotic coati as *mus Indicus* (Indian mouse).[15]

A particular interesting example in this respect comes from the correspondence between Clusius and the apothecary James Garet Jr. (c.1555-1610). The latter was born in Antwerp but emigrated to London, where he became a respected member of the small but highly expert community of the Lime Street naturalists. De Lobel was another prominent member. During the last two decades of the sixteenth century Garet in London and his brother Pieter (c.1555-1631)—an equally highly respected apothecary in Amsterdam—were among the greatest experts in Europe on exotic plants, resins, roots, gums, barks, fruits, seeds et cetera.[16] Their letters to Clusius reveal how they tentatively identified exotic plants from the (East and West) Indies by means of an implicitly comparative approach which was based on morphological comparison—and thus on family resemblances used in a period, it should be emphasized, in which the explicit concept of plant families, species, genus et cetera did not exist.

In the course of the 1590s the Garet brothers identified several exotic plants as members of the solanum 'family'. They heard about some from travellers; they grew others in their gardens; and of yet others they received parts (fruit, tuber, branch, flower) or heard oral descriptions of the shape or effects. Pieter, for instance, tentatively identified an East Asian tropical fruit which somewhat resembled a plum as a solanum fruit. His identification was based on his own ocular inspection of one of the dry fruits, and a verbal description by an eye witness of the tree, the taste of the fruit (which was deliciously like baked apples), and the hallucinatory effects that it produced when the crew of one of the Dutch vessels which explored the East Indies ate large quantities of these 'mad plums'.[17] On

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Tomás, "Two Glimpses of America"; Mason, *Deconstructing America*, and *Before Disenchantment*. I find the general approach followed in Schiebinger & Swan, *Colonial Botany*, which sees the European approach to exotic naturalia mainly in terms of hegemonic appropriation, rather reductionist.

14 These names for the sunflower ("Chrysanthemum Peruvianum maius vel flos Solis maior" and in German "Gros peruvianisch Goldt oder SonnenBluom") can be found already on the oldest known European illustration: a watercolour created between 1538 and 1562, and intended as model for a woodcut in a work by Leonhart Fuchs which was never published (Österreichische Nationalbibliothek, Codex Fuchs, Cod. 11/125, page 391). See Meyer, Trueblood & Heller, *Great Herbal of Leonhart Fuchs* 183, and plate 21.

15 See Gessner, *Icones animalium*, 43, 103. For a discussion of the llama in early modern images and text, see Mason, *Before Disenchantment*, 175-84.

16 See Egmond, *Natural History in the Making*, esp. 175-207; and Harkness, *Jewel House*, 15-56.

17 Garet was told about these effects by a Dutchman who had returned in 1603 to Holland from the

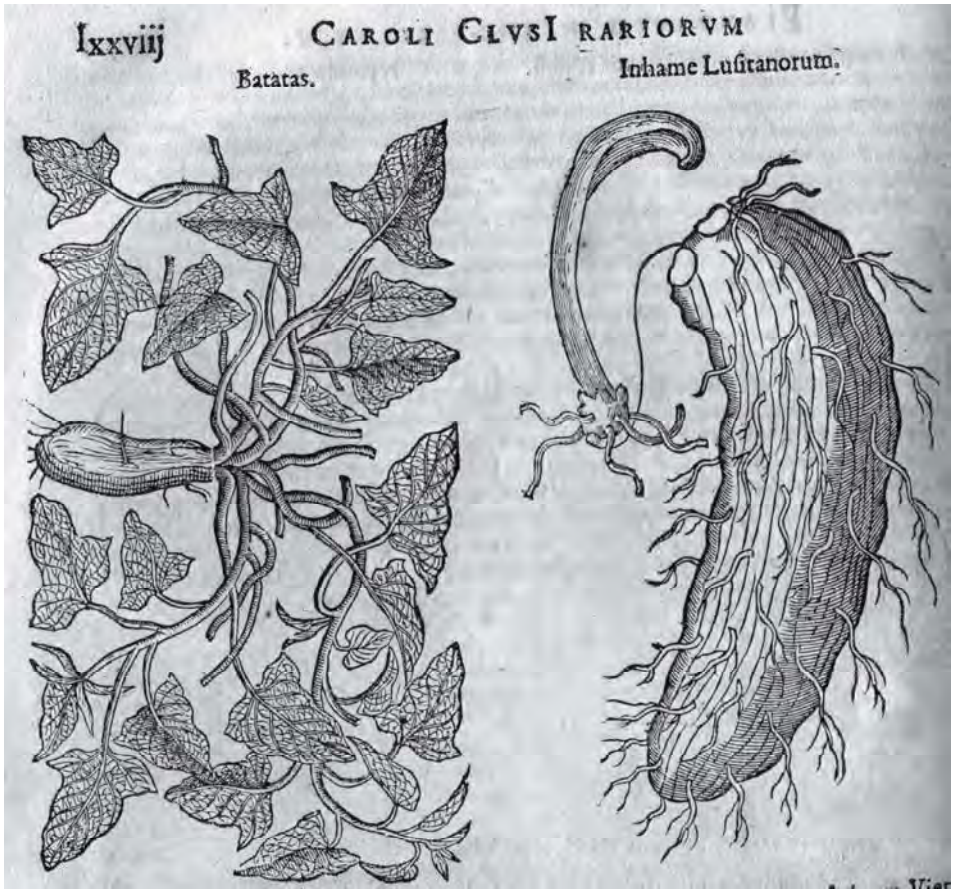


Figure 6.1. *Yam (*inhame*) and sweet potato. Clusius,* Rariorum plantarum historia*, Antwerp, 1601, p. lxxviii. Courtesy of Leiden University Library*

another occasion James wrote to Clusius about a tropical fruit, which he thought was "some kind of hyoscyamus" (likewise a member of the solanum family). In his letter he refers to the shape of leaves and roots, while the form of the fruit itself must also have been relevant.[18] James was one of the very first persons in Northern Europe, moreover, to grow potatoes and eat them. Potatoes were almost unknown in Northern Europe until 1588-89; during the next ten to fifteen years they spread quickly in collectors' gardens. Already in January 1589 James wrote that he was eating a lot of potatoes (*papos*) which he had grown in his garden in London and that they seemed very nutritious but had a rather earthy taste.[19] In July 1589 he confirmed to Clusius that these were the real thing (now known as *Solanum tuberosum*) and not sweet potatoes: "these are the real *papos* from Peru because I have asked the same Frenchman who has seen them growing last May."[20] Garet had one of these plants portrayed with its flowers and sent Clusius this plant portrait in September 1589, remarking that his plants were already big and grew just like a small solanum.[21] In a letter to another lover of exotic plants, Garet had been even more explicit about his identification on the basis of comparison:

> … that these round ones had been sold to him [i.e. Garet] as *batates*, but are not that at all, and that they multiply quickly via the roots and have a great abundance of flowers with a flower like the violet anemone and fruit like that of the *pommes d'amour*, but not as big.[22]

Garet thus distinguished between *batates (*sweet potato) and *papos* (ordinary potato). Like Roels, he did not try to invent a Latin name for either. And he must have known the tomato, which he calls by one of its sixteenth-century European names *pomme d'amour* (love apple)—yet another American plant from the solanum family destined to have an enormous effect on European food culture (see figure 6.2).[23]

Fourth Dutch Voyage to the East Indies and who had personally experienced them. See Pieter Garet to Clusius, 10 August, 1603, University Library Leiden (further ULL), VUL 101; and Clusius, *Exoticorum libri decem*, 53-4. On 'mad plums,' see also Egmond, *Natural History in the Making*, 194-5.

18 James Garet Jr to Clusius, 7 September, 1601, ULL, VUL 101.

19 James Garet Jr to Clusius, 19 January, 1589, ULL, VUL 101. See Clusius, *Rariorum plantarum historia*, lxxix-lxxxi.

20 James Garet Jr to Clusius, 28 July, 1589, ULL, VUL 101.

21 James Garet Jr to Clusius, 9 September, 1589; compare 28 July, 1589, and 28 August, 1590, all ULL, VUL 101.

22 C. de Tassis to Clusius, 25 January, 1589, ULL, VUL 101, quoting James Garet Jr.

23 For a visual history of solanum plants, see Daunay, Laterrot & Janick, "Iconography of the Solanaceae."



Figure 6.2. *Tomato. Libri Picturati A28.080verso. Courtesy of Jagiellon Library Kraków*

On the very first known European image of a tomato plant—a watercolour made between 1538 and 1562 for a work by the German botanist Leonard Fuchs which never appeared—its names are given as *Malus Aurea* (gold apple), *Malum rubrum* (red apple), *Pomum luteum* (yellow fruit), and *Goldt Apffelkraut* (golden apple plant).[24] Interestingly, Clusius was apparently not convinced by Garet's suggestion. Clusius's description of the potato, which only appeared in print in 1601, mentions the names *papas Peruanorum*, *taratouffli*, and the Virginian name *openauk*, but he accompanies the illustration with the caption "Papas peruanorum perhaps the same as Arachidna Theophr." (see figure 6.3).[25] The Swiss physician and naturalist Gaspard Bauhin (1560-1624), however, followed the same reasoning as Garet: on the basis of the similarity of the shape of the potato's leaves with those of the tomato, of its flowers with those of the aubergine, and of its fruit with that of the *Solanum vulgare,* and given the smell of the whole plant, he identified it as a solanum of the edible kind.[26]

Perhaps the Garets were especially familiar with the solanum family on account of their work as apothecaries. Not only the edible potato, tomato, and aubergine belong to this family, but also many poisonous or narcotic plants, such as the deadly nightshade and the thorn apple (*Datura stramonium*). These indigenous European plants were used in medicine or well known because of their particularly dangerous characteristics. The Garets may therefore have been better equipped to recognize certain family resemblances than even Clusius.[27]

Naming and Classification

Plant description and identification (with naming as an important aspect) was the one of the main preoccupations of all European naturalists during the sixteenth century. It was at the core of what Richard Palmer has called the collective enterprise of natural history in this age. That enterprise originated in attempts to identify the plants known in Classical *materia medica* and checking how the plants discovered in early modern Europe and outside it related to the plants known in

[24] Österreichische Nationalbibliothek, Codex Fuchs, Cod. 11/122, page 161; see Meyer, Trueblood & Heller, *Great Herbal of Leonhart Fuchs* 174, and plate 19. See note 13 above.

[25] Clusius, *Rariorum plantarum historia*, lxxix-lxxxi.

[26] The still valuable Salaman, *Social Influence of the Potato*, 93, has a long quotation in English from Caspar Bauhin's *Prodromos* of 1620, which refers back to Bauhin's earlier identification of the potato as a solanum in the 1590s.

[27] Clusius too, however, grouped some members of the solanum family together. See Clusius, *Rariorum plantarum historia*, lxxxiii-lxxxvi.



PLANTARVM HISTOR. LIB. IIII. lxxix

berantes, tectas omnes ſcabro & inæquali cortice, ut Ariſtolochiæ longæ legitimæ radices, & multis exiguis fibris ſparſim naſcentibus præditas: ipſa radicis ſubſtantia alba, lenta, & ſucculenta eſt, atque veluti grumoſa, tenera tamen, nec ingrati ſaporis (crudam enim guſtabam) exiguo autem poſt momento nõnihil aſperi & acriuſculi: aſſa verò (nam & guſtare volui, ut certius obſervare poſſem) tenerior eſt caſtaneã, & pyri inſtar, cui grumoſa ſubſtantia, edulis. Qualem caulem, aut folia habeat, non intelligebam, unam tamen radicem cum germine accipiebam, ſed vecturâ abrupto, quale in eadem tabellã cum radice, quàm commodè potui, exprimebam.

D. Thomæ inſulanos eã aſſã & elixã veſci intelligebam, ejũſque rei gratiã Luſitani quidam, qui multos iſtic cũm viros, tum feminas & pueros emerant, ut Vlyſipone pro mancipijs venderent, iſtas radices in naves intulerant in miſerorum alimentum, præterea nuces quaſpiam, quibus cum radicis cujuſdam farinã veſcerentur. Omnes autem illæ naves eodem anno in Walachriam delatæ. *Natales.*

SED & aliam ab eodem Wilhelmo cum ſuperiore accipiebam, nec formã, nec colore, nec magnitudine ſuperiori diſſimilem, quam *Ignamè* etiam vocabat Luſitanus, qui illam ipſi dabat, licet aliud genus eſſe non inficiaretur: ſed totius radicis cortex magis inæqualis erat, & veluti quibuſdam tuberculis obũtus: è quibus tenues fibræ emergebant, præterea radix ſummo capite, paullo craſſioribus, duriſque & pedalis ſive palmaris lõgitudinis fibris, ſeu verius viticulis, magnã ex parte ſpinoſis erat prædita. Nonnulli *Icam Peru*. *Ignami genus aliud.*

ARACHIDNA THEOPH. fortè, Papas Peruãnorum. CAP. LII.

Arachid. Theoph. fortè, Papas, radix.

ESCVLENTA etiam eſt radix hujus novæ, & ante paucos annos Europæ primum cognitæ plantæ: veteribus tamen, meo judicio, non ignotæ, ut poſtea ex ijs quæ in medium proferemus, apparebit.

PRIMVM autem ex bulbo (qui Aprili plerumque ſerendus apud nos, non maturius) paucis diebus à ſatione, folia promit ex atro purpuraſcentia, villoſa, quæ deinde explicata, viridem contrahunt colorem, quina, ſeptena aut plura in eadem ala naſcentia, à Raphani foliis non valde aliena, impari ſemper numero, interjectis alijs minoribus folijs, & impare extremam alam ſemper occupante: caulis pollicari craſſitudine, anguloſus eſt, lanugine obductus, quinos aut ſenos interdum cubitos longus, πολυβλαςὲς, & in multos ramos diviſus, longos, infirmos, & niſi ridica aut alijs adminiculis ſuſtineantur, pondere ſuo in terram procumbentes, & latè ſe ſpargentes: ex ramorum alis prodeunt pedales craſſi, anguloſi pediculi, denos, duodenos, aut plures flores ſuſtinentes, elegantes, uncialis amplitudinis aut majores, *Papas bifera.*

Figure 6.3. *Potato. Clusius,* Rariorum plantarum historia*, Antwerp, 1601, p. lxxix. Courtesy of Leiden University Library*

Antiquity.[28] Identification was, however, at the same time an instrument in establishing whether plants might or might not have a certain medicinal function, and the only means to determine rarity or novelty. In the course of the sixteenth century the latter became one of the central interests of several generations of wealthy and often expert collectors with a passion for rare naturalia.[29]

The examples of Roels and the Garets show how an interest in practical usage as food or medicine and the importance of being able to distinguish between poisonous and edible or even wholesome plants stimulated detailed examination, attention to morphological similarities and differences, and a close attention to naming. It should be emphasized, however, that the interest of these men (and of many other experts in the sixteenth century) was by no means limited to such practical aspects, but extended far into the study of plants for its own sake. It is not hard to see that attempts at identification by assessing the novelty of these plants as well as their possible family relations to known ones, took the naturalists of this age ever deeper into the observation, description and analysis of detail, form, and colour. Increasingly, differences and similarities lay in the details and it seems no more than logical to assume that this attention to detail sensitized naturalists to less easily noticeable plant characteristics, such as the structure of the roots, or that of the fruits, or the flowers. The effect of their efforts was therefore not only the production of ever more detailed descriptions on the basis of close observation, but also an increasing interest in family resemblances and attention to details which could confirm or refute those family resemblances. As an unintended consequence, I suggest, this interest contributed to a change in the priorities of the collective enterprise of natural history in the course of the seventeenth century, with a shift towards ordering, classification and plant taxonomy.

In the latter respect I thus propose a modification of the general thesis proposed by Scott Atran and elaborated by Henry Lowood and Brian Ogilvie, who lay more stress on the massive amount of information about Old and New World nature which by itself would have triggered the need for ordering, especially in the course of the seventeenth century.[30] Masses of detailed descriptions were indeed

[28] Palmer, "Medical Botany." While this is not a novel point of view, its implications are at present being explored in more depth than before. See esp. Ogilvie, *Science of Describing.*

[29] In my *Natural History in the Making* I have tried to show that the latter formed a major incentive to the scientific investigation of nature, given the prominence and wealth of those collectors, the importance of collecting as a means of social distinction, and the (as yet) relatively minor role of botanical expertise as a scientific discipline.

[30] For the sake of brevity I am simplifying their respective positions, which are close but not identical. See Atran, *Cognitive Foundations*; Lowood, "New World"; and Ogilvie, *Science of Describing* 200-29, and "Many Books of Nature."

generated, including lengthy and often descriptive Latin plant names of the type *Hepatica trifolia caeruleo pleno flore* (i.e. trifoliate hepatica with a double blue flower).[31] Yet, none of the late sixteenth-century naturalists appears to have been particularly overwhelmed by what has also been called 'information overload'. In fact, they created these masses themselves and regularly asked for more.[32] It seems more probable that the intrinsically comparative character of the investigative enterprise itself led to the focus on family resemblances and details and thus on grouping and distinguishing. The massive increase of known species in the course of the seventeenth century would certainly have provided an additional incentive to ordering, but a possible direction in which to look for classificatory principles would already have been explored much earlier, if my thesis is correct. Much more needs to be found out about this period of transition from one major research imperative (describing-identifying) to another (classifying), including its precise chronology.

Well before classification and taxonomy was given priority on the general research agenda, various naturalists of the sixteenth century had indeed already been organizing their botanical and zoological material, without proposing their particular system as an overarching one for general use. Sixteenth-century naturalists seem to have felt more or less free to choose their own system (or systems) of ordering, according to the needs felt and the purposes for which a survey was created. Names played an important part, but not because of any intrinsic connection with classification. It was (and had in medieval times been) common practice to classify plants or animals *alphabetically*, and thus by name, but yet within certain rough categories. The principal four volumes of Gessner's enormous *Historiae animalium*, in which he attempted to describe and document all of the animals then known, is one of the best-known examples. The first volume of the Latin edition (1551) starts with the *Alce* (elk) and deals with viviparous animals; the second (1554) with oviparous ones (such as amphibians and reptiles); the third with birds (1555); and the fourth (1558) with fish and various animals living in, on, and near water. Within each volume the order is alphabetical, but not strictly, since similar animals are grouped together and classified under the Latin name that seems to fit the group best. Thus, the wild boar (*Aper*) can be found not under 'A' but under 'S' of *Sus* (swine). To assist those readers who were more familiar

[31] Clusius, *Rariorum plantarum historia*, ccxlviii.

[32] Clusius is one of the best examples of an expert naturalist who could easily handle massive amounts of information, regularly lamented that he did not have more, generated immensely detailed descriptions, and felt no particular need of any kind of synthetic classificatory framework.

with languages other than Latin, Gessner included indices with animal names in Greek, Persian, Hebrew, French, Italian, Spanish, German, English and 'Illyrian'. Of course, the enormously popular German editions of Gessner's volumes present a completely reorganized content. The first volume here starts with the category *Affe* (monkeys; which includes all kinds of monkeys, even if their names do not begin with A), followed by *Aichorn* (squirrel), et cetera.[33] In fact, Gessner thus followed a mixed system, using principal categories and subcategories based on morphological similarity, which were then organized by alphabet.

Some naturalists grouped the plants or animals according to (medicinal) use. Others followed morphological characteristics, which resulted in rough categories, such as trees (deciduous and other); shrubs with woody stems; flowering plants (annual or perennial), bulbous and tuberous plants; grasses; et cetera.[34] The aristocratic garden owner Pietro Antonio Michiel (c.1510-76) in Venice, based the organization of the drawings of his rare plants on morphological characteristics of the root and stems or trunks. In the course of the period 1555-76 Michiel had more than a thousand of the plants in his Venetian garden (which included some very rare exotica) depicted in various albums, and grouped in this way. Michiel's botanical and horticultural expertise was such that he was invited by the Venetian Senate to act as supervisor for the Padua university hortus and as advisor to its first prefect Luigi Anguillara (1512-70) from 1551-56.[35]

Yet another organization characterizes one of the most impressive collections of botanical watercolours of the sixteenth century: the more than 1,400 watercolours of the Libri Picturati A.18-30 depict some 1,600 plants or plant parts. The core group was commissioned during the second half of the 1560s by Clusius's first patron, the aristocrat Charles de Saint Omer (1533-69) who lived near Bruges. They are now roughly grouped according to the morphological categories such as grasses, bulbous plants, trees, fruit trees, vegetables, et cetera. As Zemanek and De Koning have shown, representatives of the same family or genus can be found in close proximity. Yet, here and there clusters can also be discerned which are grouped on the basis of habitat: plants of the meadows, plants growing in deciduous forests, aquatic and bog plants.[36] The latter groupings may be the result of

[33] Gessner, *Historiae animalium*, vols. I-IV.

[34] For a brief but still interesting discussion of diverse ordering systems used by sixteenth-century naturalists, see Delaunay, *La zoologie*, 191-4.

[35] On Michiel and his albums see Pardo Tomás, "Flora americana," and the still essential Toni, *Pietro Antonio Michiel.*

[36] See the first complete publication with comments of all the botanical watercolours of Libri Picturati A.18-30: Koning et al., *Drawn After Nature*; and in this volume esp. Zemanek & Koning, "Plant Illustration," 175-6, and Ubrizsy Savoia, Zemanek & Zemanek, "Beginnings

a reordering of loose sheets around the turn of the sixteenth century by the new owner Charles de Ligne, Count of Arenberg (1550-1616), who had the intention of reordering the sheets according to the method of the French botanist Jacques Daléchamps (1513-88).[37]

Quite a few naturalists combined the criteria of several different systems of grouping. The naturalia collection of the French apothecary Paul Contant (1562-1629) in Poitiers comprised an herbarium which consisted of 15 volumes by the time the inventory of his collection was made and contained some 3,000 indigenous and exotic plants. An illustration in Contant's *Le Jardin, et cabinet poétique* shows these volumes: 13 spines have letters of the alphabet on them, indicating that the dried plants were classified by name, but two spines testify to a different way of organizing. They are labelled respectively: *Legumes, Bulbes* (Vegetables, Bulbs).[38] John Gerard's *Herball* of 1597 contains even more of an amalgam of categories based on diverse criteria. It opens with the categories "Grasses, rushes, corne, flags, bulbose or onion-rooted plants"; the second book discusses "all sorts of herbs for meate, medicine or sweet smelling use"; and the third book speaks of:

> trees, shrubs, bushes, fruit-bearing plants, rosins, gums, roses, heath, mosses: some Indian plants, and other rare plants not remembered in the proeme to the first booke. Also mushroms, corall, and their severall kindes, et cetera.[39]

The examples mentioned here intentionally include famous and non-famous, botanical and zoological, and printed and non-printed surveys of living nature—all, it should be emphasized, created by men who were internationally recognized experts in this field. Much attention has been paid so far to what a small number of well-known naturalists of this period published; too little is yet known about the very considerable amount of further material that is, in fact, available but non-written, visual, non-published, or simply less famous. The Italian naturalist Andrea Cesalpino (1519-1603) and the Swiss Bauhin in particular have been lifted out of this varied and fascinating context and given special attention in histories of botany because they produced something that looks like the system of classification that two centuries later, with Carl Linnaeus (1707-78), became the dominant system of taxonomy. Bauhin, for instance, who described some 6,000 species in his *Pinax theatri botanici* of 1623, invented a deceptively modern-looking system

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of Ecological Thought," 91. On the origins of this collection, see Egmond, "Clusius, Cluyt, Saint Omer."

37 Ramón-Laca, "Additions by the Count of Arenberg"; Zemanek & Koning, "Plant Illustration."

38 See Schnapper, *Collections et collectionneurs*, 392.

39 For these chapter headings see respectively Gerard, *Herball*, 1, 177, 1077.

of naming which was Latin, binomial, and in which the first name was that of the genus, and the second one a specific descriptive term to denote the species. Whereas it is natural to look for forerunners to later scientific developments, that approach entails the great danger of mainly confirming the point of view from which it started and hiding, de-contextualizing and even misinterpreting that of the subjects who are being studied. Ogilvie has explained very well why it is a fallacy to regard either Cesalpino or Bauhin as modern *avant la lettre*.[40] But an equally striking example with regard to the topic of naming and classification is Gessner.

The same man whose vast *Historiae animalium* of the 1550s was organized by alphabetical arrangement of Latin animal names in combination with rather sketchy morphological categories, during most of his life made a detailed study of plants. As Zoller has argued, Gessner's very large number of beautiful as well as accurate plant drawings show him to have concentrated on detailed morphological comparison. They were visually as well as conceptually innovative because he depicted not only the whole plant but next to it, separately, also enlarged details of those organs which he regarded as morphologically most relevant, such as flowers and fruits. In his letters Gessner often emphasized that precisely these parts of plants formed a crucial element in determining the family relations of plants. Gessner often used binomial Latin names for plants (just as Clusius and several other naturalists would do a few decades later), many of which were later included in the Linnaean system, but he never developed a consistent naming system which was linked to the family resemblances that he discerned.[41]

Gessner's very early and suspiciously modern-looking approach to plant families has received remarkably little attention in the history of botany. One reason is that Gessner never formulated it in words (except in a fragmentary way in some of his letters), while the main *visual* evidence of it remained unpublished until

[40] See Ogilvie, *Science of Describing* 212-5, 222-6. I find his use of the term "folktaxonomic intuitions about the relationships between plants" (228) for the type of orderings described above neither helpful nor accurate, given the fact that these were the result of a mix of practice-based and erudite insights themselves. The dangers of the teleological view of history, to which the history of science as a history of scientific progress is particularly liable, have been expounded in Butterfield, *Whig Interpretation of History*.

[41] Gessner's drawings have been compared to those of Leonardo da Vinci in terms of aesthetic and intellectual quality. See Zoller, "Conrad Gessner als Botaniker"; and see also his extensive comments in Zoller, *Conradi Gesneri historia plantarum*. For Gessner's use of binomial plant names and his interest (both philological and scientific) in vernacular and Latin names of plants, and his correspondence on this topic, see Steiger "Erschliessung," 37, 60-3.

the eighteenth century.[42] Another reason, we may suspect, is that recognition of Gessner's implicit plant classifications raises some very thorny questions: how could one and the same highly erudite humanist follow a most unsophisticated and old-fashioned looking alphabetical order in one domain of nature and yet develop a highly sophisticated notion of family relationships on the basis of very detailed morphological comparison in another? Perhaps even more awkward for the teleological concept of the history of science is the question why Gessner's modern-looking notions arrived apparently out of the blue and at a stage when botany had only just started to become a scientific discipline. And why were so many of his successors operating in ways that look much more old-fashioned? In short, the example of Gessner seems to point to scientific progress in reverse. Appearances are deceptive, however. On the one hand Gessner's approach to plant families was certainly sophisticated, but should not be interpreted in terms of modern scientific notions. On the other hand, his approach to animal classification was not as 'old fashioned' as it seems. We have already seen that the alphabetical ordering of the *Historiae animalium* volumes actually hid rough categories based on morphological resemblance. And in Gessner's first publication on fish of 1556 (*P. Ovidii nasonis halieuticon, hoc est, de piscibus libellus*) he marked various categories of fish and aquatic animals with letters which clearly show how his fish categories were based on morphological characteristics. To any modern reader some of these are very recognizable: C for *Crusta* (crustaceans), M for *Molle* (molluscs), T (*Testaceum*) for shellfish, P for *Piscis* (fish) subdivided for instance in P.C.L. (Piscis cartilagenus longus) and P.C.L. (Pisci cartilagneus planus).[43] The reason why Gessner did *not* follow this type of classification in his *Historiae animalium* seems to be that this work had different, encyclopaedic purposes—which incidentally demonstrates both the flexibility of early modern naturalists and the historiographical dangers of relying on only a part of the available evidence.

Rather than an awkward and best-forgotten example, the case of Gessner is thus a significant clue to what was actually happening at the time. Precisely the fact that the priorities of naturalists largely lay elsewhere—with description and identification—may have given them the liberty to develop multiple systems of naming and classification, which could also co-exist, depending on the needs and requirements of the moment. The former is, indirectly, also clear from the great professional conflicts of the period between naturalists: reputations were staked and collegial friendships wrecked over the correct identification of specific plants,

[42] Zoller, "Conrad Gessner als Botaniker."

[43] Gessner, *De piscibus libellus*, 17-8 (with the legenda). This rare book can now be consulted online: http://www.e-rara.ch/zuz/content/titleinfo/215501, accessed 3 Apr, 2012.

not over how to classify them. Judgement on the latter could remain suspended and experimentation was open in the domain of classifying. No reputation would be lost if one ordered or even disordered naturalia—as is shown perhaps most clearly by the inclusion by a serious scholar like Clusius of stop press discoveries in one appendix after another at the end of his *Exoticorum*, whether exotic or European, without any particular order, and sometimes even without page numbering.[44] Out of that situation the new project of taxonomy would eventually emerge, but for the moment no single system of classification was adopted as generally valid, and naming could follow many different forms and highlight various characteristics of plants. Flexibility was the rule of the Botanical Renaissance.

Lost in Transition: Plant Names as Sources of Information

The recognition that classification was not a research priority for sixteenth-century naturalists must also have implications for the study of the names and naming of plants (and animals) in this age. First, and in so far as possible, we should look at the plant names used in this period *not* (primarily) in terms of what might fit eventually into an universal taxonomic system, but in terms of the priorities of the period: description in terms of identification and approximation of unknown naturalia (non-European or not) to known ones. Second, the Latin names should no longer be regarded as scientific. As Rabelais already made clear, they did not belong to one single system of classification, did not necessarily differ from vernacular names in terms of content, and were thus no more or less 'scientific' than the vernacular names.[45]

The fact that many of the Latin names of the sixteenth century eventually made their way into the Linnaean system does not make any difference in this respect. The Linnaean binomial system is a scientific classificatory system because of its systematic structure and hierarchy. The form of plant and animal names expresses this structure, but this is not necessarily true of their contents. The plant known in modern English as Yellow Rocket or Winter Cress, for example, has the scientific name *Barbarea vulgaris* which derives directly from Saint Barbara (see figure 6.4). Her feast day is on 4 December, and the plant is said to have been named after her because it stays green during the winter. The modern scientific name is, in fact, almost identical with the most common vernacular names on the

[44] See, for instance, the *Appendix altera* in Clusius's *Exoticorum libri decem*, which has no page numbers. See also Mason, *Before Disenchantment*, 124-48.

[45] This point was in fact already made by Delaunay, *La zoologie*, 197.



Figure 6.4. *Barbarea vulgaris. Libri Picturati A28.091. Courtesy of Jagiellon Library Kraków*

European Continent which go back to the Middle Ages: *Herbe de Sainte Barbe, Barbarakraut, Erba di S. Barbara.*[46]

With the dandelion the opposite is the case. The vernacular name dandelion derives from the French *dent de lion* (lion's tooth), which probably refers to the jagged edges of the leaves. Similar vernacular names can and could be found all over Europe: *Löwenzahn*; *diente de león*; *dente de lion*; and the Italian *soffione* is very similar in content to the English blow ball. Early modern Latin names include *dens caninus* (hound's tooth) or *dens leonis,* as can be seen on the watercolour of the dandelion in the Libri Picturati (see figure 6.5). Its annotation also mentions the names of *caput monachi* (monk's head, because after all the seeds of the puff ball have been blown away a smooth surface with pores remains which resembles the shaven heads of monks), and the vernacular German *Pfaffen roerlin* and Flemish *Papen cruyd* (herb of the Papists). Its modern scientific name *Taraxacum officinalis* bears no relation to any of these older names. Even these two simple examples thus show that modern scientific names can have 'non-scientific' contents of the kind described by Rabelais, and that there is often little system to the relations between ancient vernacular and Latin names on the one hand and modern vernacular and scientific Latin names on the other hand.

As Ogilvie in particular has pointed out, the increasing emphasis on plant taxonomy of the later seventeenth century meant that the masses of descriptive information began to disappear from botanical surveys. Once new organizing systems were accepted and adopted, many characteristics could be described at the higher level of order or genus, and no longer needed to be repeated for every species of sub-species. The positive aspects of the new taxonomy are well known under the heading of scientific progress. How much was lost with respect to the sixteenth-century situation with its descriptive styles of naming and co-existence of many ordering systems has as yet been only partially explored.

In scientific plant descriptions those aspects were most easily lost which belonged to local dialect, local knowledge and local situation, setting or habitat. At least three domains of practice-based and locally rooted knowledge suffered, as has become clear from an extensive investigation of Libri Picturati A.18-30 by a team of botanical and historical experts.[47] The first concerned practice-based knowledge of the medicinal properties of plants. In spite of the fact that the man

[46] Dodoens, *Cruijdeboeck*, 669 (see http://leesmaar.nl/cruijdeboeck/deel5/capitel059.htm, accessed 3 Apr, 2012), explains its Flemish name *Winterkersse* by saying that it is eaten in salads during the winter. It can be found as *Winter cress* or *Barbarea* in Gerard, *Herball*, 188.

[47] See Koning et al., *Drawn After Nature*; see Ramón-Laca, "Charles de l'Écluse" for the first publication of the annotation on these watercolours.



Figure 6.5. *Dandelion. Libri Picturati A28.030. Courtesy of Jagiellon Library Kraków*

who commissioned the substantial core of this collection, the aristocrat Charles de Saint Omer, had no medicinal purposes in mind with this collection, many of the plant names nonetheless provide hints as to their medicinal use; some indicate their poisonous properties.[48] On the above-mentioned watercolour of the dandelion, for instance, we also see the French vernacular name *pissenlit* (lit. piss in the bed), which refers to its diuretic properties.[49] Similarly, the watercolour of the plant now known as *Tanacetum parthenium* bears the names *matricaria* or *amarella*, *matricaire* or *herbe de la mère, Mutterkraut,* and *moedercruijd* (see figure 6.6). The plant was supposed to counteract some problems of the uterus and have palliative effects on fever.[50] The names of several members of the solanum family depicted on the watercolours hint at their dangerous and hallucinogenic properties. *Schlaffkraut* (sleeping herb) and *Dollkraut* (mad herb), the German names for *Hyoscyamus niger* (black henbane or stinking nightshade) are particularly suggestive.[51] In a similar way the plant names in printed herbals of the sixteenth century often contain clues as to their medicinal effects. Occasionally, the authors also provide explanations. Dodoens, for instance, notes that the above-mentioned *Barbarea vulgaris* was also known as *steencruijd* in Flemish, and was supposed to counteract the formation of kidney and bladder stones (*steen*) as well as to purify wounds and sores. Eaten as a salad it helped against scurvy.[52] Surprisingly, neither the medicinally nor the botanically relevant information contained in the early modern European herbals and non-printed botanical collections has yet been fully or systematically investigated.[53]

The second type of information lost from sight with the transition from descriptive to classificatory botany was knowledge of setting and context. As Von Rath shows, ecological grouping of plants according to soil type and climatic needs was the organizing principle of the Montpellier hortus botanicus created in 1595-96 by Pierre Richer de Belleval (1564-1632). He distinguished such categories as “Plants that grow in shady, wooded, moist, damp or swampy localities”; “Plants growing on slopes, mountains, in thickets, the undergrowth, and on grav-

48 For a survey of the plants in Libri Picturati A.18-30 then or now known to have medicinal or poisonous effects, see Koning, “Medicinal Plants,” 121-4.

49 Libri Picturati A28.030: Koning et al., *Drawn After Nature*, 305.

50 Libri Picturati A19.041: Koning et al., *Drawn After Nature*, 176. See Dodoens, *Cruijdeboeck*, 23-4.

51 Libri Picturati A30.080: Koning et al., *Drawn After Nature*, 336.

52 Dodoens, *Cruydt-boeck*, 1114 (see http://www.kuleuven-kortrijk.be/mirrors/bio/Cruydt-Boeck_scans/scans/high/01114.html, accessed 3 Apr, 2012).

53 As Dr Sabine Anagnostou of the *Institut für Geschichte der Pharmazie der Philipps-Universität Marburg* kindly informed me.

elly places"; "Plants that grow on rough, rocky, sunny places and on the seashore itself."[54] He quotes the Latin texts on the plaques over the entrances to various parts of the garden. Numerous examples of an ecological interest can also be found in the Libri Picturati A.18-30, as has been pointed out by Andrea Ubrizsy Savoia and Bogdan and Alicja Zemanek.[55] They offer information about requirements of plants as to soil, light and water, but also about flowering periods in different parts of Europe. Descriptions of the particular conditions required by plants (such as marshes, high levels of soil salinity, wet meadows, stagnant water, et cetera) occasionally go into considerable detail. The water dropwort (modern scientific name *Oenanthe fistulosa,* or as it is called on the watercolour *Laver Minus Dodonaei*), for instance: "Occurs in wet meadows and near stagnant waters and in sites which are waterlogged in winter and dry in summer."[56] On one particular watercolour the annotation explicitly states that two specific coastal plants which "very much love salty soils and seacoasts [. . .] grow together in indissoluble company"—which thus forms a very early recognition of plant association (see figure 6.7). Another watercolour visually unites three types of water plants (Duckweed, Ivy duckweed, and European Frog-bit) in one image, and indeed they often occur together; the annotation explicitly declares that they can often be found together, and to emphasize the watery setting they are accompanied by an exquisitely painted frog (see figure 6.8).[57] It seems too much of a coincidence that the famous French naturalist Guillaume Rondelet (1507-1566) too shows several frogs in the setting of three different marsh plants which often grow together in his principal work on fish which first appeared in Latin in 1554, and in French in 1558—within a decade of the period when the core watercolours of the Libri Picturati were created (see figure 6.9).[58]

The latter phenomenon brings us very close to the third category lost in transition: plant behaviour, which includes such intriguing aspects as growth, movement (such as orientation with respect to the sun and the closing and opening of flowers at daybreak or sunset), sensitivity, and interaction with either other plants or other species, such as insects. In the quotation at the beginning of this article Rabelais briefly mentions the "Heliotropium, which is the marigold, because it followeth the sun." An Italian correspondent of Clusius, the physician Onorio Belli who

54 Rath, "Function and Architecture", 100.

55 See Koning et al., *Drawn After Nature*, 93; and more generally on environmental thinking in the sixteenth century, see Ubrizsy Savoia, "Environmental Approach."

56 Libri Picturati A26.090: Koning et al., *Drawn After Nature*, 92.

57 Libri Picturati A26.023: Koning et al., *Drawn After Nature*, 90-2.

58 Rondelet, *Histoire entière des poissons*, 161.



Figure 6.6. *Matricaria. Libri Picturati A19.041. Courtesy of Jagiellon Library Kraków*



Figure 6.7. *Some plants that love salty soils. Libri Picturati A24.031. Courtesy of Jagiellon Library Kraków*

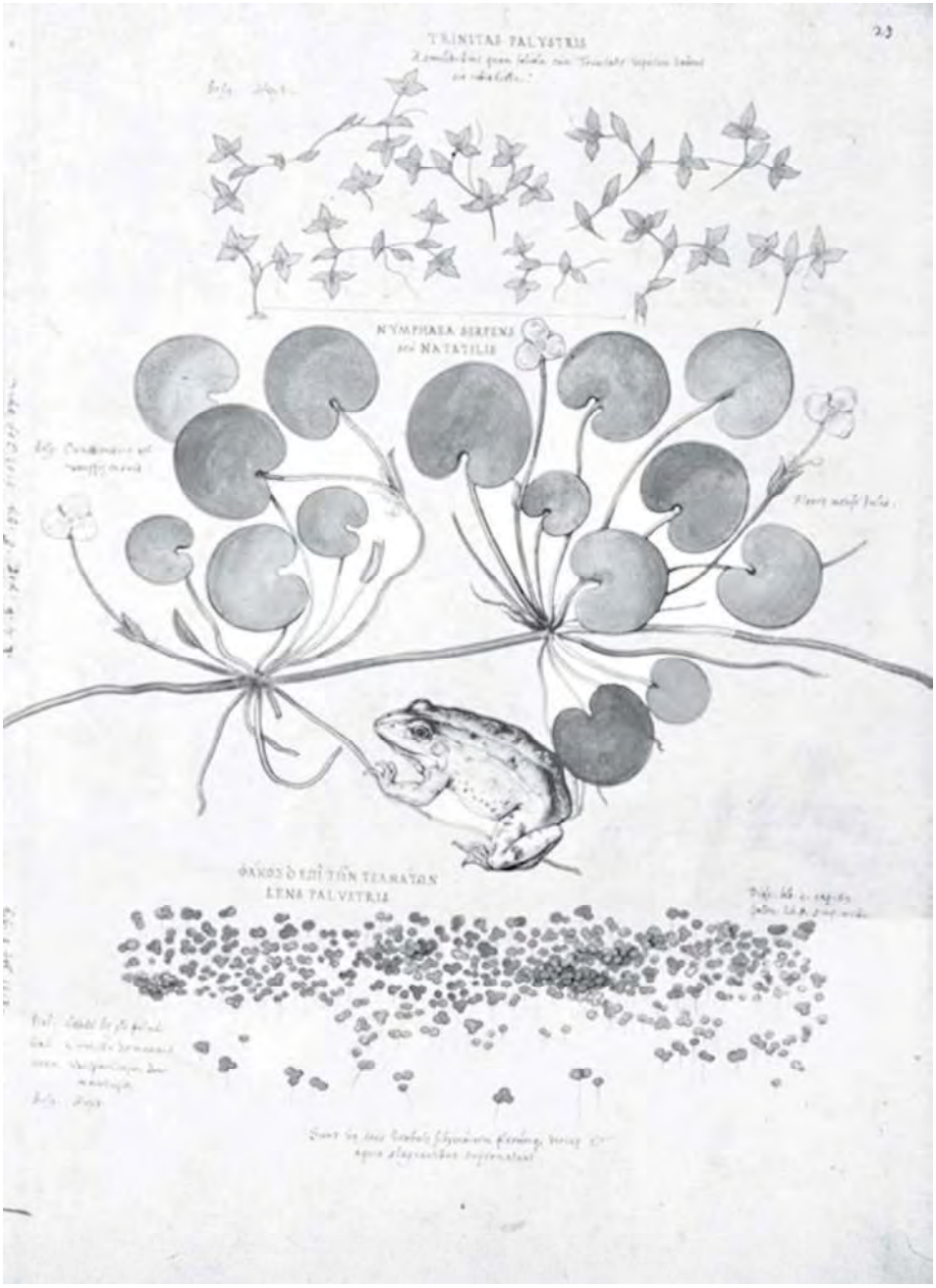


Figure 6.8. *Three waterplants that often can be found together. Libri Picturati A26.023. Courtesy of Jagiellon Library Kraków*



Figure 6.9. *Frogs and marshplants. Rondelet,* L'histoire entiere des poissons *(Lyon, 1558), p. 161*



Figure 6.10. *Caterpillars feeding on a plant in the dunes, from Adriaen Coenen's* Visboeck*, f. 309v (detail). Ms 78E54, Koninklijke Bibliotheek The Hague. Courtesy of Koninklijke Bibliotheek, The Hague*

spent a considerable part of his life on Crete, devoted much time and energy to this phenomenon and sent Clusius an extremely detailed description of a curious form of heliotropism in a plant which he called "Bean from Jemen" or "Abrus according to Alpini" (probably the *Abrus precatorius*).[59] It would be anachronistic to suggest that he was trying to describe the phenomenon in generalizing terms, but the concluding sentence of his description indicates that he was well aware that this was scientifically interesting plant behaviour: "This periodical turning around of the leaves to the sun I regard as wonderful and worthy of observation, and on that account I thought it of particular significance for you."[60]

In October 1599 James Garet Jr sent a by then dead exemplar of the (American) *Mimosa pudica* (Touch-me-not) to Clusius that had travelled alive in a pot from the West Indies. Both men knew of the movements of the leaves of this plant, which is also nicknamed 'the sensitive plant', and Clusius included some of his own observations in the annotation accompanying his Latin translation of Cristobal Acosta's (1515-94) *Aromatum et medicamentorum in orientali India nascentium liber* which (re-)appeared in an updated version in Clusius's *Exoticorum libri decem* of 1605.[61] Acosta himself had already remarked on the movements of the mimosa. And during the same period a much less highly educated man, Adriaen Coenen (1514-87) from Scheveningen in Holland, the son of a Dutch fisherman, manifested an interest in the intricate relations between species. In one of his marvellously illustrated manuscripts on marine life (created between 1577 and 1581), he describes several kinds of caterpillars in the dunes near his home village and remarks that "they have various colours matching those of the fruits on which they sit" (figure 6.10).[62] Coenen further describes the black and yellow caterpillars of the Cinnabar moth (*Tyria Jacobaeae*) and observes that they invariably feed on ragwort (Latin *Jacobea vulgaris* or *Senecio Jacobaea*; in English also known as St. James' wort) in some more detail:

> In the dunes near us there are some strange-coloured caterpillars which can exclusively be found on a plant called St. James' herb. The leaves of this herb are called *aamsblad*. One of our proverbs says: *St. James' leaf without a hole is more treasure than a king's gold*. In some periods—when it is very dry, as it seems—the caterpillars devour so much of this

[59] For a more detailed discussion of Belli and his botanical knowledge with a full quotation of the relevant passage and further references to the literature, see Egmond, *Natural History in the Making*, 85-8.

[60] Onorio Belli to Clusius, 15 August, 1596, ULL, VUL 101.

[61] Clusius, *Exoticorum libri decem*, 291.

[62] Coenen, *Visboeck*, fol. 311v. He does not depict these particular caterpillars. On Coenen, see Egmond, *Visboek*; and Egmond & Mason, *Whale Book*.

herb that neither leaves nor flowers are left. And this herb has many yellow flowers which stand close together. It grows as tall as half a man with hard stems. All of these caterpillars have the same appearance, striped beautifully golden yellow and blackish brown as if they had been made of black and yellow silk.[63]

Dutch vernacular names indicate the connection between moth and plant as clearly as the modern scientific ones: *St Jacobsvlinder* and *St Jacobskruiskruid.*

Conclusion

In the course of the sixteenth century we can discern a fast-growing interest in nature, which soon led to a shared (but uncoordinated) research agenda of naturalists all over Europe to describe, collect, and identify as many plants and animals as possible. The best known of these collections and surveys are the printed and illustrated herbals, but in terms of the history of natural history paper collections of watercolours and manuscript lists, albums and herbaria are no less important. At the same time there was a move away from vernacular plant names and towards Latin ones, which, however, was not necessarily a move in the direction of a scientific naming system. Just like the vernacular plant and animal names, the Latin ones formed part of the collective project of description and identification, and were no more or less 'scientific' (if we may use this term at all in an age in which the science of botany was only just beginning to take shape and distinguish itself as a discipline in the midst of all kinds of forms of official and unofficial knowledge) than the vernacular ones.[64] The Latinisation of this period should be seen in the context of international communication and the distribution and circulation of knowledge rather than in that of classification or taxonomy.

While plants from the Middle East began to arrive in Europe in increasing numbers starting from the 1550s, the quantity of naturalia from the Far East and America grew significantly, especially from the late sixteenth century onwards. No vernacular European names were available, and identification and naming proceeded often via a complex process of approximation (and thus comparison and the evaluation of similarity and difference) to European naturalia. The European names of exotic naturalia reflect this process: they were rarely a straightforward translation, but often combined indigenous (non-European) vernacular names or

[63] Coenen, *Visboeck*, fol. 311v-312r. In Dutch rhyme: "aamsblad zonder gat / is beter dan een konings schat."

[64] On the Botanical Revolution and the status of botany as a science in the making, see Egmond, *Natural History in the Making*; Ogilvie, *Science of Describing*; Mirek & Zemanek, *Studies in Renaissance Botany*; and Reeds, *Botany*.

European renderings of such names with descriptive terminology (either in Latin or in vernacular European languages). The relationship between the vernacular names of indigenous European plants and their Latin names often turns out to be almost as complex.

The sixteenth-century project of plant identification and description was fundamentally comparative in nature. While the decontextualization of plants in the service of improved observation may have played its part, I suggest that it was this comparative character of the project that stimulated an ever increasing interest in the morphological details of plants. Not so much information overload generated by the mass of descriptions but a need to group on the basis of observed family resemblances may have been one of the crucial factors triggering a new research project—that of taxonomy and classification—which came to dominate botany for several centuries from the late seventeenth century onwards.

But much is still unknown about the transition from one research project to another. The need to somehow order information existed among both famous and unknown naturalists and collectors of the late sixteenth century, and they were very inventive in developing such systems as well as almost incredibly flexible in their approach to ordering. This situation of open categories, multiple co-existing 'systems' and languages, and the openness to various types of expertise on nature which came from very different social backgrounds may well have formed essential ingredients in a most important phase of intellectual creativity—the Botanical Renaissance.[65] While much was gained in terms of focus, homogeneity and systematics in the course of the seventeenth and eighteenth centuries, this flexibility was lost. The increasing emphasis on a limited number of aspects of morphology and on taxonomy, with the incorporation of Latin names into a uniform and hierarchically organized scientific system, inevitably relegated vernacular names to a secondary role. With them, knowledge that was intimately connected with the vernacular and with local settings and contexts disappeared from scientific view—at least for a few hundred years.*

[65] See the excellent Enenkel, "Konstituierung der Zoologie," esp. 21 and 70, for his emphasis on a non-teleological approach to the study of early modern zoology, and on the importance of the diversity of contemporaneous approaches.

* The research for this article was done in the course of the 'Clusius Project' (2004-2009) and the project 'Re-Reading the Book of Nature' (2010-2014), both based at the University of Leiden and generously funded by the Netherlands Organisation for Scientific Research (NWO). A first version was presented at the Wellcome Institute in 2009 in the context of the research network 'Circulating Knowledge in Early Modern Science.' My special thanks go to Peter Mason and to the participants in this workshop and the editors of the present volume for their comments. Unless otherwise indicated all translations of primary source material are mine.

Translating 'Schilderspraeke': Painters' Terminology in the Dutch Edition of Franciscus Junius's *The Painting of the Ancients* (1637-1641)

Thijs Weststeijn

The seventeenth-century literature of art, which integrated philological rigor with craftsman's practical knowledge, was a vibrant field of translations from and into Latin. Many vernacular works were written in tandem with the rise of local artistic schools, all reacting to the genre that was established in Italy: there, Leon Battista Alberti (1404-1472) wrote his seminal text simultaneously in Latin and Italian (historians still debate which version was finished first). In the Netherlands, where a strong vernacular tradition developed, Neo-Latin works remained relevant throughout the century and even gave rise to a new edition of Alberti's *De pictura*.[1] Latin texts were translated into Dutch and original works were written in Latin.[2] This fitted a wider pattern of bilingual publications on painting also involving Germany and England, the most striking example being John Dryden's (1631-1700) translation of Charles du Fresnoy's (1611-1668) treatise *De arte graphica* (1695). With Latin and English on facing pages, it highlights the symbiotic nature of discussions on art involving different spheres of knowledge: the painter's workshop, the aristocrat's collection, and the classical scholar's study.[3]

1 In Laet, *De architectura.* Another original Latin work republished in the Netherlands was Pomponius Gauricus's *De sculptura*, published in Antwerp in 1528 and again, together with the treatise on painting by Demontiosius, in Laet, *De architectura*; and again, together with treatises by Demontiosius and Boulengerus, as part of Gronovius, *Thesaurus graecarum antiquitatum*, vol. IX.

2 Latin works by Giovanni Bellori (1704) and Charles du Fresnoy (1722) were translated into Dutch; Lampsonius, Molanus, Rubens, Cobergher, Buchelius, Vossius, and De Bisschop all wrote texts on painting in Latin; Wotton's treatise on architecture in English was published in a Latin translation by Laet, *De architectura.* These authors are discussed in more detail in Weststeijn, *Vernacular Arcadia.*

3 Fresnoy, *De arte graphica*. In Germany, Joachim von Sandrart stands out for publishing his books on painting first in German and later in Latin.

The work of Franciscus Junius (1591-1677) holds a significant place in this exchange, as he was the only author to translate his Latin book on painting, *De pictura veterum* (Amsterdam 1637), not just into one vernacular—English, the language of his patrons in London, the Earl and Countess of Arundel—but also a second one—Dutch, his native language (see figures 7.1-7.2). In Junius's works, his eminent education in philology at the university of Leiden was complemented by his wish to use the sophisticated vocabulary developed by the Dutch artists who were his close associates.

Junius explained his ambitions in a 1635 letter to the Amsterdam professor Gerardus Vossius (1577-1649), his brother-in-law: "I will translate what I have written in Latin into our vernacular tongue in my leisure time and will also try the same in English [. . .] Artists and all who love those delightful arts are pressing me."[4] As this chapter argues, his statement should be taken seriously: by making a vernacular version, Junius tried to link his classical learning to the craftsman's studio. In so doing, he anticipated Roland Fréart de Chambray's (1606-1676) 1662 lament, that since the work of "Franc. Iunius Holandois", was not translated into French, it remained "beyond the remit of our present-day painters' ordinary practice."[5] Junius's translation activities were apparently one instance among a spate of efforts to improve and expand the vernacular, characteristic of the development of erudition in the Netherlands and Britain that spawned a transfer of knowledge from scholars to dilettantes and craftsmen. To point out one parallel, Richard Haydocke's (c.1570-c.1640) English translation of Gian Paolo Lomazzo's (1538-1592) *Trattato della pittura* (1598) addressed a vernacular audience explicitly, including courtiers and painters as well as scholars: to have made a translation into Latin would have "communicated [its ideas] to some feawe, but not to have divulged it to all."[6] In the case of *De pictura veterum,* Junius's Dutch edition takes even more care than the English one to find a range of adequate translations, synonyms, and explanations for concepts and terms from antiquity, thereby developing the author's mother tongue into a *schilderspraeke* or painter's language, a vernacular fit for discussing the figurative arts.[7]

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4 "Urgent admodum artefices, et quotquot artes illas delicatas amant" (Romburgh, *Correspondence*, 102c).

5 The French painter Jacques or Jean Restout (c.1650-c.1701) even decided to make a French version (which does not survive). Nativel, *De pictura veterum*, 106-7 note 7; Ellenius, *De arte pingendi*, 34; "ce livre est en latin, et par conséquent hors de l'usage ordinaire de la plupart de nos peintres d'aujourd'hui" (Fréart de Chambray, *Idée de la perfection*, 10).

6 Lomazzo, *Artes of Curious Paintinge*, 5.

7 Junius, *Schilderkonst*, 106.

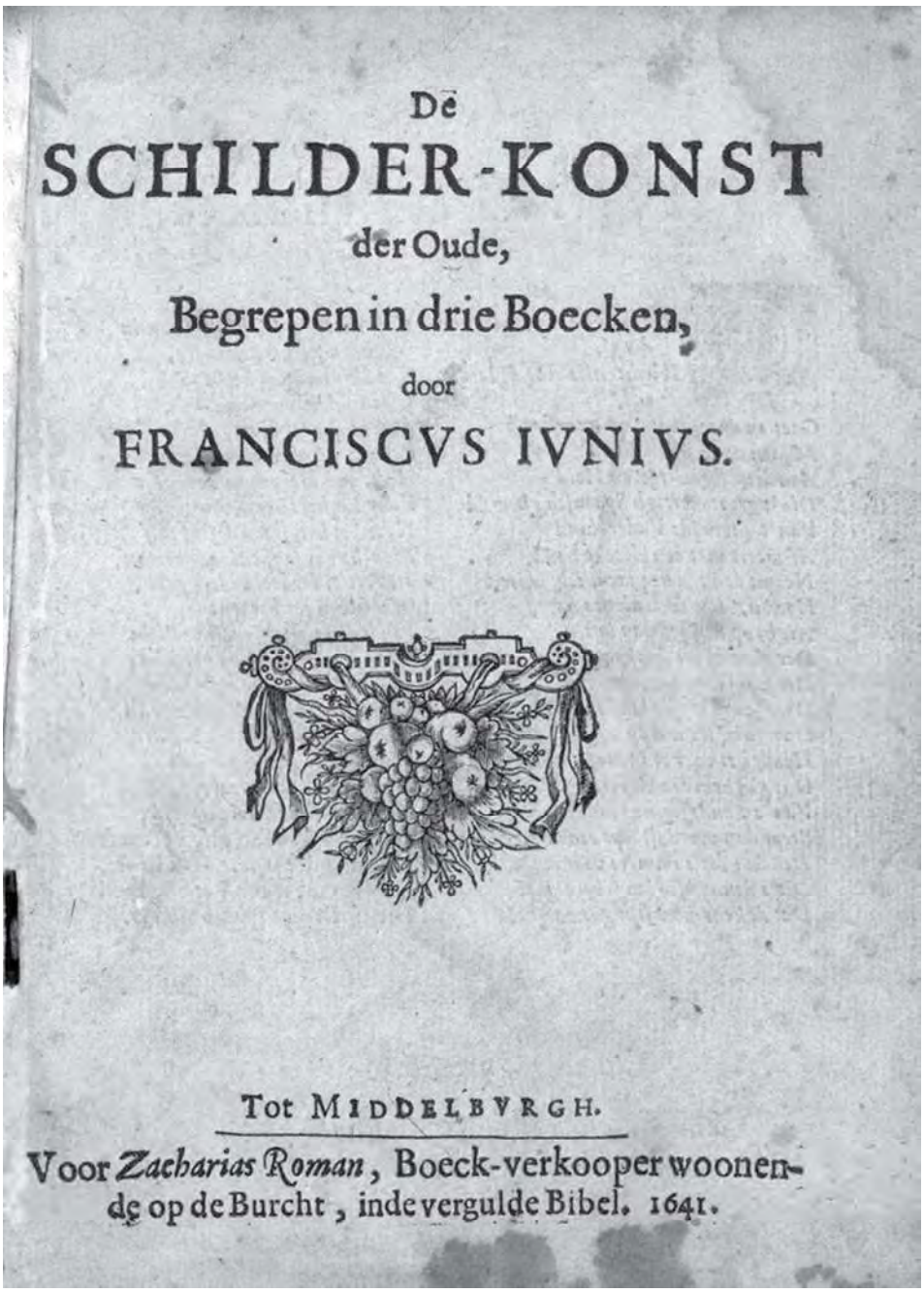
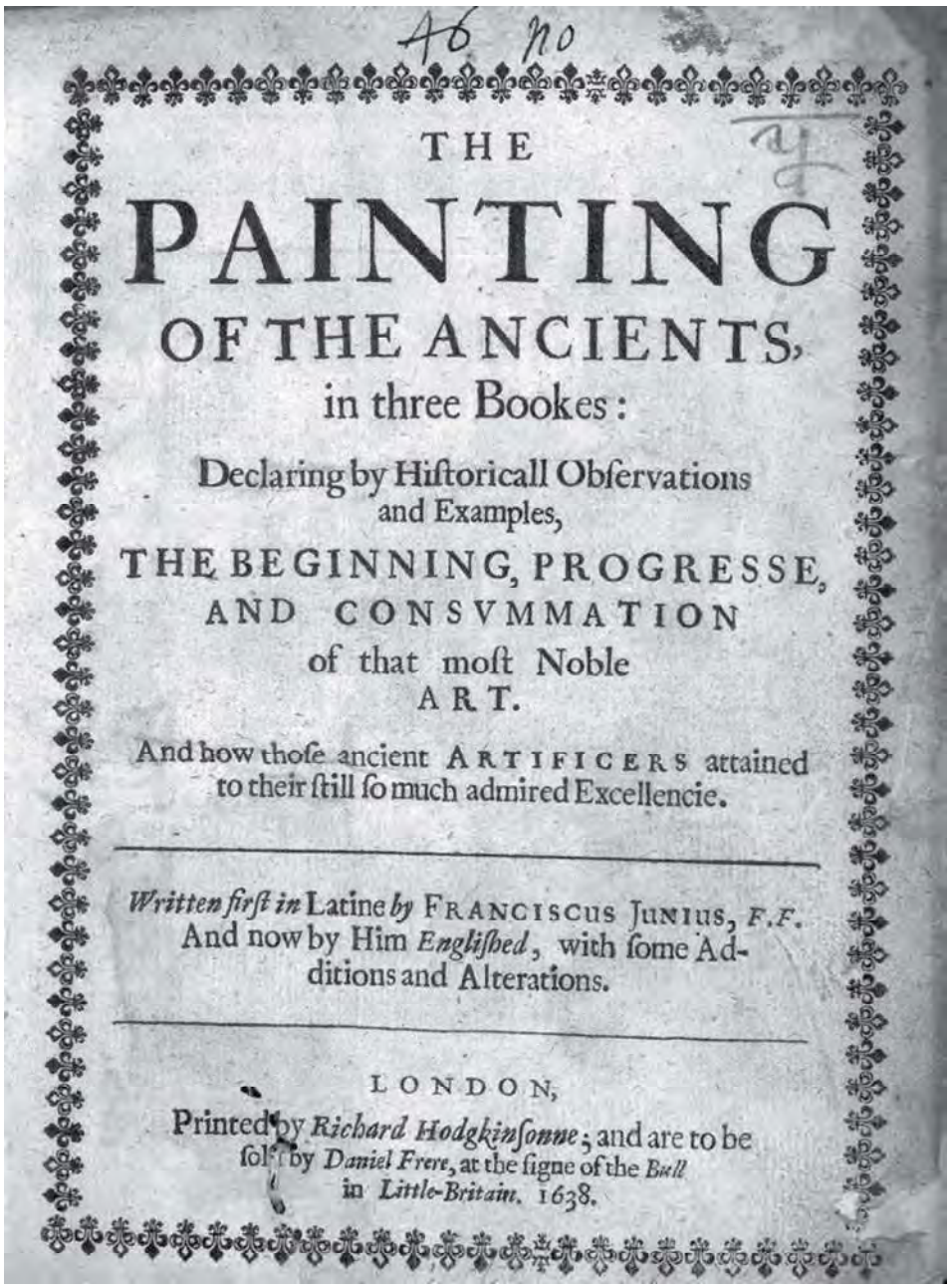


Figure 7.1. *Title page of Franciscus Junius,* De schilderkonst der oude*, Middelburg 1641 (Photo: University of Amsterdam, Special Collections)*



THE
PAINTING
OF THE ANCIENTS,
in three Bookes:
Declaring by Hiſtoricall Obſervations
and Examples,
THE BEGINNING, PROGRESSE,
AND CONSVMMATION
of that moſt Noble
ART.
And how thoſe ancient ARTIFICERS attained
to their ſtill ſo much admired Excellencie.

Written firſt in Latine *by* FRANCISCUS JUNIUS, *F.F.*
And now by Him *Engliſhed*, with ſome Additions and Alterations.

LONDON,
Printed by *Richard Hodgkinſonne*; and are to be
ſold by *Daniel Frere*, at the ſigne of the *Bull*
in *Little-Britain*. 1638.

Figure 7.2. *Title page of Franciscus Junius,* The Painting of the Ancients*, London 1638 (Photo: University of Amsterdam, Special Collections)*

As Junius’s surviving correspondence testifies, his scholarship flowered through exchanges with his peers.[8] Yet, for his translation into Dutch, he sought advice from craftsmen rather than the lettered. Artists were his direct colleagues in curating and reproducing the Arundel collection of ancient and modern works. We should note that these masters, most of whom came from the Netherlands, also spoke Dutch. The scholar formed strong personal ties with some of them, writing to his brother-in-law about “Mr. Robert van Voerst, an excellent engraver, to whom I am deeply devoted”; this artist became involved in the making of the painting treatise: as early as 1635, he traveled between Vossius in Amsterdam and Junius in London to report on the publishing process.[9] The Arundels were especially fond of the draftsman Hendrik van der Borcht (1583-1651), singled out by the Earl as “my Dutch youth,” who chaperoned the Countess when she moved to the Netherlands in 1642.[10] Painters, apparently, fulfilled an important function in Junius’s Anglo-Dutch network carrying messages, mail, manuscripts, or other rare objects. An unidentified master, “a good friend [. . .] taken to be a very fine artist,” “lived here almost next to Arundel House for a good while.”[11] These artists must have been among the “friends” who read Junius’s Dutch translation before publication.[12]

The letter to Vossius suggests that Junius began the Dutch text immediately upon finishing the greater part of his Latin manuscript in 1634.[13] At the instigation of Lady Arundel, whose Italian was fluent but who had insufficient command of Latin, he also initiated an English version not much later.[14] In his introduction to this book printed in 1638, he recalled how the Countess “upon first sight” of the Latin original expressed her desire at having it “Englished”: thus he had made haste to produce the English book before the Dutch one was even finished. The Dutch manuscript was most likely first completed in 1638.[15] Apparently, from around 1635 onwards Junius had been working simultaneously on the two vernacular translations, in the process honing both his skills in writing English and

8 The splendid modern edition is Romburgh, *Correspondence.*

9 Romburgh, *Correspondence*, 102d.

10 Quotation after Hervey, *Thomas Howard*, 386-7; Houbraken, *Groote schouburg*, vol. I, 115; Howarth, *Lord Arundel*, 140, 243.

11 Romburgh, *Correspondence*, 131a, 190a, 191a, 73c.

12 Junius explains that he sent his treatise to Dutch-speaking “friends,” including Jan de Brune, for their judgment in a letter to Vossius, 2 July, 1639: Romburgh, *Correspondence*, 129e.

13 Romburgh, *Correspondence*, 100a note 3.

14 Romburgh, *Correspondence*, 105a, 116b. On Aletheia’s language skills, see Howarth, *Lord Arundel*, 42.

15 Romburgh, *Correspondence*, 121d. See also 129e note 14.

in adapting his many quotations from the classics, many of which had not been translated into Dutch, to the peculiarities of his native language.

The letter to Vossius also reveals the reason for making the English book himself: others who might "not fully understand his intentions" might "corrupt" the work.[16] In a subsequent letter of 1639, Junius himself commented on the effort that went into the Dutch translation:

> After so many years spent in England, I have tried to reassemble from everywhere the poor remainders of our vernacular tongue, which had almost entirely escaped me, and to summon them for a translation of our little treatise *On Painting*. I have recently finished this work [. . .]. I was surely indulgent to my inclination and rendered the sense of the book at many places with more than paraphrastic licence, just as the mode of the Dutch tongue seemed to bear.[17]

Junius's remark that he has followed the sense, rather than the letter of the Latin edition when making his vernacular versions is indeed borne out by the Dutch book in particular, which differs from both the original Latin and the English version, especially in regard to the author's more wordy comments on his quotations from classical sources. We shall explore some differences in form, content, and terminology, and discuss what these mean: how and why did Junius adapt his Dutch translation to the world of artists? As this process involved 'inventing' his mother tongue as a new language of art, this had a wider impact on Dutch culture, bringing to the fore the interrelations between Junius's theory of art and his seminal Germanic studies.

Translating De Pictura Veterum

Junius distinguished a liberal kind of translation from a literal one. In an unpublished commentary on the theologian Tatian the Assyrian, he formulated the paradox that word-for-word translations are less able to match the beauty of the original than a freer approach, because they will result in distorted language:

> Now, the writings of one language are translated into another one in two ways, for we either just transfer the exact meaning of a writing into another language in a rather free and sometimes paraphrastic translation, or we translate word-for-word. The former manner of translating never impairs or diminishes the innate power of the language into which it translates a writing, but strives after expressing the diction of the writing to be translated as closely as possible, by preserving the diction of its language everywhere. But the latter

[16] Romburgh, *Correspondence*, 102c.

[17] Junius to Vossius, 2 July, 1639: Romburgh, *Correspondence*, 129e.

manner, which closely translates word-for-word, is often rather irregular and not well connecting, since it is forced to retain and follow a foreign diction with words the meaning and arrangement of which it has no hope of being able to match by any resources of the native tongue.[18]

For Junius, the paraphrastic kind of translation was preferable to a slavish one, as it allowed for an emulation.[19] According to this idea, the vernacular editions of his painting treatise presented him the occasion to improve on his Latin version: as the dedication to the English edition stated, he made substantial changes “because some things having passed therein, which [. . .] in the review and more mature cogitation I wished might be altered, I thought best to begin that correction in this present Edition.”[20] Indeed, the project of amending and improving his text would keep the author occupied throughout his lifetime: the Dutch edition contains even more additions than the English one, and he continued to work on a second version in Latin until late in life.[21] In the context of artistic theory, his opinion of translation was not new: Haydocke’s version of Lomazzo presents a similarly liberal view, providing “neither a Paraphrasticall, Epitomized, or meere Verball translation,” but instead “a mixed respectivenesse,” a reworking of the original.[22]

In recent scholarship, there has been some confusion regarding the collaborative nature of Junius’s project, suggesting that Vossius was responsible for much of the Latin edition.[23] Indeed, Junius did not make all the Latin translations of the Greek quotations in *De pictura veterum.* When he decided that he would dedicate the treatise to the English king, Charles I (1600-1649) (who didn’t read Greek), he gave this task to Vossius’s two teenage sons, Isaac Vossius (1618-1689) and Gerardus Vossius Jr., who apparently used existing translations or, when these were not available, made their own.[24] As the surviving correspondence between Junius and Vossius makes clear, the elder scholar was kept up to date concerning the book’s progress, but his contribution was limited to small items of information. A letter

[18] Manuscript Bodleian Library, Oxford, MS Jun. 13, f. 6; translation from Romburgh, *Correspondence*, 129e note 16.

[19] Adapted from rhetorical theory, this idea also determined Junius’s ideas on pictorial imitation; see Weststeijn, *Visible World*, ch. III, for details.

[20] Junius, *Literature*, 5.

[21] In 1641, Junius wrote to Smetius that he was working on a second edition; in 1651, he informed his nephew Franciscus that the second edition was not yet finished; in 1668, he told Dugdale and Marshall that he was preparing the second edition; finally, in 1670 he wrote to Cotton. Romburgh, *Correspondence*, 155b, 175c, 216c, 217b, 221b.

[22] Lomazzo, *Artes of Curious Paintinge*, 6.

[23] Ellenius, *De arte pingendi*; Howarth, *Lord Arundel*; Junius, *Literature*, lxiv note 103, xl.

[24] Romburgh, *Correspondence*, 100e-f.

in which Junius asks him merely about matters of philological certainty (seeking textual evidence for St. Luke's activities as a painter) seems typical: Junius assures his brother-in-law, "I know, you will communicate everything you accept can be determined for certain about this."[25] In effect, it was Vossius, known as the "emperor of the [Dutch] world of letters," who expressed his debt to Junius's scholarship when, eventually, he compiled his own short treatise on painting.[26]

Another tenacious assumption persists among modern scholars attributing the responsibility for the Dutch translation to Jan de Brune the Younger (1616-1649). This vernacular author, whose erudition was based on growing up with his uncles Junius and Vossius in Amsterdam, was uniquely qualified to write the introduction to the treatise.[27] However, this short text states explicitly that Junius himself was entirely responsible for the book's Dutch and De Brune even praises its high quality. De Brune clearly shared his uncle's wish to develop a vernacular language and culture rivaling that of the ancients; his pride in the Dutch Republic's cultural independence seems to have inspired him to dedicate the painting treatise to Stadtholder Frederik Hendrik (1584-1647) (probably Junius did not want to do this himself since he had already addressed the Latin original to a British monarch). Entitled *De schilderkonst der oude,* the Dutch edition came out in Middelburg in 1641. The book included for the first time a portrait of the author, based on a painting by Anthony van Dyck (1599-1641), for which the Dutch "Prince of Poets," Joost van den Vondel (1587-1679), wrote an epigram (see figure 7.3).[28]

Of all the editions of *The Painting of the Ancients*, only the Dutch one was reissued: the remaining stock was put on the market again with a new title page.[29] According to the art historian Jan Emmens, the two reissues demonstrate that the Dutch edition was a commercial failure, something the new title pages had to

[25] Junius to Vossius, 28 April, 1629: Romburgh, *Correspondence*, 58b.

[26] See Vossius, "De graphice"; Franciscus F.N. Junius praises Vossius's standing in the introduction. The text is discussed in detail in Weststeijn, *Vernacular Arcadia*.

[27] Jan de Brune the Younger was the son of Johanna Junius, Franciscus's sister, and Isaac de Brune.

[28] "Dits Iunius, Der Schilders Rechte hant, / Zijn Bloet is Eel, Noch Eeler zijn Verstant." ("This is Junius, the right hand of painters, / His blood is noble and his wit even more so.")

[29] The first re-issue in 1659 was titled *Schilder-boeck, behelsende de schilder-konst der oude*. Completing it with an index and a list of authors who had written about drawing, painting, and casting, the publisher, Zacharias Roman, dedicated this version to the physician Louis de Bils, famous for his sophisticated anatomical preparations; the dedication, referring to the latter's contacts at Leiden's university, suggests that he was expected to distribute the books as business gifts. Finally, in 1675, the theologian and amateur draftsman Willem Goeree acquired all remaining copies for a second reissue entitled *Begin, heerlijcke voortgang, en grootdadigh vermogen der wijdberoemde schilderkonst der antycken*; this includes an added paraphrase of Rubens's letter and, again, an index.

disguise.[30] More recently, however, Colette Nativel has pointed out that the practice of reissuing books was common (also highly popular works such as Josephus Scaliger’s [1540-1609] poetical theory were reissued repeatedly).[31] As long as we have no information on the number of copies that were printed, it is impossible to conclude anything about the book’s popularity; in any case, in 1670 Junius himself, undaunted, declared his wish to submit the updated Latin version to a publisher.[32]

More than Paraphrastic Licence

The most conspicuous disparity between the Latin edition and the vernacular versions relates to the different intended audiences. Neither the English nor the Dutch editions include the last part of the Latin original, which Junius once conceived of publishing as an independent text in Latin, *De ratione picturas dijudicandi*.[33] Junius did not explain why he saw no need to include these ninety-six pages about corporeal beauty, allegorical figures, and the various materials used for statues in the vernacular editions. Apparently he deemed the ‘theory of judging paintings’ a subject better suited to learned art lovers than to artists. In reality, however, especially the iconographical descriptions could have served as direct models for painters; as late as 1703, a Dutch emblem book referred to these last paragraphs.[34]

Furthermore, the Latin, English, and Dutch editions each reveal minor and major differences on almost every page. Not only do the Dutch and English versions omit the Greek originals of the quotations, but also most of the Latin poetry is rephrased into prose.[35] Junius apparently continued his “more mature cogitation” at every stage of the working process: in terms of the number of words used, the English book adds about 35%. The Dutch edition even exceeds the original Latin by 65%.[36] This is particularly surprising as Junius’s text was essentially a ‘cento’ or commonplace book, as Nativel has noted: a collection of quotations from the

30 Emmens, *Rembrandt*, 66-7.

31 Nativel, “Franciscus Junius as an Art Theorician,” 32.

32 Junius to Cotton, 30 January, 1670: Romburgh, *Correspondence*, 221b.

33 Romburgh, *Correspondence*, 100a note 5.

34 Elger, *Zinnebeelden*, 204-6.

35 See the ekphrasis by Claudian, quoted in Junius, *Literature*, 301; *Schilderkonst*, 337; and *De pictura*, 213.

36 In other words, the Dutch edition adds to the English edition by more than 20%. While the first Latin edition contains about 85,000 words, the English edition contains 114,000 words and the Dutch edition 140,000 words. (This estimate of the Dutch edition is based on an average of 400 words per page, and a total of 351 pages. My digitized edition of *The Painting of the Ancients*, downloaded from the website of *Early English Books Online* [http://eebo.chadwyck.com,



Figure 7.3. *Wencelaus Hollar after Authony van Dyck, Portrait of Franciscus Junius,* De schilderkonst der oude*, Middelburg 1641 (Photo: University of Amsterdam, Special Collections)*

classics.[37] The stock of citations, however, had been fully established in the first, Latin edition.[38] In the vernacular works, Junius thus only added his commentary on the ancient authors.

Various factors explain the divergences between the English and Dutch editions. On one hand, this was Junius’s first attempt at writing in English, “a burden so unfit for [his] shoulders to beare,” which may have made him less digressive than in Dutch.[39] On the other hand, when the scholar was preparing his books, more ancient texts had been translated into English than into Dutch—the work of one man in particular, an acquaintance of Junius: Philemon Holland (1552-1637), “translator general in his age.”[40] This made it comparatively easy to find English equivalents for the classical terminology;[41] for example, Junius borrowed a specific term from an English treatise on architecture that incorporated many notions from Vitruvius.[42] For the Dutch text, by contrast, Junius himself had to translate a great deal of Latin for the first time. His wish to evade Latinizing terms in Dutch inspired him to search for various synonyms instead of the Romanic-root words preferred in the English edition. He also needed to paraphrase, which is one explanation for the greater wordiness of his Dutch text. As we shall see, it was his paradoxical aim to make neologisms in order to write in a vernacular that could contend with the best Latin and Greek. He could only guarantee the purity of Dutch, on a par with the language of his favorite ancient authorities Quintilian and Cicero, by devising new terms and using a plethora of synonyms.

Junius was thus conscious of the fact that he was inventing his mother tongue as a language of art. To do this in a conscientious manner, he had to stray from

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last accessed in 2006; presently, the searchable edition seems to have been removed] contains 114,651 words [it does not include the introductions to the three “Books” in Junius’s treatise]). The Latin edition of 1637 contains about 85,000 words, an estimate based on an average of 350 words per page and a total of 244 pages (total 340 pages minus 96 pages for the concluding paragraphs that were left out in the translation). In the Latin edition, many passages are counted twice since they are also printed in Greek.

37 Nativel, *De pictura veterum*, 15.

38 There are some exceptions; thus the Dutch edition digresses longer than the English one on references by Pausanias and Suetonius to statues in ancient literature; Junius, *Schilderkonst*, 126. Additional quotations from Seneca and Ausonius are on page 206. Junius kept augmenting the Latin book during his lifetime, as new philological material came to light; these additions (some of which may also have been the work of the editor, Johannes Graevius) were included in the 1694 edition.

39 Romburgh, *Correspondence*, 116b.

40 Romburgh, *Correspondence*, 208b.

41 On Junius’s English-language sources, see Romburgh, *Correspondence*, 116b note 8.

42 The term concerned is *resupination*; Romburgh, *Correspondence*, 116; Junius, *Literature*, 206.

a purely philological path and resort to the relevant Dutch nomenclature used by artists. This ushers in the third reason why the author explains more in the Dutch text, not only about terminology, but also about art itself; he is addressing Dutch-speaking painters and their public. Whereas early modern antiquarianism has sometimes been defined as "that most profligate display of erudition for its own sake," this would be unkind to Junius: the Dutch edition reveals that he sought to make his knowledge available to modern artists.[43]

The wish to adapt to the local art market seems to have inspired, first of all, the author's sensitivity towards the Calvinists and their strict adherence to the Second Commandment: the Dutch edition omits all references to images of Christ. Religion, in fact, must have been a sensitive issue for Junius who was originally trained as a minister. He arrived in England after being disappointed in the growing divide among the Dutch Calvinists, not wishing to adapt to the stricter doctrine of his uncle, the hardliner Franciscus Gomarus (1563-1641). Yet, Junius presented his uncle with a copy of his original Latin treatise that discusses devotional works and even contains two illustrated capitals depicting the Deity.[44] In effect, at the time of writing, iconoclasm may have been an even more urgent issue in Britain where, in 1654, the copies of ancient statues in Whitehall were defaced in an attack by a Quaker with a hammer.[45]

In the Dutch edition, Junius replaces the discussion of Christ with a reference to the etymology of the Dutch term for painting, *schilderkonst*, as deriving from *schildenkonst*—the decoration of shields. The "Dutch verb *Schilderen*," he explains, derives from the historical situation that "for a long time, the ancient martial inhabitants of these lands have used Art only to ornament their shields."[46] Highlighting the indigenous Germanic peoples' skills on the battlefield as the basis for their cultural values, he thus followed the lead of his contemporaries, including Hugo Grotius (1583-1645) and Matthaeus Vossius (1610-1646), who wrote about the tribe of the Batavians as virtuous primitives, worthy forefathers of

43 Rowland, "Antiquarianism," 410.

44 *Christ and the Samaritan Woman* and *The Mocking of Christ*. The Dutch edition contains similar illustrations: *Christ at Emmaus* and *Christ in Glory*.

45 Haskell & Penny, *Taste and the Antique*, 31.

46 "So magmen oock seer wel staende houden dat ons Nederlandsche woord *Schilderen* oorspronckelick van dese ghewoonte hervoord komt, want het waer schijnelick is dat d'oude strijdbaere inghesetene deser landen dese Konst voor eenen langhen tijd maer alleen tot op-pronckinge haerer schilden gebruyckten; [...] dit woord in't eerste sijn benaeminghe ende eyghenschap uyt het schild-cieraet ghenomen heeft" (Junius, *Schilderkonst*, 143).

the Dutch.[47] Their uprising against the Romans, documented by Tacitus, allegedly foreshadowed the Dutch revolt against the Habsburgs. Grotius praised explicitly sixteenth-century artists such as Lucas van Leyden (1494-1533) and Maerten van Heemskerck (1498-1574) whose truthfulness (*veritas*) was exemplary of the ancient Batavian mentality.[48]

Another significant variance resulted from the different intended publics of the English and Dutch editions. Only the English edition refers to the Arundel “Academie” where the Earl and Countess’s works were publicly accessible, following the example of the great Roman collectors; as a visiting scholar from Leiden recounted, Junius was responsible for showing guests “the statues and other objects of ancient or new make [...] in Arundel House,” that were also studied by artists.[49] In the Low Countries, the term *academia* was first used for Lambert Lombard’s (1505/6-1566) studio in Liège where pupils were confronted with the prints and drawings after antiquities that the master had brought from Italy.[50] As Junius’s book provided artists with a literary explanation of the classical works, it could obviously be a key asset in such an ‘academic’ context. Another courtier in the Arundel circle, Henry Peacham (1546-1634) remarked that antiquities are best enjoyed “in company of such as are learned in them.”[51]

In the Dutch edition, Junius did not see fit to include this reference, apparently aware that the Dutch Republic had no similar stage for courtly demonstrations of visual literacy; in its place, he digressed on the importance of draftsmanship in general. He may have been inspired by the fact that ancient works were known in his native country through graphic art rather than sculpture in the round; moreover, he associated himself with the fashion for amateur draftsmanship among some in the upper classes. One of the aristocratic Dutch readers of Junius’s book, Constantijn Huygens (1596-1687), remarked that “in the field of painting (with which one is confronted everywhere nowadays) it is impossible to reach an in any measure well-founded judgment if one has not oneself practiced the principles of

47 Only the Dutch edition mentions “de stoutmoedigheyd der Duytschen” (Junius, *Schilderkonst*, 133); see also 83, 139, 141.

48 Grotius, *Parallelon rerumpublicarum*, vol. III, 43-5. On the purported Germanic origins of Dutch art, see Weststeijn, “Having No Other Paintings than Their Shields.”

49 Junius, *Literature*, 239; Ellenius, *De arte pingendi*, 47. On Junius’s activities as librarian, in providing information and images of the collection to those interested, and intermediary between artists and scholars, see Romburgh, *Correspondence*, 131a, 100h-i, 113a, and 000 (sic).

50 Lampsonius, *Vita*, 19.

51 Peacham, *Compleat Gentleman*, 109-10.

this art."[52] The stress on draftsmanship in Junius's Dutch edition actually points out the importance of artists' experience to complement his theory: he observes that some connoisseurs find sketches more pleasing than finished works, because "they think their mind plays along with that of the artist."[53]

Differences in Terminology

Although the Dutch edition of Junius's treatise is longer and uses more synonyms, we should not assume that he based his Dutch project on his English one. The Dutch book, for example, contains some passages from the Latin original that are absent in the English version (339-40), and sometimes even quotes the Latin directly (245).[54] This suggests the state of affairs as it emerges from Junius's correspondence: he was working on both translations at the same time.[55] This may also explain why the Dutch and the English editions vary in the way the quotations are ordered (especially in Book II).

The main, multifarious differences are identified in our appendix on page 389: additions relate to issues such as the emperor Heliogabalus (9); the use of artistic imagination in military matters (20-1); Saint Basil's opinion on the rhetorical powers of painting (43); artistic conduct in comparison to that of sailors (90-1); the admonishment to strive after "true simplicity" in art (97); pictures of fog (206); Horace's advice to choose a subject matter according to one's talent (207); the vigor of muscleman Polydamas Scotuffaeus (208); Attila the Hun (209-10); and painting's "mute speech" effectuating a change in the public's character (304). Oftentimes Junius's commentaries in Dutch are twice as long as those in English.

One explanation for Junius's digressions may be that he made them because he could: his native language gave him the freedom to elaborate on what remained implicit in the other two editions. In this regard, we may first note that the Dutch edition contains a saliently greater range of terms of abuse, many apparently of the author's own making. Junius scolds art lovers with no true love of art, painters of lascivious images, or imitators who debase the greatness of antiquity; most of all, he condemns artists who use coloring like a woman uses her make-up—that

[52] Worp, *Fragment eener autobiografie*, 127. Huygens's library contained the English edition of Junius's treatise: Stockum, *Catalogus*, 39, no. 502.

[53] "[H]un dunckt dat haeren geest speelen gaat met die des kunstenaars" (Junius, *Schilderkonst*, 260).

[54] The Dutch edition uses the term *metopocopos* [sic] (Junius, *Schilderkonst*, 252) where the Latin has *metoposcopos* (Junius, *De pictura*, 161), but the English translates as *physiognomer* (Junius, *Literature*, 234).

[55] Romburgh, *Correspondence*, 121d, 129e note 14.

is, to hide their defects.[56] This strong language may simply be explained by the fact that Junius’s earlier writings in Dutch were sermons from his first career as minister to the parish of Hilligersberg. In his painting treatise, we hear echoes of his words from the pulpit, recalling his training with the orthodox Calvinist, Willem Teellinck (1579-1628).

As earlier art historians already intuited, among them Jan Białostocki and Ingrid Jost, the Dutch translation addresses the practice of the modern artist “with a certain directness” and attests to the contemporary painter’s vocabulary.[57] In the Dutch edition, which was not immediately related to the collecting efforts of Aletheia or her husband, a certain condescending tone may even be heard directed towards *liefhebbers* (art lovers) who have no affinity with painting practice. Only the Dutch edition explains that the beholder should entirely follow the judgment of the artist to obtain the right criticism of paintings (329). It also includes a lengthy passage concerning the corrupting judgment of false art lovers or *lieflaffers* (a neologism referring to those who lack both taste and courage, 276-7). This criticism reflects the increasing impact of learned amateurs on the Dutch art world and is commonplace in treatises written by painters, such as Rembrandt’s (1606-1669) pupil Samuel van Hoogstraten (1627-1678), and in artworks, the most well-known being Rembrandt’s drawing *Satire on Art Criticism* (1644) depicting a self-assured art lover, ignorant of his own donkey’s ears, and an artist wiping his ass to express his opinion of useless erudition (see figure 7.4). The same pragmatic attitude, even extending to the classical sources themselves, is heard in Junius’s admonishment that some are likely to disbelieve the anecdotes about ancient painters, “that

[56] Junius appears to use neologisms (*brabbelaars*, *bottekroesen*: Junius, *Schilderkonst*, 296-7) for amateurs and artists who debase the antiquity with their boasting, while artists who fail to imitate antiquity are termed *laffe keucken-vlieghen* (309), flies attracted by someone else’s cooking since they have no taste of their own; he turns against “sheepheads” (*Schaepshoofden*, 276) and “stupid crazy wooden puppets” (*domme dwaeselachtighe gaep-stocken*, 276), condemning the “cancerous mind” (*verkanckerde ghemoed*, 68) of malefic connoisseurs without true love of the art. One of his tropes in this regard, revealing his greater virtuosity in Dutch, is alliteration and rhyme: *poppen ghepronck* [. . .] *stucken en stollen* [. . .] *reten en spleten* [. . .] *wijckende wercken soecken op te stoppen* [. . .] *werkcken veel eer wanckelende* [. . .] *sterckte en stijvigheyd*, 310-1. Page 277 has a particularly long passage with the character of a sermon, absent in the English edition. Goeree, *Algemeene schilderkonst*, 38, seems to borrow some, condemning in Junian language the sex addiction of lechers howling before Venus (*de Loddersiekte van geile Venus-jankers*).

[57] The observation that the Dutch edition was made for artists was made first by Białostocki, “Doctus Artifex,” 12; this opinion was shared by Ingrid Jost who concluded that “the Dutch translation [. . .] addresses itself with a certain directness to the practice of the modern artist” (Junius, *Literature*, xl note 41).

seem so far remote from ordinary artistic practice as it is common at the present age."[58] He also compares artists to "masons and joiners," where the English edition speaks merely of people with "a skilful hand"; maybe it is also significant that in the Dutch edition, Junius makes the analogy between artists and sailors.[59] Whereas English readers are given only the Latin terms for certain exotic pigments (namely *Chrysocolle*, *Ostrum*, and *Armenium*), the Dutch edition provides translations in the vernacular.[60]



Figure 7.4. *Rembrandt,* Satire on Art Criticism, *pen and brown ink corrected with white, 1644, New York, The Metropolitan Museum of Art, Robert Lehman Collection (Photo: University of Amsterdam, Image Collection Institute of Art History)*

Junius's wish to cater to Dutch-speaking artists may be observed most clearly in the fact that the English edition leaves more terms and phrases untranslated and unexplained.[61] The latter edition is altogether more scholarly, referring the reader

[58] "'t [G]hewoonlicke ghebruyck der Konst-oeffeninghe die nu ter tijd ghepleeght wordt" (Junius, *Schilderkonst*, 293). Yet he observes that our lack of precise knowledge concerning the techniques and materials of these masters from the past may explain uncertainties around their works.

[59] Junius, *Schilderkonst*, 299, and *Painting*, 272; *Schilderkonst*, 90-1.

[60] Junius, *Literature*, 105. Compare Junius, *Schilderkonst*, 98: *bergh-groen*, *purpur*, *blaeuwen azuyr*.

[61] In contrast to the Dutch, the English uses terms such as *patria picturae* untranslated; Junius, *Literature*, 89, and *Schilderkonst*, 82.

to additional literature and quoting poetry where the Dutch has only a prose paraphrase.[62] Many specific terms derived from Latin, which apparently need no explanation in the English, are given both Latin-root and Germanic-root synonyms in Dutch; examples are canon, symmetry, instrument, emulation, magnificence, and architect.[63] The same holds true for those terms that Junius derived from rhetorical theory, such as disposition and grace.[64] Even when he uses terms in a highly idiosyncratic way, such as “congruence,” “equalitie,” and “commensuration,” the English edition does not explain them while the Dutch gives both the Latin terms and vernacular synonyms.[65]

Furthermore, the Dutch readers are provided with wordy glosses on the Latin-root terms for key concepts such as action and passion, idea and history.[66] Terms derived from the Greek, such as *Anthropographus* and *Rhyparographus*, the statue known as the *discobolus* and the nickname of the Byzantine orator Chrysostom are explained in the Dutch text, while the English does not elucidate them.[67] That Junius is effectively inventing his native language as a language of art is evident from his recourse to neologisms (such as when he translates *continuation* with the curious term *self-wesigheid* or ‘same-being’) or when he indulges in stapling synonyms together—up to a total of five Dutch synonyms for one term in English.[68]

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62 Junius, *Literature*, 38, 284; *Schilderkonst*, 315.

63 *Canon ofte richt-snoer* (Junius, *Schilderkonst*, 86); *symmetrie ofte ghelijck-maetigheyd* (88); *Instrumenten ofte het werck-tuygh* (92); *Aemulatie naer-ijver ofte naevolghens lust* (94); *Magnificentie ofte staetelickheyd* (232); *Boumeesters die men Architecten noemt* (108).

64 We find not only *proportie* and *symmetrie*, but also *ghelijck-maetigheyd*; disposition is translated both as *dispositie* and as *schikinge*; grace is rendered as *gratie* and as *bevalligheyd*.

65 Junius, *Literature*, 226-7; *medevoeghlickheyd*, *ghelijckvormigheyd*, *maetvoeghlicheyd*, in *Schilderkonst*, 244-5.

66 *Actie*, *passie*, *idea*, *historie*, see Junius, *Schilderkonst*, 197, 281, 206. The term “idea” is explained as “the unfeigned example of the natural and well-proportioned beauty” (*het onvervalschte voorbeeld van de naturelicke wel geproportioneerde schoonheid*, 232). “History” is explained as “the moral-making content of the Paintings” (*sede-vormenden inhoud der Schilderyen*, 206).

67 Anthropographus: *dat is, een Menschen Schilder* (Junius, *Schilderkonst*, 39); Discobolus: *schijfwerper* (280); Rhyparographus: *Klad-schildere* (234); Chrysostom: *dat is, Gulde-mondt* (4).

68 Junius, *Schilderkonst*, 303; compare “copijen, afteyckeningen, uytdrucksels, afsetsels, naemaelsels,” 344. Another neologism is *door-knuffelt* (305), denoting a too closely-knit ‘cuddle’, used for an overworked composition; another is *schongelvlotighe gheswier* or a ‘swinging and streaming grace’ (332).

Junius as "The Painter's Right Hand"

According to Vondel's epigram on Van Dyck's portrait, included in the first Dutch edition, Junius was the painter's "right hand" (cf. figure 7.3). This metaphor seems to suggest that *The Painting of the Ancients* would be relevant to painting as a craft. Vondel, who was well acquainted with several of the leading artists in Amsterdam, was able to speak "as a painter about painting," if we may believe a contemporary's testimony.[69] What did he mean when he suggested that Junius was an instructor of the painter's handiwork?

Sometimes Junius uses words directly borrowed from Dutch studio language to interpret antiquity.[70] For instance, he explains the exotic terms "*tonus* and *harmoghe*" in a practical manner, by stating that "in a good painting, the most contrasting colors should melt together (*versmelten*) in a hardly noticeable way, to arrive at a certain tonal unity (*eenstemmigheid*)."[71] These Dutch words have a distinct pictorial meaning relating to brushwork and coloring, as Hoogstraten's 1678 treatise testifies.[72] It seems that during his twenty-year absence from the Netherlands such specific terminology, requiring technical explanation for modern readers, had reached Junius via the artists in Arundel's circle.

Junius uses additional terms in Dutch that present modern scholars with an interpretative challenge but would have been obvious to readers of Karel van Mander's (1548-1606) famous painters' biographies (1604). One of them is *proefstuck* which derives from the Dutch guild regulations that pupils present a 'demonstration piece.'[73] When he uses *kladschilder*, a term commonly denoting a house-painter, to describe the talents of Pyreicus, Junius may have been inspired by Van Mander. His word *brodder* for a bungler, an unskilled painter, occurs also in his predecessor's *Schilderboeck*.[74]

Other terms in Junius's vocabulary, however, are absent in Van Mander's book. The self-explanatory way in which Junius uses *dozijnwercker* may have been inspired by contemporary discussions, though its meaning as 'churning out paint-

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69 "[A]ls een schilder van't schilderen spreekt" (Houbraken, *Groote schouburg*, vol. II, 54).

70 Most of the time, he does not translate *dispositio*, meaning composition, with *dispositie* in Dutch (the English edition has *disposition*), but with the term commonly used by painters: *ordinantie.*

71 Junius, *Schilderkonst*, 246.

72 Hoogstraten, *Inleyding*, 224, on "verdwijning of versmelting," and 116 on "eenstemmich."

73 Junius, *Schilderkonst*, 273. As noted in the regulations of the St. Luke's guild in Haarlem of 1631, see Pauw-de Veen, *Begrippen*, 103. Junius also uses the related term *meester-stuck*, 264-5.

74 Junius, *Schilderkonst*, 331. See Mander, *Schilder-boeck* (1604), fol. 16r, 227v, 251v.

ings by the dozen' seems to relate to cheap mass production.[75] We also find the specific Dutch word *grol* which carries meanings related to the Italian *grottesco* and *ghiribizo*, referring to genre paintings and humorous scenes.[76] His Dutch treatise furthermore contains painterly terms which have only fairly recently been explained by art historical scholarship, such as the 'glow' (*gloeyenheyd*) in coloring, and for the first time in Dutch art theory the term *houdinghe*, that relates to the spatial unity suggested by tonal and coloristic contrasts.[77] Even if Junius may not have had a complete understanding of the studio practice wherein these terms originated, the fact that he used them is in itself significant.[78]

The qualities of the Dutch text are best illustrated through a sample, testifying to Junius's merging of literary knowledge with artist's terms (see figures 7.5-7.7).

The Latin book quotes from a fourth-century commentary on Aristotle to discuss contrasts of light and dark.[79] The original Greek is followed by a Latin translation and seven lines of explanation. In the English text, the same quotation (in italics) occurs without the Greek, but its explanation (in Roman) is extended to twelve lines. The Dutch edition has twenty-eight interpretive lines. It explains that the Dutch concept of *verschiet*, denoting atmospheric perspective through the gradual diminution of contrasts, is closely related to working with contours:[80] "these two aspects [contrasts and contours] seem to have some kind of hidden understanding with each other: since the more an object's volume recedes sweetly from its point of greatest relief, the more it seems, according to the gradual blur-

[75] Junius, *Schilderkonst,* 222. See Mander, *Schilder-boeck* (1604), fol. 73v.

[76] Junius, *Schilderkonst*, 234, compare *grillig*, 297.

[77] Junius, *Schilderkonst*, 275 (compare *blijd-gloeyende Coleur*, 267) and 308. Taylor, "Glow" and "Concept of Houding." In effect, Junius's term *aen een houdinghe* that literally means 'keeping together,' may suggest that more than just to 'unity,' *houding* refers to the convincing illusion in which the parts are subordinate to the whole.

[78] Terms specifically relating to the application of paint may indicate the amount of borrowing from studio conversation in Junius's Dutch book: *overstrijcksel*, 275 (layer of paint or varnish); *versmooren*, 275 (to darken); *aenstrijcken*, 275 (application of paint); *uytglantsen*, 288, and *uytschijnen* 293 (to shine through a transparent layer); *verwen-kladderye*, 289 (sketchy application of paint not aimed at illusionism); or the specific painterly term *nettigheydt*, 6, translated as "exact" rendering in Junius, *Literature*, 14. So when later authors use terms like *omronden* and *ophoogen* (268), they may have been reiterating their own studio practice and also incorporating the terms used by Junius, such as *omrondsel* (270), *verhoogsel* (273), *verhooghen* (265), *verhooghinghen ende verdiepinghen* (264). Some of them are also included in Kilianus's Dutch/Latin dictionary, but not all, which suggests that Junius knew them through talking to artists.

[79] Ammonius Hermiae, *In Aristotelis Praedicamenta commentarius*.

[80] Junius, *De pictura*, 173-4; *Painting of the Ancients*, 282-3; and *Schilderkonst*, 272-3.



Figure 7.5. *From* De pictura veterum*, Amsterdam 1637, pp. 173-174*

Figure 7.6. *From* The Painting of the Ancients*, London 1638, pp. 282-283*

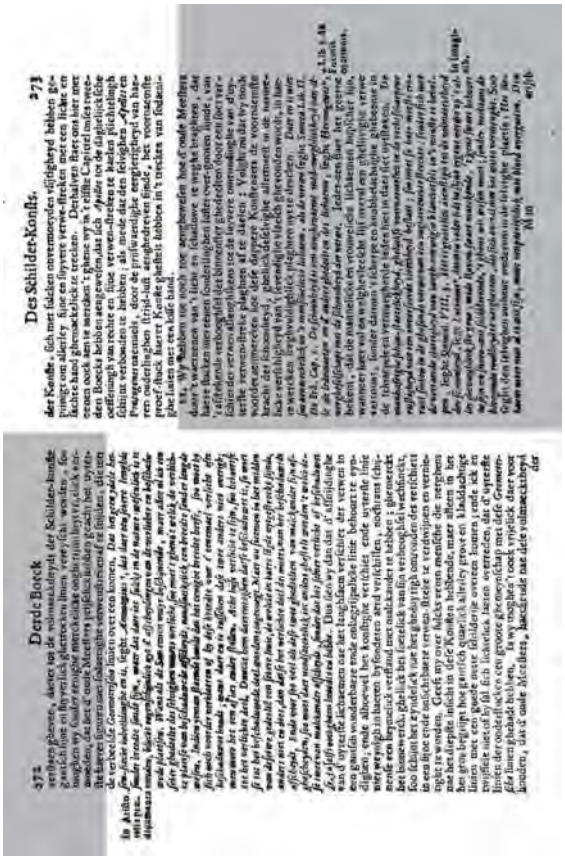


Figure 7.7. *From* De schilderkonst der oude, *Middelburg 1641, pp. 272-273*

ring of the *verschiet*, to disappear and be annihilated in a subtle and invisible brushstroke.”[81]

The chapter concerns an issue of great concern to artists of the Dutch Baroque: the suggestion of space with painterly means rather than geometrical perspective. It relates to what Ernst Gombrich has called the Heritage of Apelles: the discovery, documented by Pliny, that light passages in a picture tend to advance towards the viewer while darker tones recede.[82] Junius, by contrast, explains that instead of suggesting space through a patchwork of hard contrasts, painters should use subtly fading contours:

> Since everyone knows that those paintings that are smeared with coarse patches of various colors, as if they were chessboards, are justly deemed very ugly and despicable, one can easily conclude that hard browns should not be put directly beside clear lights. [. . .] This hardness should be sweetened by the addition of grayish half-tones, in order to ascertain that different colors, by means of an artful blurring (*verdrijven*), fade away gradually, and disappear and melt into each other [. . .] Just as the artist should take care that his colors, whenever appropriate, fade (*verschieten*) into each other in a natural manner, he should pay attention to the contours [. . .] Our eye is easily deceived into thinking that it sees behind the painting more than what is there; when the contours that outline the figure are drawn with such purity that they seem to have been blurred (*verdreven*) so much that they have disappeared into the painted scene, without any clashing contrast. This makes the figures not flat, but rounded (*rondachtigh*) until their sides, done with very thin and fine brushstrokes, gradually rounding away (*omrondende*), disappear from view.[83]

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[81] “[E]ende alhoewel het konstighe verschiet ende uyterste linie niet weynich in haeren bysonderen aerd verschillen, nochtans schijnense een heymelick verstand met malckander te hebben; ghemerckt het binnewerck, ghelijck het soetelick van sijn verhooghsel wechsinckt, soo schijnt het eyndelick nae het ghedurigh omronden des verschiets in een fijne ende onsichtbaere verwenstreke te verdwijnen en vernietight te worden” (Junius, *Schilderkonst*, 272).

[82] Gombrich, “Heritage of Apelles.”

[83] “Overmids dan ieder een bekent staet dat de stucken die schaeckberds-wijse met groove ende verscheyden verwighe placken bekladt sijn, niet t’onrechte voor gantsch leelick ende verfoeyelick worden gehouden, soo en kanmen daer uyt lichtelick afnemen, dat het harde bruyn sich teghen het klaere licht niet en behoort schielick aen te stooten. ’t Bruyne moet gantsch soetelick in’t graeuwe verwrocht worden, om te beter van het graeuwe tot het lichte te komen. De Schilderyen die het swarte en’t witte losselick aen een klampen, schijnen van verde eenen marmer-steen ofte een schaeck-berd te ghelijcken; dies moetmen dese hardigheyd door’t tusschen komen van half-verwighe graeuwen soeken te versachten, ten eynde dat twee teghenstrijdighe verwen, door een konstighe verdrijvinghe allenghskens verflaeuwende in malckander moghten verlooren loopen en versmelten. [. . .] Want ghelijck den Konstenaer sorghvuldiglick daer op heeft te letten, dat sijne verwen, als het passe gheeft, aerdighlick in malckander moghten verschieten; soo behoort hy met eenen oock goede achtinghe op d’uyterste linien te nemen; vermidts de hooghste volmaecktheyt der Konste wierd oyt gheoordeelt voornaemelick dae in te bestaen, dat den omvangh ofte omtreck der figuren met sulcken aerdighen ende onbedwonghen

This passage uses specific pictorial terms documented first in Van Mander's treatise: *verschieten* is a verb denoting the gradual diminution of contrasts, *verdrijven* denotes the blurring of lines, often in the literal sense of rubbing them out (the two terms are still in use in modern Dutch, exclusively in the context of painting).[84] Junius also uses the neologistic verb *omronden*, 'rounding,' to denote the effect of relief that results from applying acuity and tonal perspective.

Junius was the only Dutch author discussing acuity perspective in such detail, relating an optical phenomenon to the particulars of brushwork. The passage sheds light on why Vondel deemed his book an aid to the painter's handiwork. What is more, Junius's success in this respect seems borne out by the reactions of painters that survive: Van Hoogstraten mentioned his "great diligence," Gerard de Lairesse (1640-1711) spoke of "the grand Junius," Arnold Houbraken (1660-1719) thought that his treatise contained "everything which it is necessary to know for the praise and profit of Art."[85] Accounting for the fact that there is little archival material about which books Dutch artists possessed, it is significant that *De schilderkonst der oude* occurs in the inventories of other prominent masters such as Cornelis Dusart (1660-1704), Pieter Saenredam (1597-1665), Nicolaas Verkolje (1673-1746), and Jacob de Wit (1695-1754) as well as in those of lesser-known painters.[86] Whereas the Latin edition of *De pictura veterum*, most directly

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soetigheyd sy getrocken, dat d'aenschouwers daer in meynen te sien't ghene onsienelick is. Ons ooghe laet sich lichtelick voorstaen, dat het achter de schilderije iet meer siet dan daer te sien is; wanneer d'uyterste linien, die het beeld omvanghen ende in sich besluyten, soo gantsch suyverlick sijn getrocken, datse een goet stuck weegs in't tafereel selfs sonder eenige schaerdige uytkantigheyt schijnen te sijn verdreven. Het maeckt dat de figuren, niet plat, maer rondachtigh schijnen te sijn; als de kanten de selviger met gantsch dunne en fijne verwen-streken, sich allengskens omrondende, uyt ons ghesicht onwijcken" (Junius, *Schilderkonst*, 269-71). Nota bene: page 269 is actually two pages in Junius's book; this quotation starts on the second page. He varies on Pliny, *Naturalis historia*, XXXV.36.67-79. Besides reflecting the terminology of Junius's Dutch-speaking colleagues, the passage may echo Leonardo's remarks on *sfumato*; the Arundel library held some of this master's manuscripts. See Weststeijn, "This Art Embraces All Visible Things."

84 Elsewhere, Junius uses the related *konstighe verdrijvinge* and *konstighe verschiet*, see Junius, *Schilderkonst*, 269, 272. *Verschiet/ verschieten* occurs frequently in Van Mander, see Mander, *Schilder-boeck* (1604), fol. 16r. For *verdrijven* see Mander, *Schilder-boeck* (1604), fol. 9r and elsewhere. *Verschiet* was also used in inventories to denote paintings of landscapes: see Pauw-de Veen, *Begrippen*, 162.

85 Houbraken, *Groote schouburg*, vol. I, 4.

86 Saenredam's library catalogue of 20 April, 1667 (now in Wolfenbüttel, Herzog August Bibliothek), mentions the Dutch edition of Junius's treatise. Nicolaas Verkolje's inventory (sale 18-4-1746) is in the Municipal City Archive, Amsterdam. Cornelis Dusart, Jacob de Wit, Laurens Bernards and Bernardus Kleynhens all owned Junius's book according to Bredius, *Künstler-*

related to Arundel’s commission, reflects the theoretical disposition of a wealthy collector, the Dutch edition, even more than the English one, holds true to Junius’s promise to write for artists.

“Demarcating and Burnishing” the Vernacular

Included as a dedication in the Dutch edition, Pieter Paul Rubens’s (1577-1640) letter in praise of the treatise sheds light on Junius’s motivation to find adequate artistic terms in his native language. The typography emphasizes that it is a macaronic text: Rubens’s Dutch passages are printed in a Gothic font that was already outmoded in the Netherlands by the 1640s; his Latin sentences are set in regular Roman. Alternating thus between Latin and the vernacular, the letter documents a transition phase in the emancipation of Dutch as a language of art and learning.[87]

Sophie van Romburgh has studied how Junius’s correspondence testifies to his growing pride in a native identity that made the vernacular more fashionable among his learned friends. The increasing percentage of letters written in Dutch as Junius grew older demonstrates his siding with what he called the “Philoteutones,” the lovers of Dutch language and history.[88] Thus, when Junius decided to write his painting treatise not only for the international *respublica litterarum*, but also for the more restricted audience in the Dutch Republic that was celebrating its political independence, there may have been more at stake than just making classical scholarship accessible to artists.

Junius’s statement that he had “tried to reassemble from everywhere the *poor remainders* of our vernacular tongue” (my emphasis) presents his linguistic experiment as a process of reconstructing a pure Dutch spoken in an earlier age. This dialectical exercise of recreating a lost world through new inventions typifies much of the antiquarianism in the Arundel circle. Just as the Earl wanted to resuscitate the ancients’ primeval golden age in England by, on the one hand, importing classical sculpture and, on the other, drawing from the burgeoning art market in the Netherlands, so Junius apparently wanted to improve on antiquity by pairing classical philology with artists’ terminology. The interest he demonstrates in the sophisticated vocabulary of the Netherlandish studios should not therefore be seen as an incongruity in his larger antiquarian project, but as an integrated aspect; in effect, already in 1604, Van Mander had marveled that the painting goddess Pictura was now bestowing the same favors on the Batavians that in the past she had

Inventäre, 52, 752, 1043, 2153.

87 Rubens’s passages in Latin were translated into Dutch when the treatise was reissued in 1659.

88 Romburgh, *Correspondence*, 189d, 169d note 14; also in Junius, *Observationes*, 256.

awarded to the "Sykions," representing classical Greece during its age of greatest artistic prowess.[89]

The linguistic efforts necessary for this emulation of the ancients were distinctly recognized by de Brune, as he wrote in his introduction to Junius's book:

> Our Dutch language, by a certain inborn sweetness, is able to bear the majesty of the greatest inventions that may be born from anyone's mind, and if we were diligent enough to demarcate and burnish it with a laborious sensibility, it would be even more fecund [. . .] (Junius's) twenty-year sojourn in Britain could not take from him his most precise insight in his mother tongue. A palpable proof of this is the present book, written in such words that just ten lines are enough to found the reputation of a man that understands our language not just on the surface, but whose knowledge penetrates to the core, as if to the beauty of a diamond.[90]

To De Brune, the translation process involved both demarcating Dutch, by eliminating Latin-root terms as much as possible, and burnishing it through shiny new synonyms—as we have seen, sometimes with five Dutch terms for one Latin word. He also recognized that what Junius had theoretically called a reconstruction turned out in practice to be a process of invention.

As the literary historian Werner Waterschoot has indicated, Van Mander had already made effective use of neologisms as the first author writing about painting in Dutch.[91] Junius did this in a more consistent and systematic fashion. One source that he had at his disposal was Cornelis Kilianus's (1529-1607) Dutch-Latin dictionary, first published in 1549.[92] Imitating Kilianus, Junius took the liberty of developing Dutchified versions of Latin terms. This accounts for the difficulty that modern readers may have. Much in the plethora of synonyms and new words had only a short life span, because Germanic-root terms in Dutch were

[89] Mander, *Schilder-boeck* (1604), fol. 32v.

[90] "Onse Neerlandtsche tael, door ick weet niet wat natuerrlijcke soetigheydt met haer geboren, is bequaem om te draghen de Majesteyt vande grootste invallen, die yemandts herssenen konnen beswangheren, en soo wy neerstigh ghenoegh waren om haer met een arbeydsame vroetheydt te heghenen en te polijsteren, sy sou veel overvloediger vruchten draghen. [. . .] Sijn twintighjarigh verblijf in Engheland, heeft hem de sucht tot het naeupuntighste verstand van sijn moederlijcke tael niet konnen ontwringen. Een tastelijcke proeve hier van verstreckt het tegenwoordighe Boeck, gheschreven in sulcke termen dat thien regels daer van konnen grond-vesten d'achtbaerheydt van een Man die onse tael verstaet, niet in haer oppervlies, maer wiens kennisse dringht tot den grondt toe, als de schoonheidt van een Diamandt" (Junius, *Schilderkonst*, first unpaginated page).

[91] Van Mander's neologisms especially involve hyphenated combinations such as "keucken-vullende," "eeuw-claermakende," "stuer wijnbrouwigh," as noted in Waterschoot, *Ter liefde der const*.

[92] Junius praises its qualities in the introduction to *Observationes.*

replaced by terms derived from French in later years. Kilianus’s dictionary, for instance, lists six different Germanic-root synonyms for the term ‘melancholic,’ the artist’s temperament (*swaerhoofdigh, swaergheestigh, swaermoedigh, treurmoedigh,* and *treurgheestigh*). It even mentions a verb (*zwaarhoofden*, literally ‘to be heavy of head’) for being melancholic.[93] Only one of these terms is still in use in modern Dutch in a poetic context (far more common is the Latinizing term *melancholiek*). Based on these efforts, Junius’s book contains a similar terminological variety. Whereas Van Mander had kept Latin words such as *affect* to describe emotion, and stated that he had not wholly refrained from using “foreign words [. . .] because things are sometimes called such in our affairs, and can hardly be said in another way,”[94] Junius always sought a Germanic-root equivalent; in this case he offered a series of variants for the verb *roeren*, to move (thus we find *roersel* and *beroeringh*—emotion, *beroeren* and *ontroeren*—moving the mind, *schijn-roerigh*—the suggestion of emotion, *roerende kracht*—the power to move, and *de roerende dinghen*—animated things).

Junius thus follows Kilianus in his disdain for Latin-root terms: the dictionary reserves words borrowed from the modern Romance languages in a special appendix devoted to “barbarisms.” In regard to the influence of the Romance languages, in particular French which became increasingly fashionable in the Dutch Republic in the seventeenth century, Junius spoke of the “bastard Latin languages,” apparently exemplifying what the Dark Ages had done to antiquity. In one of his characteristic outbursts of strong language he criticizes “ambitious youths [. . .] preposterously striving for a reputation for exceptional fluency among the peasants and the rough ears of the common people by unashamed rattling and bombast of words.”[95] The scholar was clearly aware of the wider cultural and even political importance of his linguistic exercises in translating his treatise on painting. Soon after publishing the Dutch edition, he turned to the study of his mother tongue’s roots in relation to the other Germanic languages. In the introduction to his edition of an Old High German version of the *Song of Songs* (*Observationes in Willerami Abbatis Francicam paraphrasin cantici canticorum*, 1655), Junius explained that the study of one’s forefathers’ language provided an enrichment of vocabulary. It was therefore only logical that in 1655, he pleaded with a group of Holland’s officials and trustees of Leiden University, including two envoys to

93 Kilianus, *Etymoligicum teutonicae linguae* (1605), 543, 566.

94 “Wtheemsche woorden heb ick niet heel vermijdt, om dies wille datse in onse dinghen somtijt soo ghenoemt, en anders qualijck gheseyt connen worden” (Mander, *Schilder-boeck* [1604], preface, unpaginated [*5]).

95 Junius to Johann Clauberg, undated: Romburgh, *Correspondence*, 204d.

Denmark and Sweden, to be assigned the task of compiling a new Dutch dictionary, in emulation of Kilianus's but containing even more etymological material as well as Old English and Old Norse forms. He argued for the necessity of such an update with a reference to the Peace of Westphalia of 1648, which finally confirmed the Dutch Republic's political independence.[96]

The title page of Kilianus's book illustrates the process in which the language of a fledgling political entity was invented by harking back to a purportedly uncorrupted ancestral past (see figure 7.8). The image, after an original by Frans Floris (1517-1570), shows a young man writing on what seems to be a reusable board, symbolizing the newly developed language.[97] He is being instructed by a personification of Grammatica, or literacy, and an old man who perhaps represents one of the classical languages. In Junius's outlook, and understandably in the light of his political vantage point, this language would be Greek rather than Latin; such was a topical train of thought ever since Melanchthon, as *praeceptor Germaniae* or propagator of Germanic culture, had expressed his preference for Greek rather than Roman antiquity.[98] Soon after completing the painting treatise, therefore, Junius started to work on an etymological dictionary to demonstrate the Greek origins of several thousands of Teutonic, or Dutch, words.[99]

The Impact of Junius's Dutch

Junius's followers in the Netherlands seem to have taken to heart his message as illustrated in such an emblematic fashion. His purist approach to language infected later authors writing about painting, such as Van Hoogstraten who quoted him frequently and was likewise concerned with the translation of *konstwoorden* (artistic words), using Germanic-root terms that were ultimately not accepted in modern Dutch (such as *vinding* for invention, *lijdingen* for passions and *doeningen* for actions).[100] Also Willem Goeree (1635-1711), as another of Junius's readers, demonstrated his affinity to the Philoteutones when he rejected the Greek-root term 'anatomy' and consequently used the neologism *menschkunde*, literally 'the knowledge of humans,' following the example set by Junius's Dutch variants for

96 Romburgh, *Correspondence*, 189e.

97 Cornelis Cort after Frans Floris, *Rhetorica*, engraving, 1556, 22.5 x 27.9 cm, Vienna, Albertina.

98 Settis, *Futuro del classico*, 68.

99 Romburgh, *Correspondence*, 169d.

100 More usual Dutch terms are *inventie*, *passies* and *acties*. See Hoogstraten, *Inleyding*, 33, on *konstwoorden* (such as *koloreeren* in stead of *verwen*). See Mander, *Schilder-boeck* (1604), vol. II, 8, fol. 9r. See also Lairesse, *Groot schilderboek*, vol. I, unpaginated [**3], and Bie, *Gulden cabinet*, 10, about the author's 'foreign' loanwords.


ETYMOLOGICVM
TEVTONICÆ LINGVÆ:
SIVE
DICTIONARIVM
TEVTONICO-LATINVM,
PRÆCIPVAS TEVTONICÆ
LINGVÆ DICTIONES ET PHRASES
Latinè interpretatas, & cum aliis nonnullis linguis
obiter collatas, complectens:
Studio & Opera
CORNELII KILIANI DVFFLÆI.
...as Germanis tam ſuperioribus quàm inferioribus, Gallis, Anglis ſiue
Angloſaxonibus, Italis, Hiſpanis, & aliis lectu perutile.
Quid hic præſtitum ſit, Præfatio ad Lectorem docebit.
Quartæ editioni Auctarium eſt additum, continens propriorum nomin... ...er-
manicæ originis Etyma & ſignificationes vtriuſque ſexus, & Nomenclaturas
animalium quadrupedum, volatilium, ac piſcium, in vſum tam docentium quàm
diſcentium ex variis Autoribus collectum:
Opera D. LVDOLPHI POTTERI Groeningenſis.
ALCMARIÆ, Ex Typographeio Iacobi Meeſteri.
Et
Proſtant Amſteldami, apud Cornelium Nicolai.
Anno M. VI^c. V.

Figure 7.8. Title page, C. Kilianus, *Etymologicum Teutonicae linguae sive Dictionarium Teutonico-Latinum, Amsterdam 1605. Image by Cornelis Cort after Frans Floris (Photo: University of Amsterdam, Special Collections)*

words like symmetry or architect.[101] Finally, the painter and theorist de Lairesse explained Junius's and his followers' motivations: he condemned those who used Latinizing artistic terms or "terminus artis" (*sic*), "thinking that they have marvellously demonstrated their abilities; as if they speak a posh jargon rather than good Hollands, and show that their speech is so rich in words: which I deem more a great confusion and darkness, than enlightenment."[102] In this sense De Lairesse compared the painter's method with that of writers who appealed to the indigenous people by using their mother tongue, i.e. luminaries such as Pieter Cornelisz Hooft (1581-1647), Constantijn Huygens (1596-1687), and Joost van den Vondel (1587-1679) who were renowned "for the power and purity of their language": "Is it not a grave error to want to use foreign words in a language that is rich enough in itself?"[103] Yet the problem endured even in the beginning of the eighteenth century when the scholar and draftsman Johannes Verhoek translated a French treatise into Dutch. Including a passage explaining specific *konstwoorden* ("*Termes de peinture*, artistic terms or commonplaces of the art of painting"), he complained that "it is hard to transfer the artistic terms from one language into the other, when the translator finds no usual words for that purpose in his own language."[104]

In this context, art historians have overlooked the fact that the vernacular literature about art reflects a wider discussion that can be called the Dutch 'language question': which of the regional variants should be given preference? In Italy, the *questione della lingua* clearly inspired some painters to take pride in a local vernacular, such as Marco Boschini (1613-1678) who contrasted his *La carta del navegar pitoresco* (1660), written in the Venetian dialect, to the theories developed in Florence and Rome.[105] South of the Alps, the discussion on writing in the vernacular apparently evolved into debates on specific 'vernacular' styles

[101] Goeree, *Menschkunde*, 5.

[102] "[V]eel schryvers, die al de *terminus artis*, dat's te zeggen, eige Konstwoorden, in haar taal overzetten, meenende hen wonderlyk wel uitgesloofd te hebben; als kaks om goed Hollands te spreeken, en te toonen dat haar taal zo rijk van woorden is: het welke ik eer voor een groote verwarringe en duisterheid, dan verlichtinge oordeel" (Lairesse, *Grondlegginge ter teekenkonst*, 56).

[103] "Is het niet een groote dwaaling, eenige uitheemsche woorden te willen gebruiken in een taal die van zelve ryk genoeg is?" (Lairesse, *Groot schilderboek*, vol. I, 194-5).

[104] "[H]et [is] zwaar [...], om de konstwoorden van de eene in de andere Taal over te brengen, wanneer de Overzetter in zyne Taal geene gangbaare woorden daar toe vindt" (Fresnoy, Piles & Verhoek, *Schilderkonst*, 30). The book contains a chapter on "Termes de peinture: konstwoorden of spreekwyzen van de schilderkonst." The translator's father and uncle were the artists Gysbert (d. 1690) and Pieter Verhoek (1633-1702).

[105] Merling, *Art Theory and Virtuoso Culture*, 204, 207; Boschini, *Carta del navegar pitoresco*, 384.

of painting.[106] Boschini asked his readers whether he should exchange his native tongue for something alien to him: “Am I, a Venetian in Venice speaking of Venetian artists, to disguise myself thus?”[107] Likewise in the Dutch situation, Van Hoogstraten’s book on painting explicitly professed to have translated Van Mander’s “Flemish verses” into “our Dutch language.”[108] He expressed this desire for regional authenticity when invoking the “proud Muse! who transposes Holland to Latium [. . .] at once gird your loins, and let Bato’s people [i.e. the Batavians or the Dutch] hear poetry in their own Language as true monuments to honor our State.”[109] Goeree also explained the writing of his own treatise by observing that “nothing has been written about Painting in our mother tongue.”[110] Apparently he too did not regard authors from the Southern Netherlands as writers of Dutch. These remarks clarify how the process of linguistic emancipation, through the increasing desire to “demarcate” the vernacular from reputedly foreign influences, inspired a more exclusive focus on the North.

By the time that Van Hoogstraten could claim to have translated Van Mander from Flemish into Hollands in 1678, a group of Philoteutones had contributed towards the standardization of the language of the Northern Provinces. Besides Junius and de Brune, it included Grotius as the most influential author on ancient Batavia, the Germanic tribe that Tacitus located in the area that later became the Dutch Republic. Although Junius had declined when the famous philosopher asked him to become his secretary (as this would “interrupt the useful intention to explain the paintings and sepulchers of the ancients”),[111] he seemed to have shared the political agenda set out in Grotius’s *Tractaet van de oudtheyt van de Batavische, nu Hollandsche Republique* (1610). This had developed a positive view of the Dutch in comparison to other nations. Grotius’s ideas were essential in providing the culture politics of the Northern provinces, especially Holland and Zeeland, with a historical dimension.

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106 Merling, *Art Theory and Virtuoso Culture*, 137.

107 “Mi, che son venezian in Venezia, e che parlo de Pitori veneziani, ho da andarme a stravestir?” (Boschini, *Carta del navegar pitoresco*, 8).

108 Hoogstraten, *Inleyding*, 2, 22. Elsewhere, Van Hoogstraten mentions that he speaks in “German words” (*Duitse woorden*), 176. De Lairesse speaks of his own language as “Nederduits” (Lairesse, *Groot schilderboek*, unpaginated [**3]).

109 “[T]rotse Sangh-heldinne! die Hollandt in Latium herstelt [. . .] span gelijker hant aan, en laat Batoos Landt-volk haar eygen Taal-gedichten hooren: en recht geheugh-merken onse Staat te eeren” (Hoogstraten, *Schone roselijn*, unpaginated, no. *4). Bato is the mythical forefather of the Batavians—the Dutch.

110 “[N]iets in onze Moeders Tael geschreven is over de Schilderkunst” (Goeree, *Algemeene schilderkonst*, “Voorrede,” unpaginated).

111 Romburgh, *Correspondence*, 102c.

Junius himself eventually became a key figure in the cultural movement that highlighted the Germanic past as a counterweight to the predominance of Italy and France. After returning with the Arundels (who were banished as Royalists) to Holland in 1642, the scholar begun to compile various editions and dictionaries related to the history of the Germanic languages. Van Romburgh's unparalleled work on Junius's correspondence network has pointed out that it was his treatise on painting that put him on the trail of comparative linguistics. His political loyalty played a role here: his study of Anglo-Saxon, Frisian, Gothic, Old Norse, and Icelandic was ultimately subordinated to this grand project of elevating the status of Dutch or, as he called its ancient forerunner, "Teutonic."[112] This, obviously, brings us to another chapter in his biography, and we may conclude with the scholar's own words:

> I know the sharp and vigorous talents of the Dutch; I know how great the lovers of splendour and all elegancies are; I also know for certain with what a great love for a joint mother tongue and fatherland they are burning; I am so roused to the greatest and, as I trust, truest hope that there will always be the exceptional talents of our people, who apply themselves, together with me, to recovering Teutonic to the grace of pristine prestige and grandeur by all application of their energy.[113]

This search for pristine prestige would determine Junius's pioneering Germanic studies, which were apparently triggered by his efforts at translating his treatise on painting from the Latin simultaneously into two Germanic vernaculars. As the founding father of a new discipline, the scholar would have a long and wide impact (soon, even in Sweden he would be praised for doing so much for "Gothic" regional pride through his linguistic discoveries).[114] For now, it may suffice to observe that Junius's translation into Dutch illustrates a general tendency in seventeenth-century Europe: the humanistic tradition of art theory fragmented into the different vernacular varieties. In tandem with the rise of local antiquarian studies, these often originated in the context of what the Germans call *Lokalpatriotismus*: they were intended to highlight a specific region's culture and history.

At the end of the century, however, a renewed synthetic movement got off the ground. This was the great vision of the Utrecht professor Johannes Graevius (1632-1703). He had urged Junius in 1674 to finish a new Latin edition of *De pictura veterum* and publish his manuscripts for an extensive encyclopedia of ancient

[112] Romburgh, "Elevation of Dutch."

[113] Romburgh, *Correspondence*, 188d.

[114] See Ianus Vlitius's introductory poem in Junius, *Gothicum glossarium*, discussed in Dekker, *Origins of Old Germanic Studies*, 102.

artists that seems to have been awaited with great interest south of the Alps.[115] When Junius died, Graevius himself finished the work (although the treatise’s frontispiece statement that “so many things have been altered that it seems a new book” was exaggerated) and had it printed in 1694. The same year, the first volume of Graevius’s *Thesaurus antiquitatum* appeared, the most comprehensive, meticulously illustrated series of publications about ancient art and antiquities to date (see figure 7.9); soon continued by Jacobus Gronovius, this expanded into twenty-four volumes, also including new editions of treatises on painting (by Julius Caesar Bulengerus and Ludovicus Demontiosius) and sculpture (by Pomponius Gauricus).[116] We should note that this project rendered into Latin vernacular authors from North and South of the Alps, including the Briton John Potter (1674-1747), the Frenchmen Louis Savot and Jacob Spon (1647-1685), and the Italians Giovanni Bellori (1613-1696) and Famiano Nardini (c.1600-1661). Such a learned project intended to heal the rifts that had resulted from the rise of localized artistic and antiquarian scholarship throughout Europe.[117]

Graevius’s Latin edition of Junius’s treatise was obviously a major moment of this synthesis. In effect, rather than regarding the Neo-Latin art literature of the early seventeenth century as the product from a scholarly ivory tower, a remnant of earlier age, we may just as well see it as forward-looking to Graevius’s international vision. Junius certainly subscribed to this idea; shortly before his death, he himself claimed that “Italians, Frenchmen, Germanes, and diverse men of note in [Britain]” were pressing him for a new edition of his painting treatise in Latin.[118] Translating the classical literature into Dutch on behalf of painters had been a necessary step to further their intellectual emancipation within the context of the revival of “Teutonic” civilization. Eventually, however, the various vernacular experiences also fed back into Graevius’s and Gronovius’s European-wide project. Only Latin texts, after all, would provide the literary foundation for a European-wide “Republic of Painting,” to quote one of Junius’s French readers, Roger de Piles (1635-1709).[119]

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[115] Romburgh, *Correspondence*, 224a. In Rome, Carlo Dati was ardently wishing that “Francesco Giugni letterato abilissimo [...] sodisfaccia interamente alle sue tanto desiderate promesse” (“the extremely capable scholar Franciscus Junius [...] wholly fulfills his promises that I so much look forward to”) (Dati, *Vite*, Introduction, unpaginated [no. *2]).

[116] Graevius, *Thesaurus antiquitatum romanarum*; the treatises on the visual arts are in vol. IX of Gronovius, *Thesaurus graecarum antiquitatum*.

[117] Burke, “Translations into Latin,” 68.

[118] Romburgh, *Correspondence*, 216c.

[119] Piles, *Conversations*, 143. He refers to Junius in Piles, *Cours de peinture*, 139-48.



Figure 7.9. *Joseph Mulder, frontispiece for J.G. Graevius (ed.),* Thesaurus antiquitatum Romanarum*, 12 vols, Utrecht & Leiden 1694-1699. (Photo: University of Amsterdam, Special Collections)*

Italian Artistic Terms in Karel van Mander's *Schilder-boeck*

Paul Taylor

Introduction

That Netherlandish artists learned a great deal from the example of Italy is, of course, well known. An Italianate style was introduced into the Low Countries by early sixteenth-century painters such as Jan Gossaert (c.1472-1532) and Jan van Scorel (1495-1562). This was developed in particular by Maerten van Heemskerck (1498-1574) and Frans Floris (c.1519-1570), and given a fresh impetus at the end of the sixteenth century by Cornelis Cornelisz (1562-1638) and Hendrick Goltzius (1558-1617), before reaching a new synthesis in the works of Peter Paul Rubens (1577-1640) and Anthony van Dyck (1599-1641). By the middle of the seventeenth century even Rembrandt [van Rijn] (1606-1669), who so famously never left Holland, was nevertheless imbued with Italian ideas, derived from Caravaggists such as Gerrit Honthorst (1590-1656) and Hendrick Terbrugghen (1588-1629), as well as from the Italian prints he collected and carefully studied. Italian conceptions also entered Netherlandish art by means of the Italian paintings that found their way onto the Dutch art market and into private collections.[1] All of this has been well documented for as long as people have been writing the history of Netherlandish art; but what has been less studied is the extent to which these Italian artistic conceptions entered the Netherlands with words attached: that is, whether the language of art in the Low Countries was modelled as closely on Italian terminology as Netherlandish artistic styles were modelled on those of Italy.[2]

[1] On Italian influences in sixteenth-century Netherlandish painting see e.g. Mander, *Lives*; Dacos, *Fiamminghi a Roma*. On Rubens and Italy see Wood, *Rubens*; Jaffé, *Rubens and Italy*. On Van Dyck and Italy see Bernardini, *Anton van Dyck*. On Rembrandt and Italy see Golahny, *Rembrandt's Paintings*; Fuchs, "Rembrandt en Italiaanse kunst"; and Bruyn, "Rembrandt and the Italian Baroque."

[2] The relationship of Dutch and Italian artistic terms in Van Mander is studied in Miedema, *Italiaensche schilders*.

Karel van Mander's *Schilder-boeck* and its Sources

The place to begin any such enquiry is with the first treatise on the visual arts in Dutch, Karel van Mander's (1548-1606) *Schilder-boeck*, or *Painter's Book*. Besides standing at the beginning of the Dutch art theoretical tradition, the *Schilder-boeck* also has closer connections to Italian thought than any of its successors.[3] Van Mander had spent four years in Italy in his twenties, working in local studios, and he was the only writer on art in the Netherlands in the seventeenth and eighteenth centuries who had a fluent grasp of Italian.[4] Just how good his understanding of the language was can be seen from the abridged translation of Giorgio Vasari's (1511-1574) *Vite de' più eccellenti pittori, scultori ed architetti* which takes up over a fifth of the *Schilder-boeck*, and which is exceptionally accurate.[5]

If we are going to find Italian artistic terminology anywhere in Dutch art theory, we would expect to find it in Van Mander. But instead we find remarkably few artistic terms in the *Schilder-boeck* taken from Italian; certainly less than ten. There are about forty words in Van Mander's treatise which have conspicuously Romance roots, and which one might think are derived from Italian sources; but on closer investigation it turns out that the great majority of these came into Dutch from French or Latin, before and sometimes centuries before the *Schilder-boeck* was written. While Italian art had a profound impact on Van Mander's attitude towards painting, he made rather little direct use of the Italian vocabulary of art. The theoretical language he used had been formed not in Italy, but in the Netherlands in the two centuries before he began to write about painting.

Het Schilder-boeck was published in 1604, with a second edition appearing in 1618, and it was the most famous and widely-read treatise on art in Dutch in the seventeenth century.[6] The text is made up of six separate parts. The first four deal with painting proper; the last two are linked more vaguely to the theme, being concerned with allegorical interpretations of Ovid [Publius Ovidius Naso], the depiction of ancient deities, and hieroglyphic symbols. Of the four books devoted to painting, the first is a long poem, *Op den grondt der edel-vry schilder-const*, which purports to be an introduction to the art of painting for young apprentices, while the next three are made up of biographies, split into books on the Ancient,

3 Miedema, *Italiaensche schilders*; Miedema in Mander, *Grondt der edel-vry schilderconst*, 629-49.

4 On Van Mander's stay in Italy see Mander, *Schilder-boeck* (1604), 192v; Mander, *Schilder-boeck* (1618), R3v; Miedema in Mander, *Lives*, vol. II, 50.

5 Noë, *Van Mander en Italië*, 233; Miedema, *Italiaensche schilders*, 3; Taylor, "Leonardo in the Low Countries," note 27.

6 Brenninkmeyer-de Rooij, "Theories of Art," 63.

the Italian, and the Netherlandish and German painters respectively. Of these biographical books, the lives of the Ancient painters is an abridged translation of the chapters on art from Pliny [Gaius Plinius Secundus]'s *Historia naturalis*—although Van Mander worked from a French edition—while the lives of the Italian painters is, as already noted, an abridged translation of Vasari's *Vite*.[7]

Le vite de' più eccellenti pittori, scultori ed architetti was not the only Italian text that Van Mander knew; he was also aware of Leon Battista Alberti's (1404-1472) *Della pittura*, which he used extensively while writing the didactic poem, the *Grondt*, which opens the *Schilder-boeck*.[8] It has been suggested by Hessel Miedema (b.1929) that he may also have seen or heard passages of Leonardo [da Vinci]'s (1452-1519) *Trattato* and Francesco Lancilotti's (active 1506) *Trattato di pittura*, but the similarities are few and fleeting: if he knew them at all, he clearly did not know them well; whereas he was very familiar with Alberti and Vasari, and evidently had copies of their works to hand while he was writing.[9]

Besides having an intimate knowledge of these two important Italian texts on art, Van Mander must have spoken to Italian artists, since, as already noted, he spent four years in Italy in his twenties. Indeed, he even met Vasari, or at least saw him, since he was friendly with one of Vasari's pupils, Pieter de Witte (Pietro Candido), and visited the latter while Vasari was working on the frescoes of the dome in Florence Cathedral.[10] One must assume that he could talk with Italian painters about paintings using their own terminology.

Van Mander's translation of Vasari is less than one seventh the length of *Le Vite*. The latter is, admittedly, a monster of a book: at 850,000 words it is one and a half times as long as Tolstoy's *War and Peace*. Quite how an extremely busy painter could have written such a huge volume was something of a mystery to Van Mander, who suggested that Vasari must have received a great deal of help from Cosimo I de'Medici (1519-1574), the Duke of Tuscany.[11] This notion has received strong support in recent years from Charles Hope, who argues that literati in the pay of the Duke wrote almost all of the *Vite*.[12] Van Mander himself never came to so radical a conclusion, and complains on more than one occasion of the diffi-

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7 Miedema, *Antijcke doorluchtighe schilders*; Miedema, *Italiaensche schilders*; Taylor, "Leonardo in the Low Countries."

8 Miedema in Mander, *Grondt der edel-vry schilderconst*, 633-4.

9 Miedema in Mander, *Grondt der edel-vry schilderconst*, 639-41. For the possibility that Van Mander had read Dolce's *Aretino* and Borghini's *Riposo*, see Taylor, "Composition in Dutch Art Theory," note 15.

10 Mander, *Schilder-boeck* (1604), 184v-185r; Miedema in Mander, *Lives*, vol. II, 50, note 197.

11 Mander, *Schilder-boeck* (1604), 198r-v.

12 Hope, "Can you trust Vasari?"; Hope, "Vite Vasariane"; Frangenberg, "Prefaces."

culties he faced in writing his biographies of Netherlandish and German painters; one senses that he was rather pained by a sense of inferiority to his Florentine predecessor.[13]

Van Mander's Italian Vocabulary

Van Mander translated around one in three of the biographies of painters as they appear in Vasari. His selections and omissions have been analysed in detail elsewhere, so I shall say no more on the topic here.[14] Besides translating one in three of Vasari's lives, Van Mander also boiled down the lives themselves, reducing by an average of two thirds each life as it appears in *Le Vite*. A great deal of Vasari's language—around three quarters of a million words, in fact—was left untranslated by Van Mander, but that still leaves a considerable amount of Italian that was rendered into Dutch. Van Mander's *Italiaensche Schilders* is 116,000 words long, and about 100,000 of those words are translations of Italian words.

Of course, most of these words have nothing to do with art; Vasari is full of personal anecdotes, and Van Mander liked to translate those anecdotes, especially when they were colourful ones. Nevertheless, Van Mander uses a large number of words when he is talking about paintings themselves: on my count, in the whole *Schilder-boeck* there are over 1,000.

However, of these 1,000+ words only five, I think, are definitely of Italian origin. There are two doubtful cases, and two cases where Dutch words seem to have been selected and adapted for their purpose on the model of two Italian words. This, of course, is not a very large trawl, but it is rather larger than the number of words in Italian art theory which are of Dutch origin: I feel fairly sure, although I have done no systematic work on the topic, that the latter number is zero.

Actitude

Let us go through Van Mander's Italian words in order, beginning with the most interesting of them, *actitude*. *Actitude* is derived from the Italian *attitudine*, and is an important word in Van Mander. He devotes a whole chapter of his didactic poem to "[de] Actitude, welstandt, ende weldoen eens Beelts," which we might translate, inadequately, as "The pose, beauty and grace of a Figure."[15] The chapter

[13] Mander, *Schilder-boeck* (1604), 220v-221r, 231v.

[14] Miedema, *Italiaensche schilders*; Taylor, "Leonardo in the Low Countries."

[15] Mander, *Grondt der edel-vry schilderconst*, IV.

gives directions on how to arrange the limbs of human figures in order to produce a graceful effect, and as he thinks about this issue, Van Mander has the art of Italy and of classical antiquity in mind. So, for example, after a passage in which he tells us that we should never allow an arm and a leg on the same side of a body to be shown moving forward at the same time, but should take care to contrast their movements and so pose the figure in a cross-like shape, he writes as follows:

> A pose (*actitude*) like this is shown by Raphael of Urbino (1483-1520) and Michelangelo (1475-1564) too, in their artful works, and similarly this can be traced in the Antique, in diverse figures, artfully chiselled, and in the beautiful city of Florence such a style is also particularly noticeable in Giambologna's well-sculpted works.[16]

It should be said that this crosswise pose is actually rather rare in the work of Raphael and Michelangelo, both of whom had a much more creative and subtle attitude towards the posing of the human figure. Not that Van Mander's dictum need produce a stilted composition: in Giambologna's (1529-1608) *Rape of the Sabines* in the Loggia dei Lanzi in Florence (see figure 8.1) all three of the figures obey the crossed limbs rule, albeit one has to walk round the sculpture to establish the fact. Giambologna, of course, was a Northerner, Jean Boulogne, born in Douai at a time when it was still part of Flanders.[17] This is one of the very few references to his work in the *Schilder-boeck*.[18] Van Mander must have wished he could say more about a man who was the only Fleming to become a leading artist in Italy, but as a sculptor he disqualified himself from Van Mander's project.

The importance of *attitudini* in Renaissance Italian art was very well known to Van Mander. The word appears hundreds of times in Vasari's *Vite*—250 times, to be precise—and it encapsulates a whole idea of what artists should try to achieve in their works. The art of Renaissance Italy was not only concerned with the idealisation of the human body, but also with the beautification of the human pose; the appeal of sculpture and of painting was bound up in the grace and power of the disposition of human limbs. The introduction of *attitudini* to the Netherlands was one of the most important innovations associated with the incoming Italian style. In early Netherlandish painting figures move reluctantly, only under the stress of

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[16] "Sulck' *Actitude* hebben laten blijcken / *Raphael d' Vrbin*, *Machael Angel* mede, / In hun constighe wercken, van ghelijcken / Is dit oock te speuren in den Antijcken, / Aen diversche Beelden, constich van snede, / En te *Florence* in die schoone Stede / Is sulcken aerdt oock bysonder te mercken, / Aen *Bolongen* wel gheschulpeerde wercken" (Mander, *Grondt der edel-vry schilderconst*, IV, 12.)

[17] Avery, *Giambologna*; Gibbons, *Giambologna*.

[18] For more references see Mander, *Schilder-boeck* (1604), 267r, 271v and 290r.



Figure 8.1. Robert van Audenaerd after Giambologna, Rape of the Sabines*, from Domenico de Rossi and Paolo Alessandro Maffei,* Raccolta di statue antiche e moderne data in luce sotto i gloriosi auspici della Santita di N. S. Papa Clemente XI*, Rome, 1704*



Figure 8.2. Willem van Swanenburg after Joachim Wtewael, Moses and Jethro*, from the series* Thronus Iustitiae*, ©The Trustees of the British Museum. Prints and Drawings, 1874,1212.474*

emotion or physical frailty. Artists of Van Mander's generation, however, are notable for their contorted and affected poses (see figure 8.2).

The fact that *attitudini* were important for both Italian and post-Gossaert Netherlandish art and that Van Mander could hardly ignore the concept do not of course in themselves entail that his use of *actitude* was the first attempt to translate *attitudine* into Dutch. Indeed, we cannot be sure that it was. All we do know is that his use of *actitude* is the first recorded in the largest dictionary of the Dutch language, *the Woordenboek der Nederlandsche Taal*.[19] The compilers of the WNT may have overlooked earlier examples; and even if they did not, it may be that *actitude* was in use amongst artists for some years, possibly decades, before the word ever found its way into print in the pages of *Het Schilder-boeck*. But to say so much—that the *WNT* found no earlier instance of its use in the written records of the Dutch language—already marks out *actitude* as an unusual word in

[19] *Woordenboek der Nederlandsche Taal*, s.v. Attitude. I have used the online version at the website of the Instituut voor Nederlandse Lexicologie, http://gtb.inl.nl/?owner=WNT, accessed 8 Feb, 2011

Van Mander's lexicon.[20] He did not use very many words which had not received the sanction of custom.

If Van Mander did coin the word in Dutch, we might wonder why he decided to write it as *actitude*, rather than as *attitude* or *attitudine*. *Actitude* sounds vaguely Latinate, and he may have liked this. In fact the word *actitudo* does not exist in classical Latin, but it is thought to have existed in vulgar Latin, since it is assumed that the Spanish word *actitud* is based on it (though this argument does sound rather circular).[21] Did Van Mander somehow have access to this hypothetical vulgar Latin word? Or, more likely, did he perhaps know the Spanish word (he was brought up in a countryside overrun by Spanish troops)?[22] We do not know. Another possibility entirely is that he was confused by the Dutch word *actie*, which was the obvious equivalent of the Italian *atto*. In many art theoretical contexts *actie*, *actitude*, *atto* and *attitudine* have very similar meanings, and Van Mander used both Dutch words to translate both Italian words.[23] *Actie*, unlike *actitudine*, had already been in use in Dutch for some decades before it appeared in *Het Schilder-boeck*. It had the meaning of 'act' or 'action', although it may be that Van Mander was the first person to adapt it to a new meaning, of 'pose' or 'attitude.' *Actie* came into Dutch either from Latin *actio* or from French *action*,[24] so its *c* is explicable; the *c* of *actitude* is an alteration which may have been of Van Mander's own making.

That *actitude* was coined by Van Mander himself is perhaps suggested by its subsequent fate: because it was not used again by any other Dutch art theorist. Philips Angel (1616-after1683), Samuel van Hoogstraten (1627-1678), Willem Goeree (1635-1711), Gérard de Lairesse (1640-1711) and Arnold Houbraken (1660-1719) used a word with a Dutch root, *beweging*, to denote the expressive movement of the limbs, and *actitude* fell by the wayside.[25] As it happens, Van Mander also used the word *beweging* in the same sense on a number of occa-

[20] Although Theo Hermans believes that early volumes of the *Woordenboek* tend to be less thorough in compiling material from pre-1600 texts (personal communication).

[21] *Diccionario de la lengua española*, s.v. Actitud. I have used the online version at the website of the Real Academia Española, http://www.rae.es/rae.html, accessed 9 Feb, 2011.

[22] Miedema in Mander, *Lives*, vol. II, 56.

[23] E.g. Mander, *Schilder-boeck* (1604), 183v, "met een statighe Coninghlijcke actie": Vasari, *Vite*, vol. II, 999, "in atto veramente regio et onorato"; Mander, *Schilder-boeck* (1604), 184r°, "met een goedertieren actie": Vasari, *Vite*, vol. II, 1001, "con attitudine relassata e paziente"; Mander, *Schilder-boeck* (1604), 99r, "met fraey Actituden": Vasari, *Vite*, vol. I, 157, "è notabile l'atto"; Mander, *Schilder-boeck* (1604), 175r, "van verscheyden actituden": Vasari, *Vite*, vol. II, 808, "in diverse attitudini."

[24] *Woordenboek der Nederlandsche Taal*, s.v. *Actie*.

[25] *Actitude* is not used by any of these writers on art, and neither is *attitude*.

sions;[26] there was in fact no need to introduce the word *actitude* in the first place. The disappearance of *actitude* from Dutch art theory perhaps indicates that it was not widely used amongst artists in Van Mander's day, and so the attempt to coin a new art theoretical term fell on stony ground.

Comparteringe

The second of the four words which seem to come into Van Mander's lexicon from Italian is *comparteringe*. In fact, there are a number of confusing orthographic details here. In the Italian *Lives*, Van Mander spells this word almost always as *comparteringe*.[27] The one exception is in the life of Francesco Primaticcio (1504-1570), when he uses *compartiment*.[28] In the Netherlandish *Lives*, however, he always spells the word as *compartiment*.[29] What is more, as we shall see in a moment, it seems that in the Netherlandish *Lives*, though not in the Italian *Lives*, *compartiment* has a different sense.

One would be forgiven for thinking that *comparteringe*/*compartiment* is meant as a translation of Vasari's word *compartimento*, but it is not; it is a translation of Vasari's word *partimento*. In fact Vasari only uses *compartimento* once in the whole of the *Vite*, when he praises Jacopo Pontormo's (1494-1557) *Jacob and Joseph in Egypt* (see figure 8.3).[30] Amongst the things that the author of the life of Pontormo liked about this painting was its "compartimento delle figure." This surely means the grouping of figures, as suggested by Gaston de Vere in 1912.[31] *Partimento* however means something rather different. It refers to the particular kind of partitioned stucco decoration which appears on certain Renaissance ceilings. So for example Vasari tells us that Pope Julius II ordered Raphael to destroy the ceiling of the Stanza della Segnatura, which had already been decorated with stucco and painted by Sodoma (1477-1549); but Raphael decided that he wanted to make use of Sodoma's *partimento* and *grottesche* (see figure 8.4).[32] So he inserted certain figures and scenes, which were connected thematically with the frescoes on the walls below, into some of the pre-existent compartments. He

[26] Mander, *Schilder-boeck* (1604), 96r, 217r.
[27] Mander, *Schilder-boeck* (1604), 118r, 132r, 132v, 139v, 141v, 144r, 145r, 157r, 158r, 183v, 193v.
[28] Mander, *Schilder-boeck* (1604), 174r.
[29] Mander, *Schilder-boeck* (1604), 250r, 253r, 266r; see also *6r.
[30] Vasari, *Vite*, vol. II, 482. One might suspect on the basis of this that Vasari did not write Pontormo's life: see note 12 above.
[31] Vasari, *Lives*, vol. II, 351.
[32] Vasari, *Vite*, vol. II, 70.

did not fill all the compartments, and so some of Sodoma's paintings can still be seen.[33]

Van Mander provides us with an accurate definition of *partimento*, and makes it clear what he is doing with the word *comparteringe*, when he writes at one point of "comparteringen oft bedeelingen van welfsels," "compartments, or divisions of vaults."[34] However, when he comes to use the word *compartiment* in his *Lives of the Netherlandish Painters*, he uses it to mean the decorative frames around script in paintings and prints (see figure 8.5). It seems, then, that he meant there to be a difference of meaning between *comparteringe* and *compartiment*, only once failing to follow his own distinction, when in the life of Primaticcio he referred to a stuccoed ceiling as covered *met compartimenten van Cornicen*, with compartments of cornices, a translation of Vasari's *con partimenti di cornici*.[35]

It seems likely in fact that Van Mander did not introduce the Dutch meaning of *compartiment*, but that it was already current in the Netherlands when he wrote his *Schilder-boeck*. He tells us of three Netherlandish artists who painted *compartimenten*: Pieter Vlerick (1539-1581), Claes Snellaert (c.1542-1602) and Hans Vredeman de Vries (1527-c.1606).[36] Presumably, if they were painting *compartimenten*, they had a word for the work they were doing. What is more, at least one of these lives, that of Vredeman, seems to have been written by Van Mander on the basis of a very detailed letter from Vredeman himself.[37] It is quite probable that the word *compartimenten* was actually in the original letter from Vredeman, and was just transcribed by Van Mander. If Vredeman already knew the word, then it was not coined by Van Mander, and we can deduce that many other artists knew it too.

Grottesche

As we saw earlier, Raphael made use not only of Sodoma's *partimento* but also of his *grottesche*; one common way of decorating a *partimento* was with grotesques. This is another word which seems to have travelled from Italian into Dutch, although it may have come via French. The precise history is impossible to reconstruct. We learn from Van Mander that Gillis Coignet (c.1538-1599) painted

33 Redig de Campos, *Raffaello nelle Stanze*, 20-2; Emiliani & Scolaro, *Raffaello*, 58-60.

34 In fact this contains a slight inaccuracy, since for Vasari *partimenti* is a broader term than *partimento*; the latter is only used for ceilings, whereas the former can also be used for walls.

35 Mander, *Schilder-boeck* (1604), 174r; Vasari, *Vite*, vol. II, 800.

36 See note 28 above.

37 Taylor, Review, 147; Heuer, *City Rehearsed*, 161-3.



Figure 8.3. Jacopo Pontormo, Jacob and Joseph in Egypt*, National Gallery, London*



Figure 8.4. Raphael and Sodoma, Ceiling, Stanza della Segnatura, Vatican, Rome



Figure 8.5 Johannes Wierix after Hans Vredeman de Vries, Frontispiece to Theatrum Vitae Humanae*, Antwerp 1638 (first published 1577), ©The Trustees of the British Museum. Prints and Drawings, 1877,0811.1142*

grotesques in Italy "op de Fransche vreemde wijse," in the strange French manner;[38] if the French were known for their grotesques then it may be that it was through them that the Flemish and Dutch came to hear of the concept. At the same time, they may have been aware that the French grotesques were based on Italian reworkings of Roman originals. Whatever the case may be, Van Mander translates *grottesche* as *grotissen*, or sometimes as *grotisken* or *grotisschen*.[39] The authors of the *Woordenboek der nederlandsche taal* give no source for this word before Van Mander, but it is rather difficult to suppose that he introduced the term. We learn from their biographies in the *Schilder-boeck* that Coignet, Cornelis Ketel (1548-1616), Vredeman (see figures 8.6 and 8.7) and Paul Bril (1554-1626) all made *grotissen*;[40] and, using the line of reasoning we have just employed for *compartiment*, it seems likely that they had a word for the works they were making. And, again, two of these biographies were, I think, written by someone other than Van Mander. It is not only the life of Vredeman that seems to have been based on

38 Mander, *Schilder-boeck* (1604), 262r.

39 Mander, *Schilder-boeck* (1604), *6r, 7r, 82r, 109r, 118r, 120v, 129r, 132r-v, 139r-v, 141r-v, 144r-145v, 159r-v, 184v, 188v, 189v, 193v-194v.

40 Mander, *Schilder-boeck* (1604), 262r, 266r-267r, 276v, 292r.

a long letter from the artist himself; the same I think is true of the life of Ketel.[41] The authors of these letters, then, knew the word *grotisse*, just as Van Mander did. We can conclude that Netherlandish artists knew what *grotissen* were before Van Mander wrote his *Schilder-boeck*, and they had probably been using the word for some decades; printmakers, both Italian and German, were publishing engravings of grotesques in the middle of the sixteenth century.

Sgraffito

The two other words that came into Dutch from Italian preserve their Italian form. One of them is a word that Van Mander uses just twice: *sgraffito*.[42] This is a technique described by Vasari in his *Teoriche*. It was used for decorating the façades of houses; a layer of whitewash was painted over a layer of lime mixed with sand, the latter being burnt to a grey colour. By pressing an iron stylus through the whitewash the grey beneath was revealed, allowing the artist to create a durable design. This technique was not used for house decoration in Van Mander's day in the Netherlands, although it was quite popular in the sixteenth century in Austria and Southern Germany—but since Joachim von Sandrart (1606-1668) was also forced to use the word *sgraffito*, there was presumably no indigenous word for the technique in German at that time, either.[43]

Nevertheless, the method is fundamentally simple, and variations upon it were applied to other art forms; for example, brocades on Netherlandish polychrome sculpture were often depicted by scratching through an upper layer of paint to an underlayer of a different colour.[44] One wonders if there was a Dutch word for this technique (I have not been able to find it). Even if there was not, it would surely have been easy for Van Mander to find a corresponding term: *sgraffito*, after all, only means "scratched."

Mezza tinte

The fifth of Van Mander's Italian terms, *mezza tinte*, is interesting in that it does not appear either in Vasari or in Alberti. Alberti it is true writes at one point of *mezzo colore*, which, like *mezza tinta*, clearly means half tone; but it is unlikely

41 Taylor, Review, 147.

42 Mander, *Schilder-boeck* (1604), 129r, 132r.

43 Sandrart, *Teutsche Academie*, vol. II, 2, 107. Modern German uses the word *Kratzputz*.

44 I thank Maximiliaan Martens for this observation.

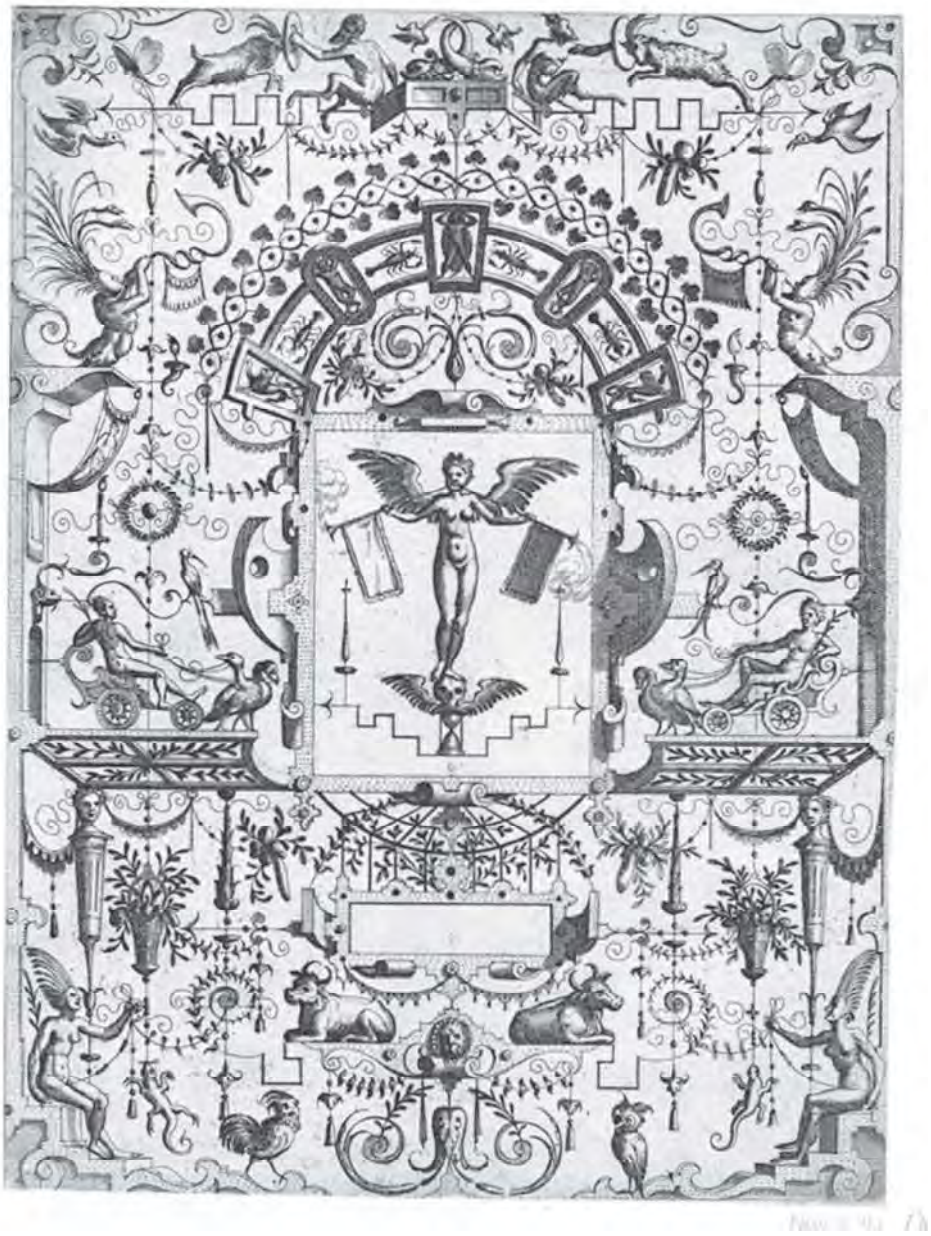


Figure 8.6. Joannes and Lucas van Doetecum after Hans Vredeman de Vries, Grotesque with Vanitas of Fame, ©*The Trustees of the British Museum. Prints and Drawings, 1886,0111.74*



Figure 8.7. Andrea Feltrini, Sgraffito grotesques, Palazzo Sertini, Florence

that Van Mander took the word from Alberti.[45] *Mezza tinta* appears as a standard painters' term in Filippo Baldinucci's *Vocabolario toscano dell'arte del disegno*,[46] and Van Mander almost certainly picked it up by talking to Italian artists. In the *Grondt* he writes that, now *mezza tinte* have arrived from Italy, Netherlandish artists no longer cut up light and dark in a harsh way so that their paintings look like chessboards, a failing for which he reproaches, in particular, Jan van Scorel (1495-1562).[47] Van Mander uses the word in a perfectly orthodox way, albeit that, for once, his Italian fails him: he writes *mezza tinte*, whereas in Italian the singular is *mezza tinta*, and the plural is *mezze tinte*.

Two doubtful cases: model and scopus

These, then, are the five Italian terms that I have been able to find in Van Mander. As I said earlier, there are also two doubtful cases. One is the word *model*, by which Van Mander meant a preliminary study in plaster, clay, wax or wood for a sculpture or a building.[48] One might well have thought that this came into Dutch from the Italian *modello*, but the *Woordenboek der nederlandsche taal* asserts that it has its origins in the French *modèle*, albeit that this was derived, in the middle of the sixteenth century, from the Italian.[49] I cannot myself see how the *WNT* can be sure on this matter; but either way, the word was not coined by Van Mander, since it appears in the 1599 edition of Cornelius Kilianus's (c.1529-1607) Dutch-Latin dictionary.[50]

The other doubtful case is more mysterious. The word *scopus* is used by Van Mander to mean the main incident of a composition. He only uses it three times; twice in the *Grondt*,[51] and once in the life of Bartholomaeus Spranger (1546-1611).[52] In the life of Spranger he tells us that the artists designed a painting of Christ on the Cross, "het scopus brenghende in't verschiet," putting the main incident in the distance. The painting was probably a landscape with figures, with

45 Alberti, *Della pittura*, II, §47.
46 Baldinucci, *Vocabolario toscano*, 98.
47 Mander, *Schilder-boeck* (1604), 18v, 245r.
48 Mander, *Schilder-boeck* (1604), 107v, 112r, 113v, 122r, 148r, 148v, 150v, 151r, 152r, 152v, 153v, 154r, 160r, 160v, 165r, 168v, 169v, 170r, 170v, 191v, 271v.
49 *Woordenboek der Nederlandsche Taal*, s.v. Model.
50 Kilianus, *Etymologicum teutonicae linguae*: "Model, model-beld, moele, *proplastice, typus, forma, imago ex gypso sive argilla ad cuius similitudinem et formam statuarius plastesve lapidem caedit aut aes fundit*." *Woordenboek der Nederlandsche Taal*, s.v. Model.
51 Mander, *Schilder-boeck* (1604), 17r, 20r.
52 Mander, *Schilder-boeck* (1604), 271v.

a crucifixion taking place in the middle ground. The meaning of Van Mander's term is clear enough; what is not so clear is where he got the term. In Renaissance Latin, *scopus* means aim or intention, a meaning that *scopo* also has in Italian. One can understand how artists might transfer the original word in order to refer to the principal action of a painting. But neither word can be found in Italian or Latin treatises on art, and *scopus* does not appear again in Dutch art theory, either. Miedema who is normally indefatigable in uncovering source texts for difficult passages of Van Mander, simply passes over the difficulty, and this is probably wise.[53]

Italian words in Dutch disguise: verkortinge and primuersel

On occasion, Italian words enter Dutch in, so to speak, linguistic disguise. Consider for example the word *verkortinge*. This is a Dutch word with a long pedigree, going back to Middle Dutch, and it has a range of meanings around its central sense of shortening or abbreviation. One of its transferred senses is foreshortening, and its earliest known citation in this sense is in Van Mander.[54] It is very clearly a translation of the Italian *iscorto*, and it is the perfect translation, not only because it corresponds in sense to the Italian word, but also because it preserves much of the sound of the original. Another example of a similar phenomenon is the word *primuersel*, which corresponds to the Italian *imprimatura*, and so refers to the priming layer over the gesso ground. There is in fact a Dutch word, *plamuersel*, with a long medieval pedigree, that means exactly this, but Van Mander never used it; he adopted *primuersel*, presumably, as a cross of *imprimitura* and *plamuersel*, for reasons of his own.

Conclusion

I said at the beginning of this paper that many Romance words in Van Mander which one might think of as Italian in fact have Latin or French roots. This is true for example of *actie*, *affect*, *carnatie*, *conterfeyten*, *glaceren*, *gracelijk*, *inventie*, *manier*, *ordinantie*, *postuur*, *pourfijl*, *proportie*, *prospectief*, *reflexie*, *representeren*, *retocqueren*, *reverberatie*, *spatie*, *studie*, *temperen* and *vernis*. In so

[53] The page on which he fails to tackle the problem is Mander, *Grondt der edel-vry schilderconst*, 472.

[54] Mander, *Schilder-boeck* (1604), 13r, 35r, 41v, 64r, 73v, 74r, 97v, 102r, 106r, 111v, 128r, 130r, 142v, 168r, 235r.

far as simple artistic vocabulary is concerned, it would appear that the Netherlanders derived quite as much from their Burgundian past as from their encounter with Renaissance Italy; but even this batch of terms is dwarfed by the hundreds of words with Dutch origins that go to make up Van Mander's language of art.

This investigation of Van Mander's Italian terminology could have approached the subject from a different angle. I might have examined not Van Mander's Italian vocabulary, but rather the very large Dutch vocabulary with which he translated Italian terms. The reason Van Mander had so little recourse to Italian terms of art was that he already had available to him a rich lexicon of words, one that had been developed in the Low Countries since the end of the fourteenth century. He could be linguistically unadventurous when translating Vasari precisely because he did not need to stray from his mother tongue in order to express Vasari's concepts.

Another line of approach to this issue would be to look at examples of Van Mander using Dutch words in order to translate Italian concepts. When he writes in his life of Caravaggio[55] that the artist should not only draw from life, but should be able to distinguish and select "the most beautiful life from the beautiful," "t'schoonste leven uyt t'schoon," he is expressing an important Italianate idea in Dutch words. When he transposes that key term *chiaroscuro* as *Lichte-Donkerheyt* he is doing the same thing.[56] Concepts cross linguistic boundaries in more ways than one; sometimes they travel in the words of their native lands, and sometimes they adopt the language of their new homes.

There has been a trend in the recent art literature to argue for Van Mander as a defender of Netherlandish traditions in the face of a perceived Italian cultural superiority.[57] It might be tempting to argue that Van Mander's refusal to succumb wholesale to Italian vocabulary is another symptom of a staunchly Netherlandish attitude. However the evidence we have surveyed does not really justify such a position. Van Mander was not forced to use the Italian words he scattered through his book; he could have invented a substitute for a word like *sgraffito*, and *actitude* was, as we have seen, an unnecessary coinage, since the Dutch word *beweging* already expressed the same concept. There may be few examples of Italianate vocabulary in *Het Schilder-Boeck*, but there did not have to be any at all. And while many of the Romance words in his artistic vocabulary came from French and Latin, and frequently had long histories in Dutch, Van Mander (who after all did not have the *Woordenboek der Nederlandsche Taal* at his fingertips) may not have been aware of their etymological histories. It is quite possible that he used

[55] Mander, *Schilder-boeck* (1604), 191r.
[56] Mander, *Schilder-boeck* (1604), 50r.
[57] Melion, *Shaping the Netherlandish Canon*; Brusati, *Artifice and Illusion*, 6-8.

words such as *proportie* and *prospectief* in the belief that they were of Italian origin.

If Van Mander used Italian words rather infrequently, that is not because he had any aversion to them, but simply because he could hardly avoid Dutch words that had already been invented to fill the same semantic purpose. In this he had an advantage over English writers on art, who during the seventeenth and eighteenth centuries were forced to adopt a long list of Italian and French words to fill gaps in their own aesthetic terminology; *alfresco*, *alto-relievo*, *aqua-tinta*, *basso-relievo*, *bolino*, *busto*, *capriccio*, *chiaroscuro*, *claro obscuro*, *cognoscente*, *contorno*, *dilettante*, *gruppo*, *guazzo*, *gusto*, *intaglio*, *morbidezza*, *mezzotinto*, *pasticcio*, *predella*, *ricordo*, *ritratto*, *schizzo*, *smalto*, *stuccature*, *terra-cotta*, *virtuoso*, *amateur*, *arabesque*, *burin*, *burlesque*, *calque*, *caprice*, *cartouche*, *clinquant*, *connoisseur*, *contour*, *crayon*, *degradation*, *ébauche*, *morceau*, *palette*, *paysage* and *plafond* all found their way, temporarily or permanently, into English at this time.[58] If Van Mander's Dutch was richer in native terms for painting than Jonathan Richardson's (1665-1745) English, that is hardly surprising: Richardson's British contemporaries were artistic *parvenus*; but when the *Schilder-Boeck* was written, the Low Countries had been at the centre of artistic innovation and production in Europe for over two hundred years.

[58] A preliminary survey based on entries in the *Oxford English Dictionary*.

Inventing the Vocabulary of Antique Architecture. The Early Translators and Interpreters of Renaissance Architectural Treatises in the Low Countries

Krista de Jonge

The early modern Low Countries constituted a complex laboratory for the introduction of the new, antique-inspired architecture first developed in Italy, which we call 'Renaissance' architecture today. This phenomenon was complex in the sense that there were multiple mechanisms of transmission, that are still not fully charted even after a century and a half of Renaissance studies in Belgian and Dutch architectural history.[1] One of these, the translation of architectural treatises from the Latin and Italian into Flemish or Dutch has generated a fair amount of literature, but many aspects still lack a systematic approach.[2] For instance, the traditional vocabulary of the construction site (late fifteenth and early sixteenth century) has not yet been fully recorded. While both earlier and more recent scholarship feels quite at home with the paper trail of building—from the specifications and contracts to the accounts—the language used in it is not studied *per se*. While the meaning of terms such as *silieren* (a type of beam) and *ragementen* (the springing of a vault) in Flemish or *parpaings* (a type of anchoring stone or large-sized corner stone) in French can be conjectured from the context, this is not the case with many other words missing from the dictionaries. Lexica such as the well known 'Haslinghuis' only list terms still in use today, i.e. in the field of architectural history and conservation.[3] Thus a touchstone of fundamental importance is missing. Translation and its related problems stood at the heart of the newest architectural developments of

1 An overview of historiography can be found in Jonge & Ottenheym, *Unity and Discontinuity*, introduction.

2 Jonge, "Vitruvius, Alberti and Serlio," "Premières traductions," and "Standardizing Antique Architecture"; Ottenheym, *Schoonheid op maat*, ch. III, "*L'idea dell'architettura universale* in Holland."

3 Haslinghuis & Janse, *Bouwkundige termen*.

the time. The profound revolution of architectural expression in the early sixteenth century was mirrored in the development of the language used to describe it. All levels in the world of building from the craftsman to the dilettante patron had to come to terms with the new language of architecture, both in the artistic and in the linguistic sense.

Pieter Coecke van Aelst

Our story starts with the painter Pieter Coecke van Aelst (1502-1550), whose successful practice as painter and tapestry designer in Antwerp and Brussels was but a corollary to his position as expert theorist and advisor on Antiquity to the Court. From 1538-1539 Coecke is singled out in the court accounts as "artist", a newly minted title held by only one person before him, not only because of his publishing activities but also because of his personal experience with the antiquities of Constantinople in 1533, reflected in his posthumous print series *Moeurs et fachon de faire des Turcqz* (1553). By January 1548 Coecke could style himself "painter to the Queen Dowager of Hungary", i.e. the regent, Mary of Hungary (1505-1558), and in his last publications, dated in the year he died (1550), *libraire juré de l'Emperialle Maieste*, "sworn librarian to His Imperial Majesty."[4]

Coecke's first venture into the field of architectural theory, *Die Inventie der colommen*, appeared in Antwerp in 1539 as a small octavo with an original print run of over 650 copies, only two of which survive.[5] This serviceable little manual on the Vitruvian Orders, while useful, cannot compete with Coecke's other publishing ventures. His unauthorized translations of Sebastiano Serlio's (1475/1490-1553/1557) Book IV *Regole generali di architettura* [. . .] *sopra le cinque maniere de gli edifici* (Venice, 1537), also published at Antwerp by Gillis Coppens van Diest (c.1496-1572) from 1539 to 1543, constitute a landmark in the history of architectural publishing in Northern Europe (see figures 9.1-9.3).[6] Coecke was indeed the first to make this handbook on the column orders available to a non-Italian audience, incidentally also rendering it the most popular publication of

[4] Marlier, *Renaissance flamande*, 35-45; Jonge, "Standardizing Antique Architecture," and "Court Architect," 115-6.

[5] Coecke van Aelst, *Inventie der colommen*: Ghent, University Library, BHSL.RES.1448, incomplete (facsimile in Rolf, *Pieter Coecke van Aelst*); Wolfenbüttel, Herzog August Bibliothek, 40.5.1 Geom., with water stain (first mentioned by Davis, *Archäologie der Antike*, 29-30). See Schéle, "Pieter Coecke."

[6] Coecke van Aelst, *Generale reglen der architecturen*, *Reigles generales de l'architecture*, and *Die gemaynen reglen von der architectur*. See Jonge, "Premières traductions," 269-79; on Gillis Coppens, see Blouw, "Gillis Coppens van Diest."

its type in sixteenth-century Europe.[7] Robert Peake's (c.1551-1619) well-known English translation of Serlio's Book IV (1611), for instance, is not based on the Italian original but on Coecke's Flemish version.[8] Editions of Serlio's Books I (on geometry), II (on perspective), III (on Antiquity) and V (on churches) in several languages soon followed those of Book IV, bearing witness to Coecke's role as the chief popularizer of Serlio's work north of the Alps.[9] These texts clearly set out what the rules governing the design of architecture in the 'antique' manner were, and how its individual components were to be constructed correctly: capitals, bases, columns, pedestals, pediments, entablatures, cornices and architraves. Coecke's publications—especially the more affordable *Inventie*, which cost only one *stuyver* (stiver)—thus offered the Netherlandish craftsman the first useful guide for fashioning correct, antique forms, or as Coecke put it, 'the best guide to understanding Vitruvius'.

This was a major issue Early Modern architects working in the 'antique manner' were confronted with. Vitruvius's *De architectura libri decem*, the only treatise on architecture to have survived from Antiquity more or less completely, was a notoriously obscure text offering many pitfalls to the unwary reader, the (few) original illustrations having been lost. Extant antique architecture, mostly of the Imperial age, did not correspond with Vitruvius's Late Republican, Hellenistic world; an issue sixteenth-century editors, translators and practitioners grappled with constantly. Out of this discrepancy, this actual misunderstanding in most cases, came of course one of the most creative periods of architectural history: Renaissance architecture is in fact an ingenious 'Lost in Translation.' While it would be going too far to reduce the new movement to a Vitruvian revival, for many Vitruvius constituted the main conduit to proper antique architecture; especially for those in the North for whom actual Roman ruins were out of reach.

Both Coecke's 1539 publications—not only the Vitruvian excerpt but also the translations of Serlio's Book IV, which is not a Vitruvian text at all but a modern handbook—must thus be read in a Vitruvian perspective. In the 1539 Flemish translation of Book IV, Coecke's numerous revisions of the Serlian source text constitute an independent commentary in an almost exclusively Vitruvian key (see figure 9.1), and the 1549 revised edition shows itself to be even more Vitruvian than the first, in spite of having been printed in the traditional font to facilitate

7 Deswarte, *Sebastiano Serlio à Lyon*.

8 An overview of editions can be found in Bury, "Serlio," and Hart & Hicks, "Édition en anglais."

9 Coecke van Aelst, *Aldervermaertste antique edificien*, *Des Antiquites*, *Geometrye*, *Perspectyven*, and *Diversche formen*. See Jonge, "Premières traductions," 280-3.

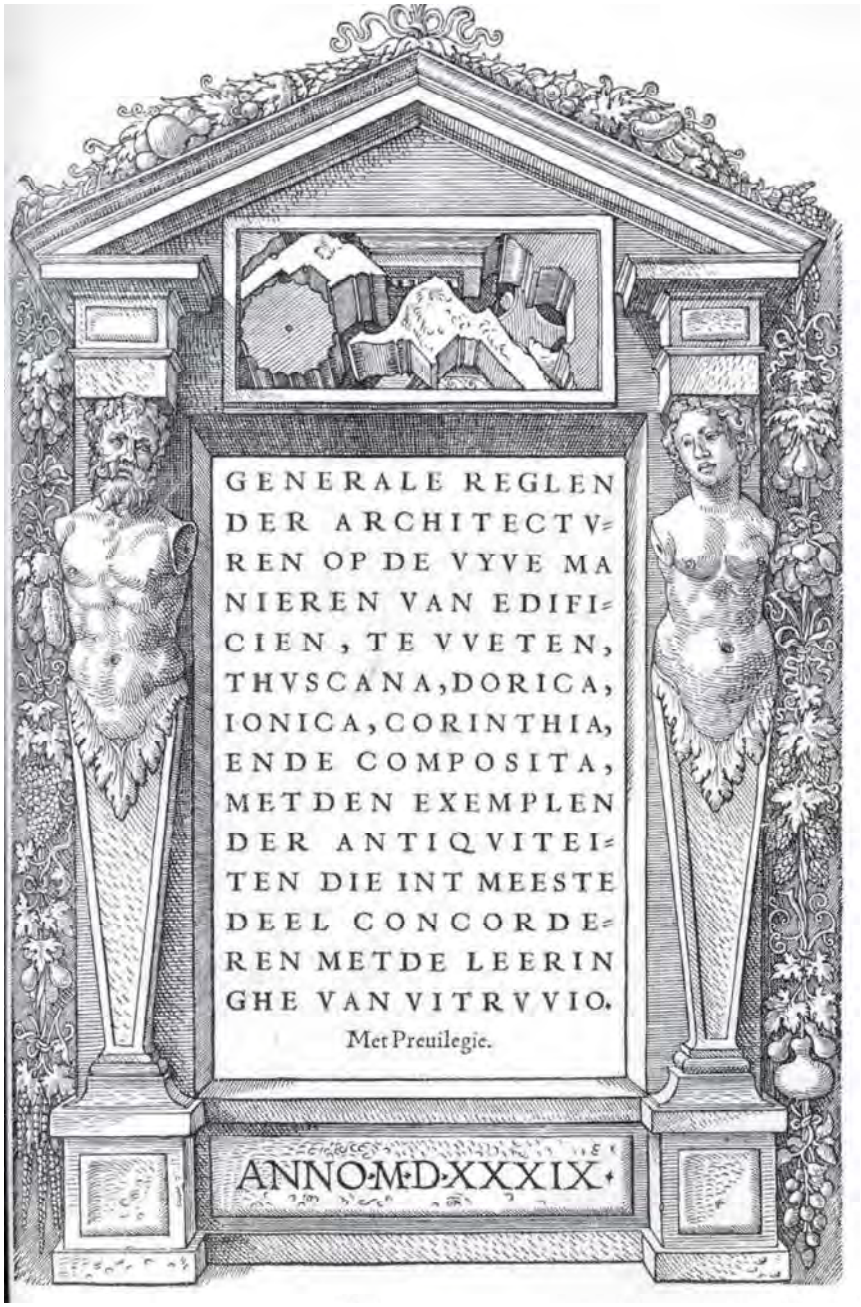


Figure 9.1. Frontispiece of Coecke's first Flemish edition of Serlio's Book IV, Antwerp, 1539. © Brussels, Royal Library of Belgium

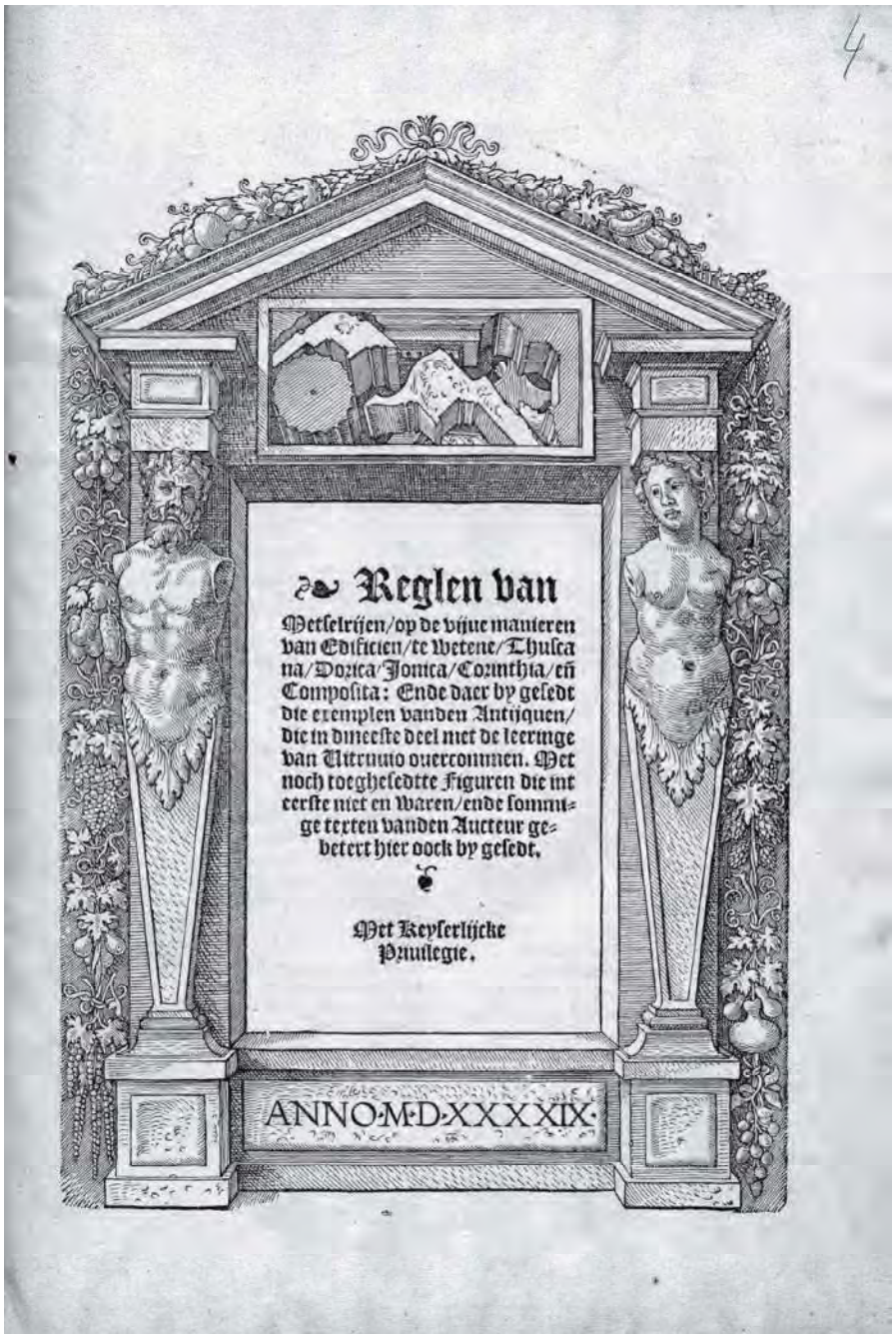


Figure 9.2. Frontispiece of Coecke's second Flemish edition of Serlio's Book IV, Antwerp, 1549. © *Utrecht, University Library*



Figure 9.3. Frontispiece of Coecke's second French edition of Serlio's Book IV, Antwerp, 1545.
© Brussels, Royal Library of Belgium



Figure 9.4. Ionic façade from the second Flemish edition of Serlio's Book IV, Antwerp, 1549, with Vitruvian commentary on the proportions of the portal marked in italics.
© Brussels, Royal Library of Belgium

reading (see figures 9.2 and 9.4).[10] Coecke's interest in Serlio's treatise indeed seems to stem from his interest in Vitruvius. Coecke did not have to address the issue of translation alone, luckily so because Vitruvian studies were fraught with difficulties. Vitruvius reached the Low Countries in the early decades of the sixteenth century, probably in the form of Cesare Cesariano's (1483-1543) illustrated edition (Como 1521) as there is early evidence of its use in the Nassau tomb and palace at Breda;[11] or possibly also in the form of the Gabbiano 1523 pirate edition from Lyons, which mixes in elements from the earlier Fra Giocondo edition (Venice, 1511).[12]

Coecke could count on the support of the Antwerp milieu of humanists as shown by the poem introducing his *Generale Reglen*, the Flemish translation of Book IV (1539):

> Painters, sculptors, busy architects
> And also you stonemasons, you strong blacksmiths
> Lovers of the sweet art of proportion,
> Come here, come and look at this artful new work
> See this new treasure enclosed in this new book,
> Buy this wealth for just a small penny
> It being very useful to layperson and clerk.
> Here you will find clear as daylight
> All that in noble Vitruvius
> In all his artful books
> Seems so difficult, and not plain to the mind,
> Or not perfectly written in his works,
> Or not useful for our times: leave off searching now
> Nothing is difficult any more, or obscure,
> He is now clear and transparent, both in large and small things.[13]

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10 Coecke van Aelst, *Reglen van metselrijen*. See Jonge, "Premières traductions," 272-4.

11 Kavaler, "Being the Count of Nassau"; Wezel, *Paleis van Hendrik III*, 221-2, 362-3.

12 On these three editions and their relationship, see Pagliara & Fiore, "Antécédents."

13 Latin version: "Pictores, Statuarij, Architecti,/ Et vos o Latomi, o Fabri, expetitam/ Quotquot Symmetriam probatis, eia/ Huc adeste alecres, novum hunc laborem/ Spectate, huncce novum videre laeti/, Thesaurum, exiguoque comparate/ Aere has divitias, bene aestimandas/ Ingenti precio: hic meridiano/ Phoebo lucidius queat videti,/ Quicquid tot opere in Vitruviano/ Aut sit difficile, aut male explicatum,/ Aut non sufficiens, minusque nostri/ Aptum temporibus: nihil deest iam,/ Nil iam difficile, aut tenebricosum/ In libris legitur Vitruvianis." Flemish version: "Scilders, Beeldensnyders, Architecten vroet,/ Ende oock ghy Steenhouwers, ghy Smeden sterck/ Liefhebbers der Symmetrien conste soet,/ Comt hier, compt besiet dit constelijck niewe werck/ Besiet desen nieuwen schat in dees boecx perck/ Coopt desen rijckdom om eenen penninck cleyn,/ Hy is nochtans seer dierbaer voer leeck oft clerck/ Hier in suldy vinden clear als

Written by the erudite secretary to the City council Cornelis de Schrijver, alias Scribonius or Grapheus (1482-1558), it addresses the issue of translation, referring however mostly to Vitruvius and not to Serlio. In this milieu Vitruvius was known and read, as shown by surviving correspondence and by other evidence such as Grapheus's introduction to the Pomponius Gauricus's (1481/1482-c.1530) treatise *De sculptura*, published at his brother's printing house in Antwerp in 1528.[14] Coecke might have used libraries such as that of Petrus Aegidius (1486-1533) (Pieter Gillis), Grapheus's predecessor, the content of which is known through a surviving inventory.[15]

Words ...

In 1539, Coecke actually faced a double challenge: on the one hand, to translate the Graeco-Latin technical vocabulary of Vitruvius into Flemish for the *Inventie* and on the other, to translate the Italian terminology of Serlio into Flemish for the *Generale Reglen*, in a Vitruvian way. His 1533 voyage to Venice—where he was involved in the very milieu Serlio also belonged to, the circle of doge Andrea Gritti (reigned 1523-1538), Pietro Aretino (1492-1556), and Titian (1488/1490-1576)—and Constantinople had probably familiarized him with Italian (or its Venetian version), but here he must have had some help.[16] One of the agents in the trading network which had enabled the trip may have played a role: the merchant Jacob Rehlinger (?-1571) or Rechlinger from Augsburg, intermediary between Coecke's tapestry connections in Antwerp and Brussels, and the Venetian merchant class trading with the Turks.[17] The German translation of Book IV, the privilege of which carries the date of 3 March 1542 (before Easter, so probably

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den dach reyn/ Waer in ons Vitruvius dat edel greyn/ In de geheele sijn constige boecken/ Schijnt swaer te sine, en int verstant niet pleyn,/ Oft niet volmaect in al sijn scrivens boecken,/ Oft tonsen tijden niet nut, spaert nu tsoecken/ Daer'nes niet meer swaers, niet duysters over al,/ Hy is nu luchtich en claer, so breet so smal" (Coecke van Aelst, *Generale reglen der architecturen*, fol. A i v). English translation after the Flemish version.

14 Pomponius Gauricus, *De sculptura*. See Petrus Curtius to Frans Cranevelt on 5 November 1526, Katholieke Universiteit Leuven, Centrale Bibliotheek, MS 36, ep. 203, II, fol. 147r; Vocht, *Literævirorum eruditorum*, 542-4; Prims, "Eigen werk"; Padmos & Vanpaemel, *Geleerde wereld*, 342-3; Jonge, "Antique Manner," 27, and "Court Architect," 131 note 65.

15 Tournoy & Oosterbosch, "Library of Pieter Gillis."

16 Marlier, *Renaissance flamande*, 55-72; Howard, "Venetian Copyrights"; Finlay, "Al servizio del Sultano"; Tafuri, *Venezia e il Rinascimento*, 162-9; Olivato, "Dilettanti di architettura"; Necipoğlu, "Süleyman the Magnificent," 419-20. On the travels of Coecke, see Born, "Pieter Coecke van Aelst."

17 Kellenbenz, "Jakob Rehlinger."

to be read as 1543 taking into account Antwerp chronology), is Rehlinger's work. *Die gemaynen reglen von der architectur uber die funf manieren der gebeu* is also the most literal and least Vitruvian of all, having no glosses whatsoever. It is much longer than the Flemish and French versions, which were ruthlessly divested of all passages not relevant to the Netherlandish customer. Maybe it should be considered as the source text, the main intermediary between the Italian original and the Flemish and French versions: but corrected by Coecke.

The vocabulary of all three translations—the Flemish 1539, the French 1542, and the German 1543—is indeed similar, and corresponds with the slightly earlier *Inventie* (figure 9.1.T). As a consequence, it is also very Vitruvian: Coecke much preferred to use the Graeco-Latin terms mentioned by Serlio (who always added the *volgare* term to be understood), than to search for equivalent words in Flemish, or as the case might be, French, and when necessary even coined new Latin or Greek-sounding terms inspired by the Vitruvian repertory. The possible Flemish equivalent is never mentioned, in spite of the fact that Coecke was sufficiently well embedded in the world of the guilds—in particular Antwerp's St Luke's guild from at least the late 1520s—to have known the master mason's vocabulary, still orally transmitted at the time.[18] Also, his patron Grapheus personally knew the chief protagonists of the Antwerp builders' world, since he recorded their testimony on designing architecture for a Utrecht court case in 1543.[19] Hence this must be seen as a conscious choice rather than evidence of a lack of imagination. In the introduction to the second, 1549 edition of Book IV, Coecke succinctly states that:

> Taking into account that not all lovers of architecture understand Italian, I have translated these to my opinion definitive and very clear rules from Italian into Flemish (*nederlants*), with the exception of all parts of the bases, capitals, cornices etc [. . .] These I did not put into Flemish (*verduytst*) even if Serlio mentions the usual modern terms of Italy—which we would understand as badly as the Latin ones—next to the Vitruvian ones. I would recommend that we use the terminology of Vitruvius (*der namen Vitruvij*) since we received his way of building in writing, in order that the scholar can be understood by the craftsman and the craftsman by the scholar.[20]

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[18] Martens, "Antwerp Painters"; Born, "Antwerpse Maniërisme"; Martens & Peeters, "Artists by Numbers." On the Flemish vocabulary of the construction site, see Philipp, "Eyn huys in manieren van eynre kirchen." On the French, see Cagnon & Smith, "Vocabulaire de l'architecture."

[19] Muller Fz, "Getuigenverhoor te Antwerpen"; Hurx, "Architecten en gildedwang"; Jonge, "Court Architect," 119-121.

[20] "Ghemerct dan dat alle lief hebbers der Architecturen geen Italiaens en verstaen, so hebbick dese (na mijn oerdeel) aldersekerste ende claerste Reglen wt den Italiaensce in nederlandts

Table I

SERLIO	COECKE				
Book IV (Italian)	**Book IV (Flemish)**	**Book IV (Flemish)**	**Book IV (French)**	**Book IV (German)**	***Die Inventie der colommen***
Venice 1537	**Antwerp 1539**	**Antwerp 1549**	**Antwerp 1542**	**Antwerp 1542(1543)**	**Antwerp 1539**
Annulo, detto Quadretto, o Regolo Quadretto, detto Gradetto; altri lo dicono Listello, altri Cima	**Annulo oft Cincta**	*(only differences with the 1539 edition are indicated)*	Fillet ou Cincte	Quadretto, Oder Collarino	
Architetto	**Architect**		Architect	Werckmayster	Architecte
Architettura	**Architecture**	(Conste van) Metselrijen	Architecture	Architectur	Archjtecture
Astragalo detto Tondino	**Astragalum**		Bossel desoubz le chapiteau dict Astragalus	Astragalum, oder Tondino	Astragalum
Cimatio, detto gola roversa	**Cimatie**		Eschine en lieu de Cimaise	Cimatio	Cimatium, Cimatie
Colonna Thoscana	**Columne thuscane**		Coulomne Thuscane	Colonna oder seul Thoscane	Columne Thuscana
Echino detto Vuovolo	**Echinus**		Echine	Vuovolo oder dechine	Echinus
Epistylio, detto Architrave	**Epystilium oft Architrabe Supercilien oft Architraben**		Epistile ou Architrabe Supercilles ou Architrabes	Epistilium	Epistilium
Fastigio	**Frontispicium**		Fastige ou Frontispice	Fastigio, so man auch Frontispicio nennet	Fastigium
Hipotrachelio, detto Fregio Zoforo, detto Fregio	**Zophorus oft Phrise**		Lhippotrachelie ou Frize Zophoro ou Frize	Hipotrachelium oder Phrise	Hipotrachelium Zophorus oft Phrise
Plintho, detto Abaco, o Cimata	**Plinthus Abacus**		Plinthe Tailloir appelé Abacus	Plinthus Abacus	Plinthus
Stilobathe, detto Piedestalo	**Stilobatum, Pedestal**		Piedestal, ou Stilobate	Pedestal, oder Cilobatum Stillobato oder Piedestallo	Stilobatum
Strie cioé Canellature	**Strien**		Stries ou Gueulles	Keelen	Stryen, Strien, Striature
Toro	**Thorus**		Thore	Torus	Torus

Figure 9.1.T. Comparative table of architectural terms from Serlio's Book IV (1537); Coecke's Flemish (1539, 1549), French (1542) and German (1542) translations; and Coecke's Inventie der colommen *(1539)*

In the introduction to the first, 1539 edition of Book IV, Coecke elaborates on this point. The Latin, originally Greek terms derived from Vitruvius will be "corrupted" into the vernacular:

> [. . .] Indeed, whether you say *muresille, bosel, boyeau* or thorus, you must always remember one of them; stylobate, or pedestal, plinth, *schotie* or *trochille*, base, *spire*, column, diameter, capital, *epistilie* or architerave, *zophore* or frieze, *cimatie, corone, scime, fastigie* or pediment, all these will keep Vitruvius's name; however, since it is in language's nature to transform Petrus into Peter and Paulus into Paul, I will corrupt these also in this way to accomodate you.[21]

In other words, Coecke consciously uses the act of translating to introduce a new vocabulary into Netherlandish architectural practice. To put this into perspective, we might mention a contemporary French example. In keeping with the interest in the French lexicon (as opposed to the Latin and Italian) evidenced by the French intellectual elite of the time, Jean Martin (c.1507-c.1553), the French translator of Vitruvius, Leon Battista Alberti (1404-1472), and also of Serlio, in the 1540s and 1550s consciously 'Frenchified' the terminology of these texts, thus ennobling the language of the craftsman.[22]

A case in point may be found in the translation of the keyword "architecture" (*architettura*) in the title of Book IV, and its corollary, the term "architect." Both the 1539 Flemish translation and the *Inventie* present the neologisms *architectuer* and *architect* to the public. While the related Latin term *architectus* was used frequently in fifteenth- and sixteenth-century contracts in the cities of the Low Countries, the more abstract *architectura* was not.[23] In this Coecke only makes a small nod to the craftsmen of his time: the 1549 Flemish translation of Book

overgesedt, behalven de namen van allen porceelen, der basen, capiteelen, cornicen etc. die en hebbick niet verduytst, hoe wel dat Bastiaen byde vocablen Vitruvij de geuseerde moderne vocablen van Italien sedt, der welcker wij sommige so qualijck verstaen souden als de Latijnsche; waeromme dat ick prijsen soude, angesien dat wij dees maniere van Vitruvio in scrifte ontfangen hebben, datmen hem der namen Vitruvij gewende, op dat de gheleerde vanden werkcman ende de werckman vanden geleerden verstaen worden (Coecke van Aelst, *Reglen van metselrijen*, fol. A i v).

[21] "[. . .] want oft ghy muresille/bosel/boyeau oft thorus segt, altijt moet ghy dier een onthouden, stilobate, oft pedestal, plinthe, schotie oft trochille, base, spire, colonne, diametre, capitel, epistilie oft architrabe, zophore oft phrise, cimatie, corone, scime, fastigie oft frontispicie, dese alle laten sij de namen Vitruvij houden, wtgehnomen datse ghelijck der tonghen aert is, van Petrus Pierre, van Paulus Pol maken, alsoo dat ickse om v te believen in dier manieren oock corrumperen sal (Coecke van Aelst, *Generale reglen der architecturen*, fol. A i v).

[22] Carpo, "Problèmes de la traduction"; Lemerle, "Jean Martin"; Carpo, "Traduction française"; Occhipinti, "Letterati francesi."

[23] Hurx, "Architecten en gildedwang."

IV has a more accessible title, where the more current Flemish term of *metselrije* (masonry) is used, a common pars pro toto for *overbouwmeesterie* (the art of building) (figures 9.1-9.2). Documents show that by the end of the century, the new term had been accepted into everyday language. The Bruges master mason Charles De Beste (active 2nd half of the sixteenth century), for instance, cannot be said to belong to the avant-garde, but he used the term in the title of his imposing, 578-folio compilation *Architectura. Dat is Constelicke Bouwijnghen huijt die Antijcken Ende Modernen* (1596-1600).[24]

He might have been inspired by Hans Vredeman de Vries's (1527-after 1606) 1577 treatise on the Five Orders *Architectura Oder Bauung der Antiquen auss dem Vitruvius, woellches sein funff Columnen orden*; Vredeman also styled himself *architector* in his 1583 series *Thuscana,* on the Tuscan Order.[25] Vredeman uses the Latin form of the term in his peculiar German/Flemish. In the German language, it does not seem to have been used very frequently before its appearance in the title of Coecke's 1543 translation of Book IV, where it constitutes a significant mark of novelty. The earlier text against which Coecke sets off his translation—Albrecht Dürer's (1471-1528) treatise on fortification, does not treat the newly invented architectural ornament in the antique manner—neither does it showcase Vitruvian terms in the title, nor do Dürer's other written works.[26] Among Coecke's German contemporaries, the Vitruvius translator Walther Hermann Ryff (1500-1548) (Gualterius Rivius) and the author Hans Blum (c.1520-c.1560) are amongst the few to do so, the former in the title of his treatise on the auxiliary disciplines of architecture and the latter in the title of his book on Antique columns.[27]

The terms *architecte* and *architecture*, introduced into the French-speaking parts of the Low Countries through the 1542 French translation of Book IV, are present in Robert Estienne's (1503-1559) popular lexicon, the *Dictionnaire françois-latin contenant les mots et manieres de parler Français tournez en Latin* published in Paris in 1539 (1541) (see figure 9.3).[28] They also turn up in the ti-

[24] Royal Library of Belgium, Brussels, MS II 7617. See Heuvel, "Onbekend architectuurtractaat" and "Vitruvianisme in de Nederlanden."

[25] Fuhring, Luijten & Scheffer, *The New Hollstein*, vol. XLVIII, 56-85; 94-102.

[26] Dürer, *Etliche Underricht*. See also his *Underweysung der Messung*: *baumeister*, *bauleut* (sic), *gebeu*, *steinmetz*, etc., are traditional terms. See Hemfort, "Albrecht Dürer"; Günther, "Théorie de l'architecture," 497-8.

[27] Walther Ryff, *Unterrichtung zur rechtem Verstandt der Lehr Vitruvij*; Blum, *Kunstreych Buch*. See Dann, "Walther Ryff," 83-4; Schildt-Specker, "Hans Blum"; Günther, "Théorie de l'architecture," 503-5, 507-8.

[28] Estienne, *Dictionnaire françois-latin*, 44: *Architecte, Architectus, architecti, Architecton, architectonis. Architecture, Architectura, architecturae, Architectonice, architectonices.*

tle of the Italian/French, authorized edition of Serlio's Book I by Martin (Paris, 1545). Serlio was aware of the pitfalls of translation, as shown by his address to the Reader at the end of the equally bilingual edition of Book II, published in the same year:

> Whereas I have seen and understood that my work pleases the people of France and other nations; having had these two books translated into French, accompanied by the Italian [original], and wanting to pursue this work with the three other books which are in my hands, to keep order I am having my third [book] on antiquity and my fourth on the general rules [of the orders] translated by the same hand so that all follow a single stile, and will not be alterated as to their illustrations nor in their language.[29]

The subtle sneer in this preface is actually addressed to Coecke, and refers to his unauthorized translations. Coecke's achievement in this area may nevertheless be measured when compared to the numerous errors made by the unknown French translator of Diego de Sagredo's (c.1490-1528) *Medidas del romano* (Toledo, 1526), one of Coecke's source texts; the translation was published in Paris by Simon de Colynes (1480-1546) some time in the early 1530s as *Raison d'architecture antique, extraite de Vitruve*. While adding new images to the rudimentary ones of the original the translator botched essential passages on the different *genera* of the orders, to the point that both his knowledge of Spanish and of his putative mother tongue (French) may be questioned.[30] Other contemporary evidence of the problems faced by these early translators may be found in the French Vitruvius excerpt of the Kasseler Codex Fol. A45, possibly written by the Frisian painter Herman Postma (1512/1514-before 1588) in the early 1530s after Sagredo, possibly also connected with the early Vitruvian studies by the noted French Humanist Guillaume Philandrier (1505-1565): errors, repetitions, and nonsensical passages abound.[31]

One might wonder where oral transmission of knowledge, proper to the world of crafts, stands in this. The technical vocabulary for masonry and carpentry found

[29] "Or pour autant que j'ay veu & congneu que mes travaux sont agreables aux hommes de la France & pareillement a d'autres nations, ayant faict traduire ces deux livres en la langue Francoyse, accompagnée de l'Italienne, & voulant poursuyvre en cest sorte les trois autres qui sont en mes mains, je faiz pour garder l'ordre traduire d'une mesme main mon troisiesme des antiquitez & mon quatriesme des reigles generales, afin que tous suyvent un seul stile, & qu'ils ne soient desguisez de figures ny de langage.(Serlio, *Primo libro d'architettura*, Postscript, fol. 73v-74). See Carpo and Sankovitch, "Jean Martin."

[30] Lemerle, "Version française"; Richards, "Raison d'architecture."

[31] Museumlandschaft Hessen Kassel, Graphische Sammlung. Günther, *Studium der antiken Architektur*, 205, 358-9, and "Herman Postma"; Lemerle, *Annotations*, 14-5.

in accounts and contracts does not appear in these published texts. A rare exception to this statement may be found in the aforementioned encyclopaedic treatise produced by De Beste. In Book II on Geometry, the basis of all Architecture, De Beste identifies his sources only partially: Serlio's Book I and II but also the *Unterweysung der Messung* by Dürer, as is to be expected. A significant part, however, must come from the oral, late Gothic tradition still very much alive on the main construction sites. In ninety-nine examples he demonstrates the "art of using the compasses" by drawing complicated tracery patterns for arches (*boghen ofte verwelffsels*), followed by fifteen rectangular fields which may be used for parapets (*bostweeren*) or below the windows in the façade (*onder die veijnsteren in viercante percken*).[32] He finds the need, however, to write a detailed explanation for the procedure in each example, similar to the commentaries he attaches to the illustrations cribbed from Serlio, Vredeman and Blum in Book V on Architecture. Most of the vocabulary used to denote the elements of the rich tracery adorning the 'modern' Gothic of the sixteenth century has not been transmitted to our time. By the sixteenth century, it was mixed in nature as shown by the terms used in the contract for the (lost) sacrament tower of St Gommarus at Lier (1536).[33] Words such as *chambrants* are of French origin while *vullingen* (literally, "filling") is obviously Flemish; likewise, *harnassche* (tracery fill-in) may be contrasted with *arketterie* (little arches) in De Beste but also in the accounts of the court chapel on the Coudenberg dating from the 1520s, for instance.[34] De Beste's *ijnckel arket* (simple arch) is a small trilobed arch inscribed in a semi-circle, the *dobbel arket* (double arch) is, similarly, a trilobed arch superposed with its counter-curve or accolade arch; the basic forms of flamboyant tracery have expressive appellations such as *visch blaese* (swim bladder), *eij* (egg), *peere* (pear) and *heerte* (heart).

. . . and Images

Serlio's Book IV constituted a milestone in the genesis of the modern illustrated architectural manual (see figure 9.4). In its systematic juxtaposition of text, plan and elevation on the same page it was indebted to Dürer's treatise on military architecture (Nuremberg, 1527) and could be compared to innovative scientific texts such as Andreas Vesalius's (1514-1564) *De humani corporis fabrica* (Basle,

[32] Royal Library of Belgium, Brussels, MS II 7617, fol. 80v-85v, 92 (new folio numbers). Drawings of arches numbered 1 to 91/307 to 398 and 107 to 114/414-421; drawings of parapet panels numbered 92 to 106/399-413 (sic, with error); comments on fol. 86-91v.

[33] Kavaler, "Renaissance Gothic," 233.

[34] Algemeen Rijksarchief, Brussels, *Rekenkamer* 27399, fol. 45v-46, 7 February, 1535 [1536].

1543).[35] To a certain extent, the image itself carried its own message; for a very long time it remained the chief instrument for transmitting architectural knowledge.[36] For late sixteenth-century artists, even including those with some measure of literacy, the image was paramount, which explains the far-reaching success of Vredeman's print production inside and outside the Low Countries.[37] His aforementioned 1577 treatise *Architectura* is only sparingly provided with text, and most of his series—barring a dedication or summary *Totten leser*—not at all. The geometrical information showing the proportional rules and/or measurements, the images of columns, bases and capitals, especially in orthogonal projection, offered sufficient information for the well-trained craftsman to create these components with some accuracy (see figure 9.5). The ability to handle compass, ruler and square was essential for any would-be architect, whether professional or dilettante. Coecke thus found it necessary to translate also Serlio's Book I on geometry (it was published posthumously by his second wife Mayken Verhulst (1518-1599) in 1553). The subtitle of Jean Bullant's (c.1515-1578) *Reigle generalle d'architecture des cinq manieres de colonnes* (Paris, 1564), does not leave room for doubt: *Au prouffit de tous ouvriers besongnans au compas et a l'esquierre*, "for the good of all men who work with compasses and square."[38] We might add that in order to understand and apply the finer points of proportioning the column orders, a certain level of numeracy was also required.[39]

Nevertheless, while familiarizing a broad section of the professional world with the elements of Antique architecture, such images did not explain clearly how a more complex composition such as a façade with superposed orders could be made properly. Even when boringly repetitious, text passages played an essential role in transmitting that information. Coecke tellingly sounds a note of caution in his Preface to Book I. While such a book might be deemed superfluous, he says to the Reader, it is sorely needed while "most of our artisans content themselves with the outer appearance and do not pay any attention to the correct proportioning (*simmetrien*) of the work"; for the discerning art lover the result looks very confusing, and that is certainly a pity in works which as to their finishing, might even be preferred to Italian ones.[40]

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35 Hart, "Representation of Architecture"; Rosenfeld, "Sebastiano Serlio's Contributions"; Carpo, *Architecture in the Age of Printing.*

36 Zerner, "Du mot à l'image"; Carpo, "Printed Images, Ancient Models."

37 Borggrefe, Fusenig & Uppenkamp, *Tussen stadspaleizen en luchtkastelen*; Borggrefe & Lüpkes, *Hans Vredeman de Vries*.

38 Pauwels, "Serlio et le vitruvianisme français," 413, 439.

39 Carpo, "Drawing with Numbers."

40 Coecke van Aelst, *Geometrye*, fol. A i v: "[…] midts dat ick sie dat hem den meestendeel van

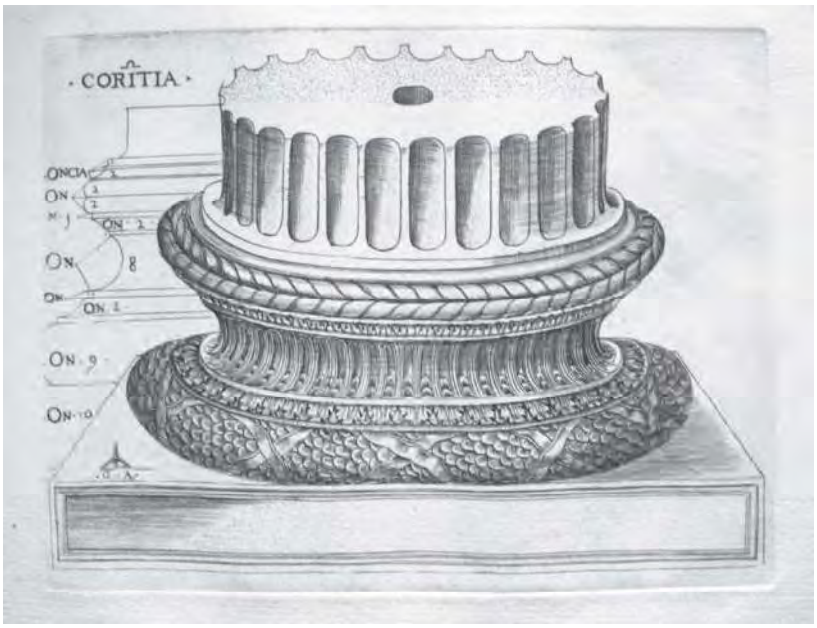


Figure 9.5. Master G.A. ("with the calthrop") corinthian base, 1530s. © *Private collection, Paris*

Multilingual Options

From the 1530s onwards the new technical vocabulary was mastered not only by the practitioners of "antique works" (*anticse wercken*) but also by their patrons, the urban élite and the Court, who were multilingual by definition. Architecture interested both the patron and the architect, as is borne out by the titles of Coecke's Serlio translations. Mary of Hungary, to whom the French translation of Book IV is dedicated, was a patron interested in works *qui rememorent choses anticques & authenthicques* ("which reflect antique and authentic, i.e. excellent or laudable things"), as Coecke's preface has it; her library inventory conserved at Simancas indeed mentions several editions of Vitruvius in Latin, French and Italian, an edition of Alberti in French and Latin, as well as several versions of Serlio's books (including those of Coecke).[41] The gentleman architects to whom

onsen werck lieden, alleene metter handelingen laten genoegen, ende lutter daer op achten, oft huer wercken met rechter simmetrien gemaect zijn, dat welcke nochtans seer confuys es voer die verstandige te siene, in sulcken sonderlingen wercken, dewelcke aengaende der handelingen, bijna den Italiaenschen souden mogen voorgesedt worden."

[41] Lemaire, "Bibliothèque des imprimés"; Gonzalo Sánchez-Molero, "Biblioteca de María de Hungría."

Vesalius compares the physicians of his time—they who stand by, ordering their servants to do manual work—also mastered several languages, and according to contemporary sources, this ability was widespread throughout the Netherlandish population.[42] This might explain why there is no Coeckian equivalent present on the Antwerp markets of the seventeenth century. Peter Paul Rubens (1577-1640) chose to write the preface to his collection of model façades *Palazzi di Genova* in Italian, and used Italian and French to correspond with Constantijn Huygens (1596-1687) on architecture.[43] The élite's polyglot nature is acknowledged by the painter and court architect to the Infanta Isabella of Spain (1566-1633), Jacques Francart (1583-1651), in his model book *Premier Livre* (Brussels, 1617). Eighteen full-page illustrations show gate designs inspired by Michelangelo in plan, elevation and profile, and accompanied by short commentaries in Latin, French and Flemish (see Fig. 9.6).[44]

For new, original Dutch translations of the newest Italian and Latin source texts seventeenth-century Amsterdam was the nexus. Its book market saw the first appearance of Jacopo Barozzi da Vignola's (1507-1573) *Regola delle cinque ordini* (Rome, 1562) in a five-language version of 1619; Book VI of Vincenzo Scamozzi's (1552-1616) *Idea dell'architettura universale* (Venice, 1615) as *Grontregulen der bowconst* by Cornelis Danckerts van Sevenhoven (1603-c.1653) in 1640; Book I of Andrea Palladio's (1508-1580) *Quattro Libri* (Venice, 1570) also in a translation by Danckerts in 1646, with the title *Verhandeling van de vijf orderen der Bouw-konst*; Book III of Scamozzi's *Idea* as *Het Voorbeelt der Algemeene Bouwkonst van Vincenzo Scamozzi, Bouwmeester van Venetie* in 1658; a deluxe edition of Books III, VI and excerpts of Books V, VIII and X as *Bouwconstige wercken* by Cornelis's son Dancker Danckerts (1631-1666) in 1661, with illustrations after the original copperplates the latter had acquired in Venice in 1655; and numerous re-editions, the convoluted history of which cannot be chronicled here.[45]

The translation of Vignola—in the popular augmented 1602 Roman edition with additional plates—fit in with the Michelangelo revival which swept across Italy, France and both the Southern and Northern Low Countries at the turn of the

[42] For instance, according to the well-known humanist and doctor of medicine Johannes Goropius Becanus, who collaborated on the *Biblia polyglotta*. See the contribution of Toon van Hal to this volume.

[43] Rubens, *Palazzi di Genova*; Rott, *Palazzi di Genova*; Lombaerde, *Reception*; Ottenheym, "Correspondentie," and "La vera simmetria."

[44] Francart, *Premier livre*. See Vos, "Premier livre d'architecture," and *Jacques Francart.*

[45] Ottenheym, "Zuilenorden," 26-9, and *Schoonheid op maat*, ch. III, "*L'idea dell'architettura universale* in Holland," 60-103, especially 69-71.

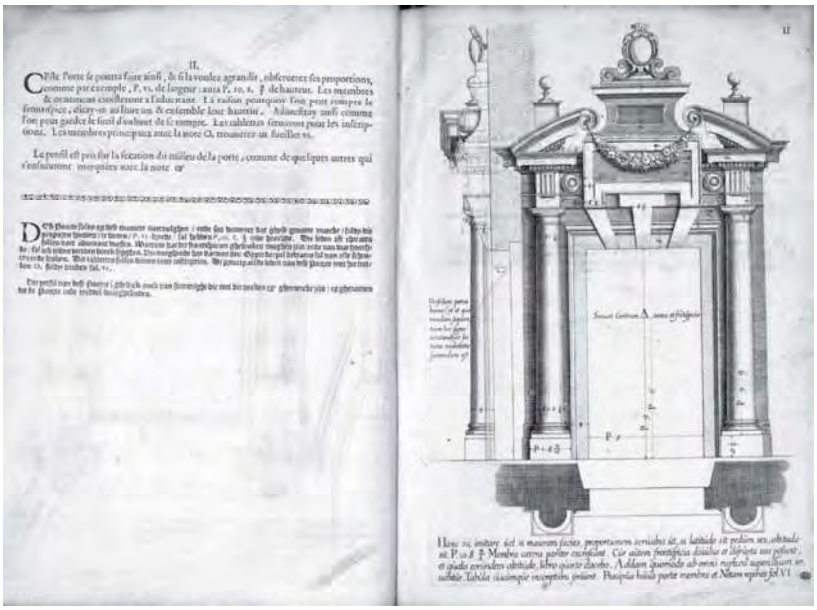


Figure 9.6. Jacques Francart, Premier Livre (Brussels, 1617), Plate II: Michelangelesque portal design with commentary in Latin, French and Flemish

century.[46] As the original has almost no text, there were hardly any problems with the translation. The Palladio translation comprised only a fragment of Book I, with the ever-relevant system of the five column orders, and it was taken from the French. Indeed, the plates of this treatise are models of clarity—even readers with no Italian could use the Venetian, 1570 original.[47] Together with the numerous Scamozzi interpretations, Palladio's work underpinned the new Dutch Classicism born in the late 1620s and promoted by Huygens at court and amongst the intellectual élite.[48] In this milieu, a renewed interest in Vitruvius was also to be expected, as evidenced by the following example. At Huygens's initiative, the (lost, probably never completed) Vitruvius translation made by Johan Brosterhuisen (1596-1650) in 1642 would have constituted the foundation of a manual for the new

46 Ottenheym, "Architectura moderna."

47 According to Lemuet, *Règle des cinq ordres*. A rare translation of all four books that once belonged to the architect Philips Vingboons is in the Leiden University Library. See Ottenheym, "Palladio's Quattro libri," and *Schoonheid op maat*, 9, 69.

48 Ottenheym, "Correspondentie," "La vera simmetria," "Zuilenorden," and *Schoonheid op maat*, ch. III.

style, also incorporating a Dutch translation of Sir Henry Wotton's (1568-1639) *The Elements of Architecture* (London, 1624).[49]

Scamozzi's enduring success as guide to Antiquity in the Dutch Republic was actually due to a happy coincidence. At the author's death in 1616, the famous Flemish engraver Justus Sadeler (1583-1620) bought the remaining stock of Scamozzi's treatise—all 670 copies, 6 lires apiece—and subsequently sold it to the Leiden-based Elsevier book traders.[50] This was the start of a true craze; the high number of editions testifies to the enduring success of the phenomenon, also as export to the Scandinavian and Baltic area. The same problems remained, however, as in the preceding century. The first book of the *Idea* to be translated (in 1646) naturally concerned the five column orders, the foundation of architecture. There were no cuts, the original woodcuts were copied in copper engraving (that is they appear as mirror images), and the format was quite similar. Unfortunately, the translator did not know Italian very well, provoking the Amsterdam theorist Willem Goeree (1635-1711) to this complaint in 1679: "We think it very regrettable that this great author is so sadly damaged through bad style and poor language, apart from innumerable errors which crept into the translation."[51] Also, Scamozzi's treatise was never translated fully: for the very Italian Books I, II, VII, and VIII there could be no market in the Dutch Republic, contrary to Book VI on the Orders. The expensive Danckerts' editions soon had to compete with the cheap, pocket-book sized simplified excerpts sold by Simon Bosboom (1614-1662) from 1657 as *Cort Onderwys van de Vyf Colomen,* illustrated with reduced versions of the Danckerts 1640 edition. A third player on the market, the summarized version of Book VI by Joachim Schuym, (n.d.) published in Amsterdam as *De Grondt-Regulen der Bouw-Konst* in 1662, had reduced versions of all of Scamozzi's illustrations. It was also the first to be translated in its turn into German (published by Danckerts in 1664) and into English (the 1669 pocket Scamozzi was called *The Mirror of Architecture*).[52]

[49] Ottenheym, "La vera simmetria," 143-4.

[50] Ottenheym, "Bird's-Eye View," 187-8.

[51] "Maar wij achten het beklagenswaardigh dat soo braven schrijver door slegten stijl en krepele taal, beneffens ontelbare misslagen die door d'oversettinge ingeslopen zijn, soo jammerlijcke geschonden wort." Quoted in Ottenheym, *Schoonheid op maat*, 70. Examples of badly translated terms can be found in Ottenheym, "Zuilenorden," 29.

[52] Ottenheym, "Bird's-Eye View," 193-6, "Zuilenorden," 29-39, and *Schoonheid op maat*, 72-5.

From the Universal Language of Vitruvius to the Language of the 'Nation'

In the Republic, finally, Coecke's 'universal' Graeco-Latin-Netherlandish terminology lost its value. The theorist and painter Salomon de Bray (1597-1664) meticulously sought Dutch counterparts for every Scamozzian term (in Italian *volgare*) naming every part of the column orders, as shown by the four plates added to the 1661 Danckerts's Scamozzi (see figure. 9.7). This was exactly the opposite of what Coecke had attempted to achieve, i.e. using Vitruvius as a new, universally understood platform of communication between all levels of the building world.[53] As these Scamozzi translations constituted the basis of teaching architecture in the Northern Low Countries well into the nineteenth century, their role in shaping the vocabulary of the modern architect is of paramount importance. This fact has not been sufficiently recognised, maybe because the column orders have lost all relevance to the practice of architecture today (the field of heritage conservation excepted). De Bray's work needs further study, not only with regard to its relationship with the 'traditional' vocabulary transmitted on the construction site, but also to its ties with contemporary Dutch linguistics. As a confirmed Classicist, De Bray belonged to the network around Huygens that shaped the new artistic movement; he collaborated, for instance, with Jacob van Campen (1596-1657), also a painter-architect and Huygens's principal protégé, on the *Oranjezaal* at Huis Ten Bosch, apogee of the new style.[54] Huygens's ambitions for a complete Vitruvius edition enriched with all the best previous commentaries on the most difficult points were actually realised (in Latin, not in Dutch) by the Leiden historian Johannes de Laet (1581-1649) in 1649, also known for his interest in the New World and its languages, and one of the fathers of comparative linguistics.[55]

To gauge the level of innovation of De Bray's translation, it is interesting to compare it with the terminology used by Simon Stevin (1548-1620) in his unpublished *Huysbou* of c.1605 (a part of which, *Vande oirdeningh der steden*, was included posthumously in his son Hendrick Stevin's (1613-1667) *Materiae Politicae* of 1649). Stevin consciously rejected imports such as the five column orders as the foundation of architecture, and translated even terms such as *symmetria* (pro-

53 Reproduced in Ottenheym, "Zuilenorden," 30-3.

54 In general, see Huisken, Ottenheym & Schwartz, *Jacob van Campen.*

55 Vitruvius, *De architectura*. For online copies and an interesting notice by Frédérique Lemerle, see http://architectura.cesr.univ-tours.fr/traite/, last consulted in August 2011. See Ottenheym, "Bird's-Eye View," 197 note 11, "Vitruvius-uitgave," and "Vitruvius Edition." See also the contribution of Toon van Hal to this volume.

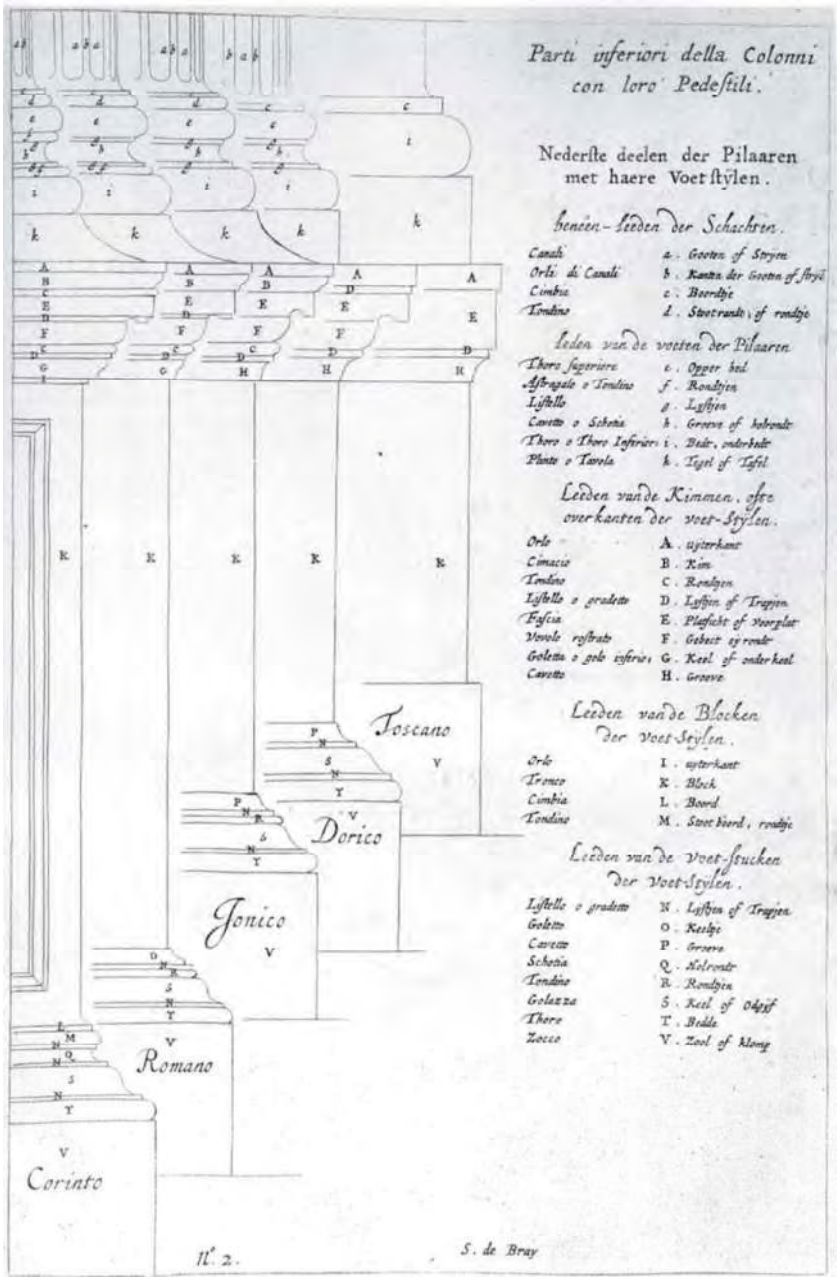


Figure 9.7. Salamon de Bray, Italian/Durch repertory for pedestals, added to the Dancker's Scamozzi edition Bouwkonstige Wercken, *Amsterdam, 1661.* © *Private collection, Amsterdam, after Ottenheym, "De zuilenorden", 31*

portion) into Flemish/Dutch (*lycksydicheyt*).[56] Nevertheless, he understood that the orders were there to stay. The appendix of "Notes on Serlio and others, concerning some debated points" to his *Huysbou* which survives only in part show that he eschews terms such as *columne* (column) and *frontispisen* (pediments) wherever he can, preferring *pilaar* (pillar) and *clock*, supposedly more Netherlandish.[57] In the chapter "On the use of columns as ornament" (*Vant gebruyck der pilaren tot cieraet*) he indeed calls such terms, which were common usage since 1539, openly "un-Dutch" (*onduytschelick*): "Thus it is known that the Ancients made these [ornaments] with features, like those known by un-Dutch [terms] as pedestal, capital, fillet, scozia, moulding, frieze and many others [. . .], from beautiful materials, artistically fashioned."[58] The "Notes" even have a little table offering a proper Netherlandish alternative for Coeckian terms, *epistilium* (architrave) becoming *opstyl*, *gymatium* or *cimatie* becoming *krop*, etc. (figure 9.2.T).[59] De Bray's terminology is so similar that it seems probable he had access to one of the circulating *Huysbou* excerpts, such as Isaac Beeckman's (1588-1637) *Journael* (1624). Huygens in any case petitioned Hendrick Stevin in 1636 to be allowed to read the *Huysbou* manuscript, and another Classicist architect of some renown, Pieter Post (1608-1669), may have had a copy (1639).[60]

Conclusion

It is to be hoped that this paper will encourage new investigation into the phenomenon of translation in Netherlandish sixteenth- and seventeenth-century architecture. Far from being a mere footnote to the main stream of events, translation from Coecke to De Bray stood at the heart of architectural thinking in the Early Modern Low Countries. As Coecke was well aware, it mirrored developments actually taking shape on the construction site, where a new repertory of

[56] Heuvel, "Stevins Huysbou," and *De Huysbou*, 39-47, 206-27. See also Stevin on Dutch as a scientific language, discussed by Matthias Schemmel in his contribution to this volume.

[57] "Aenteijckeninghen op Serlijns en anderen/ Inhoudende sommige geschillen." Hendrick Stevin, "Tytels en cortbegrypen," and "Byvough der stedenoirdening" (short titles and notes, respectively, from Simon Stevin's lost manuscript *De Huysbou*); Heuvel, *De Huysbou*, 191, 202-3, 416-31, 509-12.

[58] "Vant gebruyck der pilaren tot cieraet. So is te weten datse met haer ankleven, als 't gene men onduytschelick noemt pedestael, capiteel, rondbosel, contrabosel, lijste, freyse en veel meer ander [. . .] by den Ouden gemaeckt wierden van schoone stoffen, constelick gewrocht [. . .]" (Hendrick Stevin, "Byvough der stedenoirdening," 104-7; Heuvel, *De Huysbou*, 272-3). Heuvel's translation.

[59] Hendrick Stevin, "Byvough der stedenoirdening," 110; Heuvel, *De Huysbou*, 420-1.

[60] Heuvel, *De Huysbou*, 149-57.

Torus, Stibas, rondosel, bacalus, bastone	Bedde	Bedt, Bedde
Scotia, Cavetto, Scorza Contrabozel, Orbiculus, Trochilus	Groeve	Groef, Groeve, Holrondt
Astragalus, Talus Tondino, Talon	Pickel	Ronde, Kraagh Rondtjen
Quadra, listello tillette	Lijste	Lijstjen
Annulus	Rynck	
Collum capitulorum, Apophygis	Hals	Hals
Abacus	Disch	Tighel
Denticulus	Tandeken	Tanden, Tandeeringh
Corona	Croon	Kroon-lijst
Guttae, Clavi	Droppelen	Dropsteen, Hangende droppen
Epistilum, Archithrabs	Opstyl	Overbalck, Stijl-bindt
Temur	Die	
Canalis	Gote	Gooten, Strijen
Sima, Gutta recta	Keel	Keel, Groot of recht odgijf
Gymatium, Gula inversa	Krop	Kim, Kimme, Keel van de Kim, Onderkeel, Odgijf

Figure 9.2.T. Comparative table of architectural terms from Coecke's Flemish (1539, 1549) translation of Serlio's Book IV; Simon Stevin's alternatives; and Salomon de Bray's. After Van den Heuvel, 'De Huysbou', 420

architectural forms was being fashioned out of the confrontation between local building tradition and imported antiquity. It was part of a uniquely creative phenomenon.

Authorship and the Identity of Translators

Making 'The Good Old Man' Speak English: The Reception of Antoni van Leeuwenhoek's Letters at the Royal Society, 1673-1723

Felicity Henderson

The Fellows who attended the meeting of the Royal Society at Gresham College on Thursday 15 November, 1677, were among the first Englishmen to witness an astonishing sight. In a preparation of rain-water infused with "common black pepper", they saw:

> great numbers of exceedingly small animals swimming to and fro [...]. Their shape was to appearance like a very small clear bubble of an oval or egg form; and the biggest end of this egg-like bubble moved foremost. They were observed to have all manner of motions to and fro in the water; and by all, who saw them, they were verily believed to be animals [...]

The record of the meeting reports that the tiny animals were seen by nine Fellows (named in the minutes) "and divers others", adding, "so that there was no longer any doubt of Mr Leewenhoeck's discovery."[1]

The Fellows had been alerted to the existence of these micro-organisms nine months previously by the Dutch microscopist Antoni van Leeuwenhoek (1632-1723). On 1 February 1677:

> There was read part of a very long letter of Mr Leewenhoeck to Mr Oldenburg, dated at Delft, 9th October, 1676, which had not been produced before, because it could not be sooner translated into English out of the Low Dutch language, in which it was written. The contents thereof were a great number of observations made by Mr Leewenhoeck with his microscope, concerning certain little animals found by him in vast quantities in common water, snow water, well-water, and such water, wherein several sorts of spices had stood infused.

[1] Birch, *History*, vol. III, 352.

When the Fellows received a further letter on the topic in April 1677 they were spurred on to search for the little animals themselves. As we have seen, their discovery vindicated Leeuwenhoek's observations.[2]

Leeuwenhoek's correspondence with the Royal Society spanned fifty years, from 1673 until his death in 1723. During this time he sent nearly two hundred letters to the Fellows, almost all written in his native Dutch. His correspondence as a whole represents the largest and longest-running translation project undertaken by the early Royal Society. It was not at all straightforward. This article will discuss the reception of Leeuwenhoek's letters at the Royal Society. The first section will identify the translators, examining their connections with the Dutch Republic, why they were asked to act as translators, and their approach to the task. The second section will look more closely at the Royal Society's use of the letters, and consider the extent to which Leeuwenhoek's correspondence might be seen as illustrative of the Society's information-processing practices more generally.

The Translators of Leeuwenhoek's Letters to the Royal Society

Leeuwenhoek is well-known as an early microscopist. In addition to providing the first descriptions of protozoa and other micro-organisms, he examined a huge variety of animal, vegetable and mineral structures. His letters to the Royal Society described his work, and were often accompanied by detailed drawings. In response to his enormous contributions to microscopy the Society elected Leeuwenhoek a Fellow in 1680, probably at the instigation of Robert Hooke (1635-1703). Despite a good deal of interest in Leeuwenhoek from historians and scientists from the 1930s onwards, little attention has been given to the social and textual practices that enabled the early Fellows to read and discuss the Dutch microscopist's work.[3]

As the extract cited above suggests, there were inherent difficulties in Leeuwenhoek's correspondence with the Royal Society. His letters were usually very long—often between ten and fourteen folios in the 1680s—and, with a few exceptions, were written in Dutch. Leeuwenhoek himself expressed doubts about the correspondence at its outset, claiming that he had "no style or pen" with which to express his thoughts. He explained that he had been educated for trade rather

2 Birch, *History*, vol. III, 332.

3 English scholarship on Leeuwenhoek can be said to have begun in 1932 with Dobell, *Antony van Leeuwenhoek*. It has been greatly advanced since 1939 by the magisterial publishing project of Rijnberk et al., *Alle de brieven*, printing Leeuwenhoek's letters with new English translations. An important precursor to the current article is Palm, "Leeuwenhoeck and Other Dutch Correspondents."

than in languages or the arts, and was wary of getting involved in philosophical arguments in which he felt he would always be at a disadvantage.[4] This was perhaps merely a rhetorical stance though: once he was assured of the Society's interest in his work he proved to be keen to communicate it to them. His language, however, remained problematic. As we shall see, his early-modern translators routinely complained about the complexities of the letters; his twentieth-century translators have described his style as "obscure [...] using remarkable and peculiar expressions."[5]

Dutch was Leeuwenhoek's only language, as he stated several times. Although this article is mainly concerned with the Royal Society's end of the correspondence, it is clear that Leeuwenhoek also encountered problems. Early on he asked the Society to write to him in French or Latin rather than English, since he could more easily find a friend to translate these languages into Dutch. He explained that although in his home country "Englishmen can be found everywhere [...] not all are able to translate the *Transactions* from English into Dutch." He had asked the precentor of the local English church to translate his own work, printed in English in the Royal Society's journal the *Philosophical Transactions*, back into Dutch. The resulting text "was so badly put that I could not make sense of it." His point seems to have been that although there were plenty of potential English to Dutch translators available, in the specialist field of experimental philosophy some understanding of the subject matter was crucial for a lucid translation. With the help of a Dutch-English dictionary Leeuwenhoek did manage to follow some of the *Philosophical Transactions*. In July 1676 he wrote to Robert Boyle (1627-1691) to say that he had used a dictionary to read an account of one of Boyle's experiments, and he went on to describe his own observations after repeating Boyle's procedure.[6]

At the Royal Society's end of the correspondence there were always men available to translate from the Dutch, but as we shall see they were not necessarily familiar with the subject matter, linguistically competent, or closely associated with the Society. A translation was essential—reading the letters at meetings in their original language, as happened occasionally with French papers, and more regularly with Latin, would not have been possible. Leeuwenhoek must have realised that the Society had difficulty with his letters. He occasionally explained a Dutch term, and in 1677 he suggested that as the Society's secretary, Henry Old-

4 Rijnberk et al., *Alle de brieven*, vol. I, 43-4.

5 Rijnberk et al., *Alle de brieven*, vol. I, 13.

6 Rijnberk et al., *Alle de brieven*, vol. I, 337, 343; vol. II, 45, 377. The letter to Boyle is also printed in Boyle, *Correspondence*, vol. IV, 416-25.

enburg (c.1617-1677), was having trouble finding time to translate his letters, he would accept the offer of "a gentleman friend" to translate them into Latin. Thus he sent three letters with an accompanying Latin translation in 1677, but he does not seem to have done so again until 1714, despite promising to renew the practice in 1693. Even when he had a Latin translation made, he continued to send his own original Dutch letter alongside the Latin version. In this way he maintained his originating authorial presence in his correspondence rather than allowing his discoveries to be interpreted to the London Society through the words of another. The fact that Latin letters did not continue to be sent might reflect his desire to maintain control over the information sent, or it may simply have been a matter of convenience.[7]

Leeuwenhoek initiated his correspondence during an auspicious period for such activities. He was introduced to Oldenburg, the Royal Society's first Secretary, by the Delft physician Regnier de Graaf (1641-1673). Oldenburg was an extremely active Secretary and corresponded with a vast network of informants and philosophers on the Society's behalf. He also founded the *Philosophical Transactions*, in which extracts from many of the letters he received were printed. Born in Bremen and fluent in several European languages, Oldenburg had lived briefly in Utrecht in 1641, before relocating to London. Twenty years later he returned to the Netherlands and visited friends in Amsterdam, Leiden and The Hague. He corresponded with several Dutch men, including Christian Huygens (1629-1695) and de Graaf (both of whom wrote in Latin or French). In Oldenburg, Leeuwenhoek found a diligent correspondent who responded regularly and encouraged the Dutch microscopist to continue writing to the Society. Oldenburg certainly translated some, and probably all, of Leeuwenhoek's early letters himself. L. C. Palm has pointed out that although Oldenburg did not routinely read Leeuwenhoek's letters at meetings of the Society, he did regularly print extracts from the letters in English in the *Philosophical Transactions*, ensuring that the Dutch microscopist's important discoveries were advertised to the philosophical world. Oldenburg's main problem, as Leeuwenhoek himself realised, seems to have been finding the time required to translate such long texts.[8]

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7 Rijnberk et al., *Alle de brieven*, vol. II, 37, 379 (explanations of Dutch terms); 207 (Latin translations).

8 For the extent of Oldenburg's correspondence, see Oldenburg, *Correspondence*; for an example of Oldenburg's own translation of Leeuwenhoek's letters, see Leeuwenhoek, "Microscopical Observations"; for Palm on Oldenburg, see Palm, "Leeuwenhoek and Other Dutch Correspondents," 195. Oldenburg did not mention receiving Leeuwenhoek's letters, unlike later secretaries.

Things would probably have continued in this vein had the Royal Society not suffered a dreadful blow in September 1677 with the death of Oldenburg. Two new secretaries were elected, Nehemiah Grew (1641-1712) and Robert Hooke; but as with other aspects of the Society's business, the correspondence ran rather less smoothly without Oldenburg. Both Grew and Hooke would have found the subject-matter of Leeuwenhoek's letters fascinating. Grew was a medical doctor who studied plant structure and physiology; Hooke was the Society's leading microscopist. Unfortunately, neither man could translate Leeuwenhoek's letters.[9]

That is not to say that they were unwilling to try. Hooke had begun learning Dutch in the early 1670s with his lodger Richard Blackburne (d.1716), and he owned dictionaries and grammar books. He was interested in languages and embarked on a number of informal translation projects alone and collaboratively with friends. The minutes of Royal Society meetings do occasionally suggest that Hooke was doing his own translations of Leeuwenhoek's letters. In 1680, for example, we find one letter described as "translated by Mr Hooke", and another produced at a meeting with the comment that Hooke "had translated the sense of it into English." Later the same year "Mr Hooke produced a long letter lately received by him from Mr Leewenhoeck. It was written in Low Dutch; but the contents of the several headings were read by Mr Hooke. It was desired, that the said letter should be translated and answered." Taken together, these notes suggest that Hooke was able to understand the essence of Leeuwenhoek's letters, but was not really proficient enough to provide a full translation.[10]

Hooke's memoranda, in which he recorded his daily activities (in a very truncated fashion), shed further light on his attempts at translation. Several entries for January 1678 mention Leeuwenhoek. For Sunday 13 January, Hooke wrote "At home till 5 post prandium. Haak translated Lewenhook. To Jonathans." The following day mentions " Haak, Leewenhook", and the next day, again at Jonathan's,

[9] It has been suggested that Hooke's *Micrographia* inspired Leeuwenhoek to begin his own observations (Ford, "Comment"). He was certainly aware of Grew's work (Rijnberk et al., *Alle de brieven*, vol. II, 5). Grew submitted his doctoral dissertation at Leiden University in 1671 (Hunter, "Grew"), but it is unclear how long he spent in the Netherlands and there is no evidence that he could speak Dutch.

[10] Blackburne, a physician, took his MD at Leiden University in 1676 (Parkin, "Blackburne"). For Hooke's translating activities, see Henderson, "Hooke's Archive," esp. 107; and Birch, *History*, vol. IV, 26 (11 March, 1679/80), 32 (1 April, 1680), 56 (11 November, 1680). Royal Society Archives EL/L3/2 is a translation of a letter from Leeuwenhoek dated 5 April, 1697, written in Hooke's hand, suggesting that he may have become more proficient in Dutch over the years. Two further partial translations in Hooke's hand appear at Royal Society Archives EL/L2/38 and EL/L2/40. These translations, dated June and August 1692 respectively, were clearly once part of Hooke's own archive.

Hooke apparently "translated Lewenhook, discoursd 1st of Genesis with Lodowick, Spencer and Crawley."[11]

Apart from revealing the extent of Hooke's coffee-house habit, these entries show that he called upon his good friend and frequent chess-partner Theodore Haak (1605-1690) to help him with Leeuwenhoek's letters. Haak was born in Germany but studied in Oxford and in the Netherlands, where he matriculated at Leiden University in 1638. Later that year he settled in England, becoming a close friend of Samuel Hartlib (c.1600-1662). Much of his time was occupied by translation work—the Westminster assembly commissioned him to translate *The Dutch Annotations upon the Whole Bible*, which had been published in the Netherlands in 1637. Haak's translation appeared in 1657. He was also the first to begin translating Milton's (1608-1674) *Paradise Lost* into German, although his translation was never published and was not completed. He was a Founder Fellow of the Royal Society. In terms of scientific interests, his main activity at the Society was along Hartlibian lines, communicating information sent to him by his various German correspondents; he also contributed a very popular paper on the farming of oysters at Colchester.[12]

Haak's usefulness to Hooke was certainly based on his proximity (the two men met weekly during this period), and his knowledge of the Dutch language, rather than familiarity with the subject matter of the letters. This appears to be the only point at which Haak was called upon to translate Leeuwenhoek, and then only in an informal manner at the request of Hooke rather than the Royal Society as a body.[13]

Hooke's memoranda show that Haak was not the only friend he called upon for assistance with translation work. In March 1678, he noted "letters from Leeuwenhooke, got Mr Lodowick to read them" and again in May "Received Leeuwenhoeck letters. Lodowick Read them." Francis Lodwick (1619-1694) was another close friend of Hooke's, sharing with him an interest in language, and in particular the project to create a universal language. Lodwick wrote extensively on language-planning, and was the first to publish an English proposal for a real char-

[11] Hooke, *Diary*, 340.

[12] For Haak's translating activities and library, see Poole, "Fragment of the Library"; for biographical details, see Barnett, *Theodore Haak*; for Haak's paper on oysters, see Royal Society Archives Cl.P/15i/4.

[13] Haak's involvement was possibly due to the fact that Hooke had decided to publish two of Leeuwenhoek's letters in his *Lectures and Collections*, to Leeuwenhoek's subsequent disapproval (Rijnberk et al., *Alle de brieven*, vol. II, 361).

acter. He also formulated a Dutch shorthand system, which remained unpublished in his own day.[14]

Lodwick was born in London, but his mother's family were French and his father had moved to London from Flanders. The family were reasonably prosperous merchants and prominent members of the London Dutch church in Austin Friars. Francis traded mainly in cloth to the continent, with mercantile contacts in Ghent, Dort, Bremen, Hamburg, Lille and Amsterdam. He seems not to have studied at a university, but his library catalogue shows that he read widely and had philosophical interests. He was part of Hooke's inner circle of friends, and it is a measure of Hooke's approval that Lodwick was the only non-Royal Society Fellow to be invited by him to join his breakaway "philosophical club", instituted during a period of disenchantment with the Royal Society. In addition to his familiarity with the Dutch language, Lodwick's mercantile contacts were useful for Hooke. In April 1678 he noted that he had sent his recently published *Lectures and Collections* to Leeuwenhoek via Lodwick.[15]

Lodwick was finally elected a Fellow of the Royal Society in November 1681. Shortly before this he had presented to the Society a copy of his newly printed translation of Jan Swammerdam's (1637-1680) *Ephemeri Vita*, entitled *Ephemeri Vita;* or *The Natural History and Anatomy of the Ephemeron* (London, 1681). Swammerdam's book had been printed in Dutch at Amsterdam in 1675, and it is probable that Hooke had suggested a translation to Lodwick. Lodwick was no entomologist, but the translation may have been a collaborative effort, as the book was published with a preface by the physician and comparative anatomist Edward Tyson FRS (1651-1708), another associate of Hooke's.[16] Hooke and Lodwick collaborated on further translation work over the years, including an account of Fëdor I. Bajkov's (c.1612-c.1663) travels in China, and Cornelis Bontekoe's (c.1644-1685) *Tractat van het Excellenste Kruyd Thee* (The Hague, 1679).[17]

Entries in the Society's journal books and surviving translations written in Lodwick's distinctive hand show that he was again called upon to translate some of Leeuwenhoek's letters from around 1685 and into the early 1690s. As he had

[14] Hooke, *Diary*, 349 (18 March, 1678), 360 (25 May, 1678). For seventeenth-century language projects, see Lewis, *Artificial Languages*. For Lodwick, see Lodwick, *Language, Theology and Utopia*; and Henderson & Poole, "Library Lists."

[15] Hooke, *Diary*, 199 (10 December, 1675), and passim (philosophical club); 354 (22 April, 1678, book sent to Leeuwenhoek).

[16] The preface has led to Tyson being identified as the author of the English volume, but the Royal Society Minutes name Lodwick as the translator (Birch, *History*, vol. IV, 90 [8 June, 1681]).

[17] Gunther, *Robert Hooke*, 170 (6 and 7 December, 1689), 254 (28 June, 1693). They were probably working from a German text of Bajkov's travels: Bajkov, *Anhang zwoer Reisen*.

been elected a Fellow by this stage, these later requests probably came from the Society rather than informally via Hooke. The evidence points to seven letters translated (or partially translated) by Lodwick over the period. It was not always a straightforward business. In an unattributed Lodwick holograph headed "Delft 7 March 1692", several words have been left untranslated in the margins, and Lodwick has commented rather acerbically "It were not amiss to desire m^{r} leuwenhouk to ad the latin names of those insects he mentioneth in his letters."[18] Lodwick's assistance was appreciated, though. He was mentioned in the Society's minutes as a translator (something that happened relatively rarely); he was also asked to translate Dutch letters from another correspondent, Daniel Mitz (fl. 1692) of Amsterdam, in 1692.[19]

During the same period that Hooke, Haak and Lodwick were dealing with part of Leeuwenhoek's correspondence, other letters were being translated by another Fellow, Francis Aston (1644-1715). Relatively little is known about Aston. He was educated at Westminster School and Trinity College Cambridge, travelled abroad in 1669, and later became Gentleman Usher to Queen Anne (1665-1714). He was elected a Fellow of the Royal Society in 1678 and at his death he left his Lincolnshire estate to the Society. He does not seem to have had particularly strong philosophical interests—his only contribution to *Philosophical Transactions* was "A Paper of Mr Flowers, containing some unknown Ancient Characters, with Remarks thereon by Francis Aston Esq."[20] He was an active administrator though, serving as Royal Society Secretary between 1681 and 1685, and on Council intermittently for thirteen years between 1680 and 1714. In his position as Secretary he dealt with foreign correspondence and he both received Leeuwenhoek's letters and wrote replies on behalf of the Society. He is specifically mentioned in the Society's minutes as translator of a letter from Leeuwenhoek to Hooke in February 1680. Later in the same year he is recorded as having taken Leeuwenhoek's letters and promised to translate them in time for the next meeting.[21] There are no further mentions of his involvement.

The manuscript record for the later 1690s is patchy, and identification of translators may only be possible by matching handwriting in the surviving translations (of which only seven are extant for the period 1696 to 1699, and none at all between 1692 and 1696). However it is clear that from around 1700, some or all of

18 Royal Society Archives EL/L2/34.

19 Royal Society Archives JBC/8 (1690-6), 139, 142; see Royal Society Archives EL/M2/3 for Mitz's letter and EL/M2/4 for Lodwick's translation.

20 Flowers, "Paper of Mr Flowers."

21 Birch, *History*, vol. IV, 11, 37 (where Aston has been written as "Austin"), 57.

Leeuwenhoek's correspondence was translated by John Chamberlayne (1668/9-1723). Chamberlayne studied at Trinity College, Oxford and Leiden University, where he was admitted in 1688. On his return to England he embarked on a court career as Gentleman Waiter to Prince George of Denmark (1653-1708) and later Gentleman of the Privy Chamber to Queen Anne and George I (1660-1727). He is reputed to have known sixteen languages, and published his first translations from French, Spanish and Italian while still at Oxford. Later he published English translations of Bernard Nieuwentijt's (1654-1718) *The Religious Philosopher* (London, 1718) and Geeraert Brandt's (1626-1685) *History of the Reformation* (London, 1719).[22]

We know a good deal about Chamberlayne's translating activities through his correspondence with Sir Hans Sloane (1650-1753), Secretary of the Society between 1693 and 1713.[23] Sloane had initially shown Chamberlayne translations of Leeuwenhoek's letters written by "Dr Miller" (as yet unidentified).[24] Chamberlayne, unsatisfied with Miller's translation, had pointed out errors: "thumbs" for "inches", and "Tonnetjes" translated as "barrels"

> whereas the world Tonnetje [...] signifies that change w^{ch} happens to most worms & Maggots or Mites immediatly before they become Flies, when they are wrapt up in an oblong skin or bag in the shape of a little Barrel; w^{ch} Imperfect Description will I hope, suffice, for truly the English name does not at present occur to [me ...].[25]

It is perhaps not surprising, then, that from October 1700 Chamberlayne seems to have taken over from Miller as primary translator. The first of his frequent complaints to Sloane about the difficulty of Leeuwenhoek's style runs thus:

> I found it one of the most Intricate Letters that ever I read in my Life, and that, not so much upon y^{e} Account of several words, whereof for want of Dictionary, I knew not the Signification, as of the Frequent Tautologies, Incoherent Expressions, ungrammatical & unsyntaxical Sentences without Number; many of which I took y^{e} Liberty to correct, and some I have expresily inserted for your Information, and now I am finding Fault with him, I will add one Accusation more, w^{ch} is, that if all the Expressions in that letter which are

[22] Gair, "Chamberlayne"; British Library MS Sloane 4038, fol. 30v (Chamberlayne to Hans Sloane, 3 July, 1700).

[23] A longer discussion can be found in Vermij & Palm, "John Chamberlayne als vertaler."

[24] Miller seemingly translated two letters; the manuscripts Royal Society Archives EL/L3/18 (dated 9 July, 1700) and EL/L3/20 (27 July, 1700) are in the same hand, and the latter includes corrections by Chamberlayne. Apparently uniquely among Leeuwenhoek's translators, Miller does not seem to have had any further connection with the Royal Society.

[25] British Library MS Sloane 4038, fol. 40r, 41r.

extreamly Trivial and of no Consequence were omitted, the Letter would want almost half its Length but not one Jot of its meaning.

He went on to ask Sloane to have Miller translate the letter too so that the two English versions could be compared, since he had forgotten "a good deal" of the Dutch he had learnt while studying in Leiden.[26] Chamberlayne's correspondence gives further insight into the translation process and the various competencies required to make a successful translation. He explained his difficulty with

the word *Trekker* which I have all along translated *Drawer*, not that I am satisfy'd with it, but because neither I nor my neighbour a Dutch Parson could find out a better name for it, and yet I believe there must be an Anatomical Technical word for it, of which science I am asham'd to own, I know very little.[27]

His neighbour was not the only Dutch-speaker he consulted: he requested help from the Dutch Ambassador on more than one occasion as well as "a Physician of that country."[28] With Chamberlayne we see the post of Dutch translator gain a new measure of formality at the Royal Society, though it was still far from being an official salaried position.[29] Chamberlayne himself clearly regarded the translations as work, and often rather challenging work, even if it was done in his spare time. As a professional translator and author, why would he not? Thus, at the end of the covering letter sent with his first translation, he announced to Sloane "if you continue to Employ me I expect to be bribed monthly with one of your most Ingenious Account[s] of the Royal Societie's Transactions."[30] Sloane at this time was editor of the *Philosophical Transactions*. Chamberlayne continued to receive them, writing in September 1702 to thank Sloane for an issue that completed his set for 1700 and 1701.[31] This was not the only benefit he received in return for his labours. He was elected a Fellow of the Society in May 1702, presumably as a

26 British Library MS Sloane 4038, fol. 86r-v.

27 Royal Society Archives EL/C2/41, unfoliated.

28 British Library MS Sloane 4039, fol. 396r; see also British Library MS Sloane 4038, fol. 171r-v for the comments of the Dutch ambassador, Adriaan van Borsselen heer van Geldermalsen, on Leeuwenhoek's writing style. On another occasion Chamberlayne communicated to the Society an extract of a letter to the Dutch ambassador from Paris concerning a medical preparation; he may also have been responsible for the visit of members of the Dutch Embassy, including the Secretary Willem's Gravesande (later FRS), to the Society in March 1715 (Royal Society Archives JBO/12, 51, 53).

29 There is no mention of payments made to translators in the Council Minutes for this period, though other salary payments were regularly noted there.

30 British Library MS Sloane 4038, fol. 86v.

31 British Library MS Sloane 4039, fol. 20r.

result of his Dutch translations. He seems, at least initially, to have been exempted from payment of membership dues. In 1703 he wrote to Sloane to ask how much he was in arrears, "for I am Resolved that I will not sell my small services to the Society, and especially so Dearly." He went on to make the "very Bold Request" that if his labours were thought worthy of payment, he would ask the Society to give him a set of the *Philosophical Transactions* from the beginning of Sloane's editorship (i.e. 1695) up to 1700.[32]

Chamberlayne continued to translate some of Leeuwenhoek's letters into the 1720s. That there were other, unidentified, translators at work in the meantime is apparent from the manuscripts themselves, which are written in several different hands, and also from a covering letter of Chamberlayne's sent in February 1715.

> With much Difficulty I have conquer'd the inclos'd, that is to say I have made it speak English, I wish I could say & sense too, but in Truth the Good old Man is so often wanting in that, that one is forced to guess at his Meaning; but I ought not to complain of that difficulty because I reckon I am beholden to that, for being restor'd to my office of Dutch Translator.[. . .] I accept the troublesome post with pleasure (tho' I should not be restored to my salary likewise) because it is the only way I can be Profitable to the Society.[33]

This suggests that Chamberlayne's relationship with the Society had weakened to the extent that the Fellows no longer automatically called on him to translate Leeuwenhoek's letters. Despite his words, it was not his only "profitable" contribution to the Society. He served on Council four times over the period of his Fellowship, and he regularly acted as a conduit between the Society and various foreign philosophers, some of whom he had clearly come to know through his position at the English court.[34] It may have been this position that prevented him from attending meetings, and as we have seen, proximity counted a good deal when translators were being sought.

The final translator of Leeuwenhoek's letters for the Royal Society was Sir Conrad Joachim Sprengwell or Sprengell (d.1740).[35] Sprengell was born in Leipzig and after moving to London became physician-in-ordinary to William III

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[32] British Library MS Sloane 4039, fol. 123r. If Chamberlayne was excused payment of membership fees this was an unofficial arrangement, possibly through Sloane's intervention, as he is not listed among exempt members in the Council Minutes for the period.

[33] Royal Society Archives EL/C2/41, unfoliated.

[34] See, for example, his letters to Sloane concerning foreign Fellows (British Library MS Sloane 4043, fol. 26r, 298r-v, 302r).

[35] Royal Society Archives EL/L4/60, Leeuwenhoek to the Royal Society, dated 9 January, 1720 (translation at EL/L4/61); EL/L4/79, Leeuwenhoek to the Royal Society, dated 13 June, 1722 (translation at EL/L4/80).

(1650-1702) and George I. He published two medical books, *The Aphorisms of Hippocrates and the Sentences of Celsus, with Explanations* [...] *to Which are Added Aphorisms upon the Small-Pox, Measles, and Other Distempers* (London, 1708; 2nd ed. 1735), and *Chirurgia Curiosa, or, The Newest and Most Curious Observations and Operations in* [...] *Chirurgery* [...] *Written Originally in High Dutch* [...] *To Which is Added Natura Morborum Medicatrix, or, Nature Cures Diseases* (London, 1706). The *Chirurgia Curiosa* was the work of Matthaeus Gottfried Purmann (1648-1721), originally published in German at Frankfurt in 1699, and here translated by Sprengell.

Evidence from the Royal Society's archives shows that Sprengell was something of a conduit for German medical and natural philosophical information to the London Society. He made a sixteen-page analysis of an anonymous German treatise published in answer to Frederick Slare's (c.1647-1727) *An Account of the Nature and Excellent Properties and Vertues of the Pyrmont Waters* (London, 1717). Slare's treatise had been translated into German and published at Hanover in 1718; Sprengell's commentary on the response was copied into the Society's Record Book in 1726. Sprengell also corresponded with Abraham Vater (1684-1751), German physician and professor (consecutively) of anatomy and botany, pathology, and therapeutics at the University of Wittenberg. Vater had been elected FRS in 1722 and discussed with Sprengell the efficacy of using olive oil to cure a viper's bite, and a Polish case of the strange condition 'plica polonica', in which the sufferer's hair became coarse and matted.[36] Other information communicated by Sprengell included meteorological and astronomical observations from Germany, and abstracts from the *Acta Breslaviensia* concerning bills of mortality for several European cities.[37] Nothing is known about Sprengell's knowledge of the Dutch language or culture, or why he was asked to translate Leeuwenhoek's letters. His medical expertise may have made him a good candidate. To this may be added a general interest in translating ideas between cultures, if not in the act of translation.[38]

[36] An account of the 'plica polonica,' with an illustration, was published in the *Philosophical Transactions*: Sprengell, "Casus rarissimus."

[37] The *Acta Breslaviensia Sammlung*.

[38] The extent to which 'High Dutch' and 'Low Dutch' were considered separate languages in the early modern period, rather than simply different dialects of a single 'Dutch' language, is difficult to ascertain. J. F. Bense states that before 1600, 'Dutch' was used for "the German language, in any of its forms" (Bense, *Dictionary*). After 1600, it was more common for English writers to differentiate between High and Low Dutch, and to use the latter to refer to the languages of Northern Germany and the Low Countries, though the terms 'Dutch', 'Netherlandish' and 'Flemish' were also used (Loonen, "Revaluation"). So while John Aubrey, for example, listed

Leeuwenhoek's final five letters to the Society were sent in Latin, rather than Dutch. The final two were sent after Leeuwenhoek's death, translated and forwarded by his friend Johannes Hoogvliet.[39] The Fellows must surely have been slightly relieved, though saddened, when such an important and fascinating correspondence was finally brought to a close at Leeuwenhoek's death in 1723.

Iteration and Re-Iteration: The Reception of Leeuwenhoek's Letters at the Royal Society

The difficulty of Leeuwenhoek's letters did not lie solely in their linguistic inaccessibility. Unlike translations of, for example, foreign literary texts, political pamphlets, or even travel narratives or medical tracts, the subject matter of Leeuwenhoek's letters was unfamiliar in a very profound way. Leeuwenhoek regularly wrote of things his readers (with the possible exception of Hooke) had never seen for themselves or even imagined could exist. Thus the letters required two levels of translation: textual, to discover the meaning of Leeuwenhoek's words; and a further, non-textual, translation that we might call 'experiential'. This second phase was required to enable the Fellows to participate in a shared experience of Leeuwenhoek's observations. As Peter Dear and others have discussed, this common experience underpinned truth-claims in early-modern experimental philosophy; the occasion of the Society's first sight of Leeuwenhoek's "exceedingly small animals", cited at the beginning of this article, illustrates this situation nicely.[40] However, this secondary process did not necessarily take the form of repeated observations. As we shall see, the early Royal Society had various methods (related and interacting) of circulating and digesting information. This section will discuss the forms in which Leeuwenhoek's letters were presented to Fellows and preserved for posterity; the use of the accompanying drawings; and the different roles translators and others played in processing Leeuwenhoek's work. The early Fellows' strategies for dealing with the information they received enabled a shared

High and Low Dutch separately several times when describing the linguistic attainments of his subjects in the *Brief Lives*, suggesting that he at least saw them as separate achievements, it seems also to have been the case that speakers of what we would now call German were more regularly called upon to translate from Dutch than speakers of other European languages.

[39] Hoogvliet's covering letter can be found in the Royal Society Archives (EL/H3/112); the letters themselves are EL/L4/86 and 87.

[40] Dear, "Totius in Verba"; Shapin, *Social History of Truth*. Leeuwenhoek himself went some way towards providing this by occasionally including witness statements with his letters, and through the use of highly allusive language to explain his new observations.

understanding of the content that was vital to its further use by the English natural philosophers.

The Royal Society normally met weekly. Business included nominating and electing Fellows; reporting on correspondence, papers and books received; reading extracts from selected letters and papers; viewing experiments if any were available to be demonstrated; and discussing all of the above. The reception of Leeuwenhoek's correspondence followed a fairly typical pattern. Letters were reported at meetings as having been received, usually with the additional information that they were written in "Low Dutch" and would therefore need to be translated. Occasionally the question of a suitable translator was discussed, and some time later the resulting translation was read, wholly or in part. In the case of longer letters, this could take place over more than one meeting, showing that there was sustained interest in the subject-matter.[41]

Letters regularly prompted the Fellows to discussion, and sometimes to action. At one meeting,

> there being some present, who had not heard Mr Leewenhoeck's letter read at the last meeting, it was desired, that the abstract of it might be again read which was done, and thereupon some conjectures were made about the porosity and pith of several sorts of hair.

The topic of hair was raised again at the next meeting, when

> The president and vice-president being not yet come, and a great number of the Society being present, Mr Henshaw was desired to take the chair, in order to discourse of some discoveries made by Mr Leewenhoeck, particularly about the substance and figure of hair.[42]

Thus Leeuwenhoek's discoveries were not only registered by the Fellows, but through further discussion some attempt was made to compare them with, or incorporate them into, existing knowledge of the subject. Occasionally Hooke went further. At a meeting in March 1682 he

> read and explained some parts of [Leeuwenhoek's letter], and gave an account of what observations he had himself formerly made about the fibrils of muscles, their smallness, and form much like a chain of beads or a necklace of pearl.[43]

Here Hooke acted as both translator and interpreter of Leeuwenhoek's observations, giving a further account of his own microscopical investigations. On another

[41] See, for example, Birch, *History*, vol. IV, 483 (12 May, 1686) and 485-6 (26 May, 1686).
[42] Birch, *History*, vol. IV, 103 (16 November, 1681) and 104 (23 November, 1681).
[43] Birch, *History*, vol. IV, 135 (8 March, 1682).

occasion Hooke proceeded to show the Fellows some flies' wings, and with a microscope "the manner of the growing of the feathers on the said wings, and the variety of the make and shape of them." This followed his reading of "an account of the Contents" of Leeuwenhoek's most recent letter, which dealt with insects' wings.[44] Much of this, including discussion and attempts to replicate observations, was clearly scientific. Other reactions had a more social aspect, such as responses to Leeuwenhoek in the form of letters requesting further information or suggestions for further research, and expressions of gratitude, including instructions to secretaries to send him copies of the *Philosophical Transactions* or other publications, and finally the election of Leeuwenhoek as a Fellow.

As well as being presented orally at meetings, the translations could also be registered in various ways in the archives of the Society. As we have seen, a description of the letters' subject matter was often recorded in the minutes of the weekly meetings. The minutes were copied into the Society's Journal Books and were available for consultation—although as they were not indexed, it was difficult to retrieve specific material by subject or author. Minutes were read at the following week's meeting, giving a second opportunity for Fellows to hear and discuss the letters' contents. The original letters and translations were filed away, and in many cases a copy was transcribed into the Society's Letter Book series. This was a copy of the English translation, rather than the Dutch original. The Letter Books contained fair copies of letters received by the Society that were deemed worthy of recording in a central register—by no means all letters received this treatment.

Most importantly, the English translations of many of the letters were printed in the *Philosophical Transactions*, either in part or entire. This ensured a wider readership for the letters and Leeuwenhoek himself approved of the practice. He responded to Hooke's publication of two letters in his own *Lectures and Collections* (1678) in a way that made it clear this was not to happen again.[45] L. C. Palm has pointed out that the publication of Leeuwenhoek's letters in *Philosophical Transactions* correlates very strongly with the interests of the editor at the time. Hardly any were published when Edmond Halley (1656-1742) was editor, whereas although Oldenburg rarely mentioned Leeuwenhoek's letters at meetings,

[44] Royal Society JBO/9, 90 (29 June, 1692).

[45] Leeuwenhoek wrote, "I prefer for the future to have my observations inserted in the *Transactions*," explaining that this was partly because the previous letters had been published there and partly because he was "not inclined to edit a book" of his own. His editors suggest that he preferred to see his work published separately, rather than in another man's book (Rijnberk et al., *Alle de brieven*, vol. II, 361).

he did ensure their publication in the Society's journal. Other editors, including Hooke (whose *Philosophical Collections* briefly took the place of the *Transactions* in the period following Oldenburg's death) and Sloane were personally interested in microscopy. Both men presented letters at meetings and also ensured publication.[46] In most cases, the name of the translator was not mentioned at the time of publication.

Whether or not letters were published, and in what form, may also have been influenced by the translator. Chamberlayne's correspondence with Sloane indicates the strength of his interest in Leeuwenhoek's letters, both the technical details of translation and also the subject matter more broadly.[47] In 1701 he suggested to Sloane that he could "overhall" those of Leeuwenhoek's letters he had previously translated, and "in the next Transactions [you] publish subjoyn the Errata that may occur [in] some of them."[48] Three of Chamberlayne's translations were printed under his name, which may reflect the slightly more formal standing he had as translator to the Society.

In other cases it appears that a new translation was commissioned specifically for publication. A letter that Lodwick was asked to translate in March 1686 was read at the following week's meeting; it did not appear in print, however, until 1693, and then it was not Lodwick's translation that was printed but another unattributed one. The gap between reading and publication was undoubtedly due to the change in editorship of the *Philosophical Transactions* from Halley to Richard Waller (c.1646-1715), but it is unclear why Lodwick's original English version was not printed, or who the second translator may have been. We should not rule out the possibility that it was Lodwick himself, given that he was an associate of Waller's, and still an active Fellow of the Society.

The published versions of the letters were often accompanied by engraved figures illustrating Leeuwenhoek's discoveries. Leeuwenhoek regularly sent drawings to accompany his letters—though not regularly enough, according to Chamberlayne, who wrote "twere to be wisht [...] that upon all occasions he would

[46] Palm, "Leeuwenhoeck and Other Dutch Correspondents," 195-7. Edmond Halley edited volumes XVI (1686-92), XXIX (1714-6), and XXX (1717-9) of the *Transactions*, and only one Leeuwenhoek letter appeared in these volumes (vol. XXIX, 55-8, the extract of a letter dated 13 October, 1713).

[47] See, for example, his comment that if some worms found in teeth could be conveyed alive to Leeuwenhoek they would "please him very much" (British Library MS Sloane 4038, fol. 30v). Chamberlayne was probably the only one of Leeuwenhoek's English translators to have met the great man personally.

[48] British Library MS Sloane 4038, fol. 171v (words in square brackets supplied as some text has been lost from MS). The errata do not appear to have been published.

give us Figures, they would illustrate the Matter of Fact better then any thing [he] could say upon the Subject."[49] This was uttered in the course of one of his complaints about Leeuwenhoek's turgid epistolary style, and it is interesting to note that Chamberlayne not only regarded the figures as needing no translation or interpretation themselves, but assumed that they would present the facts more readily than Leeuwenhoek could do using words.

Chamberlayne was not alone in this: at the very outset of the correspondence Oldenburg asked Leeuwenhoek to send figures illustrating his first observations. When they arrived the drawings were clearly thought to be useful, as Oldenburg published them in the next issue of the *Philosophical Transactions* (see figure 10.1), separately from the text of the observations, which had come out in an earlier issue.[50] He also published "the Explication of these Figures", announcing that he was printing "in English, what the observer sent us in Dutch." It may have been his role as editor that caused Oldenburg to blur the boundaries between translator and interpreter in his version of this explication. In the first part the authorial voice is Leeuwenhoek's: he described a part of the bee's sting "which I have seen my self, when I broke this thick part of the Sheath." In the second set of figures, discussing the anatomy of the bee's head, the voice is Oldenburg's: "EF is one of the two small limbs, which the Bee hath likewise on the fore-part of her Head, by him called *Scrapers*, by the help of which, he conceives, she scrapes the wax from flowers."[51] This is seemingly the only point at which translator became interpreter (in print at least—Hooke may well have done a similar thing at meetings if he was discussing his own observations alongside Leeuwenhoek's). The format of the *Philosophical Transactions* in the early years invited this merging of roles, in that many of the articles were 'framed' in some way. The format often saw a named Fellow passing on information that had been sent by a correspondent, with additional comments or theories of his own. Leeuwenhoek's status at this time as a new correspondent may have prompted Oldenburg to act as interpreter as well as (through his role as publisher) patron.

Leeuwenhoek's illustrations were done for him by a skilled draughtsman (or more probably several). Most of those extant in the Royal Society's archives are executed in red chalk, some in black chalk and pencil, and some are printed engravings (see figure 10.2 for an example executed in red chalk). Leeuwenhoek

[49] British Library MS Sloane 4038, fol. 171v.

[50] The first of Leeuwenhoek's observations (sent to the Society by Regnier de Graaf) were published in the *Philosophical Transactions*, no. 94: Leeuwenhoek, "Specimen of Some Observations." The figures appeared in the *Philosophical Transactions*, no. 97: Leeuwenhoek, "Figures."

[51] Leeuwenhoek, "Figures," 6116-8.

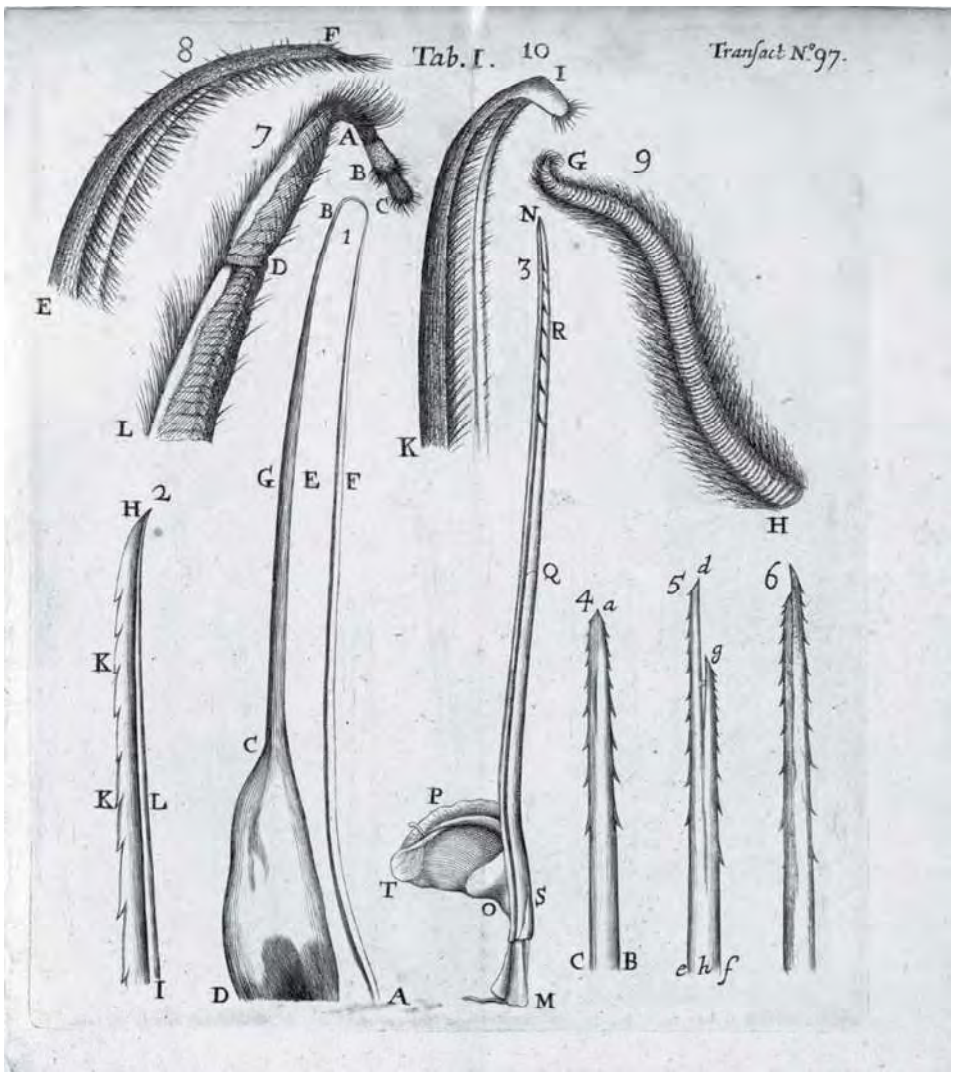


Figure 10.1. Diagrams illustrating Leeuwenhoek's observations of bees, printed in Philosophical Transactions 8 (1673), pp. 6116-6118. ©The Royal Society

himself clearly came to see the figures as an important part of the transmission of his ideas, and he sometimes commented on their production. Once he wrote:

> I had ordered the Draughtsman (who is also an engraver) to draw the accompanying fig. most accurately, whereupon he requested me to allow him to cut the same in copper, because they were not easy to draw in red crayon; and this then, is the reason why I am sending a print of the same.[52]

The engravings are reproduced here in figure 10.3. The draughtsman's talent not only influenced the medium in which the figures arrived, but also their content. "I also had one of these eggs drawn, because the Draughtsman was able to recognise all the worms' members in this Egg. This is shown here in fig: 4 GHI" (Figure 10.4 is an engraved version of this drawing).[53] Here the draughtsman is shown to be a microscopist too, working alongside Leeuwenhoek more like a collaborator than a technician.[54]

The figures were integral to the reception of Leeuwenhoek's work. Though they are not often mentioned in the Society's minutes, it is clear that the drawings were scrutinised at meetings when the letters were read, as an aid to interpretation.[55] The Fellows also sent queries to Leeuwenhoek based on their interpretation of the figures, reinforcing the fact that illustrations were useful to Leeuwenhoek's primary audience in London.[56] He would have had no difficulty in accepting this, as he himself attempted to understand the subject matter in published works through the illustrations, even when the text was in English and thus incomprehensible.[57] The Society very often had the figures engraved to accompany Leeuwenhoek's text in the *Philosophical Transactions*, and it is probable that they reached a wider audience than the text itself, given that English was not well understood abroad.

Leeuwenhoek's letters illustrate very usefully the multiple ways in which information could circulate and be recorded in an institutional context at the early

52 Rijnberk et al., *Alle de brieven*, vol. VI, 221 (letter of 4 April, 1687).

53 Rijnberk et al., *Alle de brieven*, vol. VII, 55 (letter of 9 September, 1687).

54 Leeuwenhoek went to some trouble to ensure that his draughtsman or 'Limner' was able to discern what Leeuwenhoek had seen, in order to draw the fine details accurately. See, for example, Leeuwenhoek, "Part of Some Letters," 1138.

55 See, for example, Birch, *History*, vol. IV, 3. Interestingly, however, the drawings were not copied into the Society's Letter Books with their accompanying text. This is a reflection of the Society's lack of a systematic response to visual material rather than a specific lack of interest in Leeuwenhoek's drawings—diagrams and other illustrations are rare in the Letter Books and Record Books despite being relatively common in the collections of original papers.

56 See, for example, Rijnberk et al., *Alle de brieven*, vol. VI, 5.

57 Rijnberk et al., *Alle de brieven*, vol. II, 5.

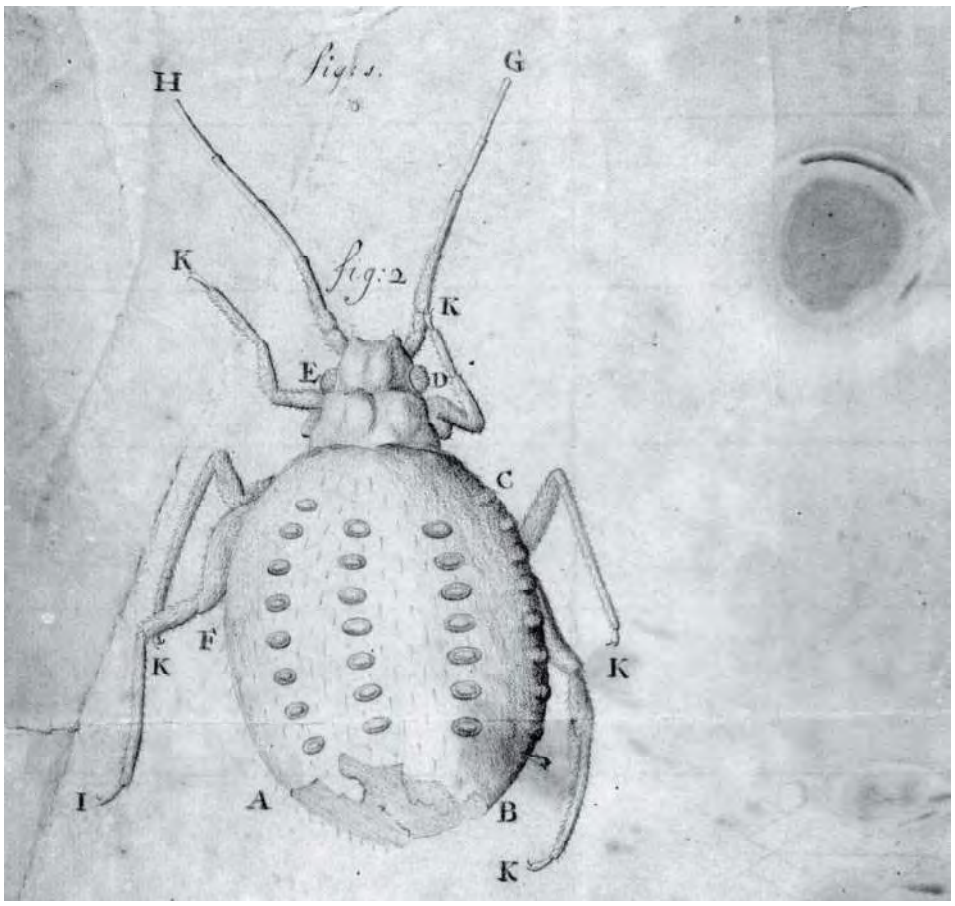


Figure 10.2. Aphid observed through microscope, accompanying Leeuwenhoek's letter dated 26 October 1700. ©*The Royal Society*

Royal Society. This is not the place for a complex assessment of the roles that the different iterations played and how successful they were in ensuring the survival of information. We might ask, though, how the translator influenced, or was influenced by, this proliferation of forms. Was there a difference between providing a translation for oral delivery at a meeting, for transcription as a fair copy into the Society's Letter Book, or for publication in the *Transactions*? This question could only be answered after a detailed analysis of the existing translations themselves, but the current study may provide some indications that the translators tailored their work to fit what they understood to be the intended use of the text. Hooke, for example, may have provided a looser translation in the knowledge that he him-



Figure 10.3. Engravings illustrating Leewenhoek’s observations of the structure of human and animal teeth. The figures show: human teeth (figs 1-3); the microscopic structure of a human molar (figure 4); and salt crystals found in the dental pulp of a horse (figs A-K). ©The Royal Society

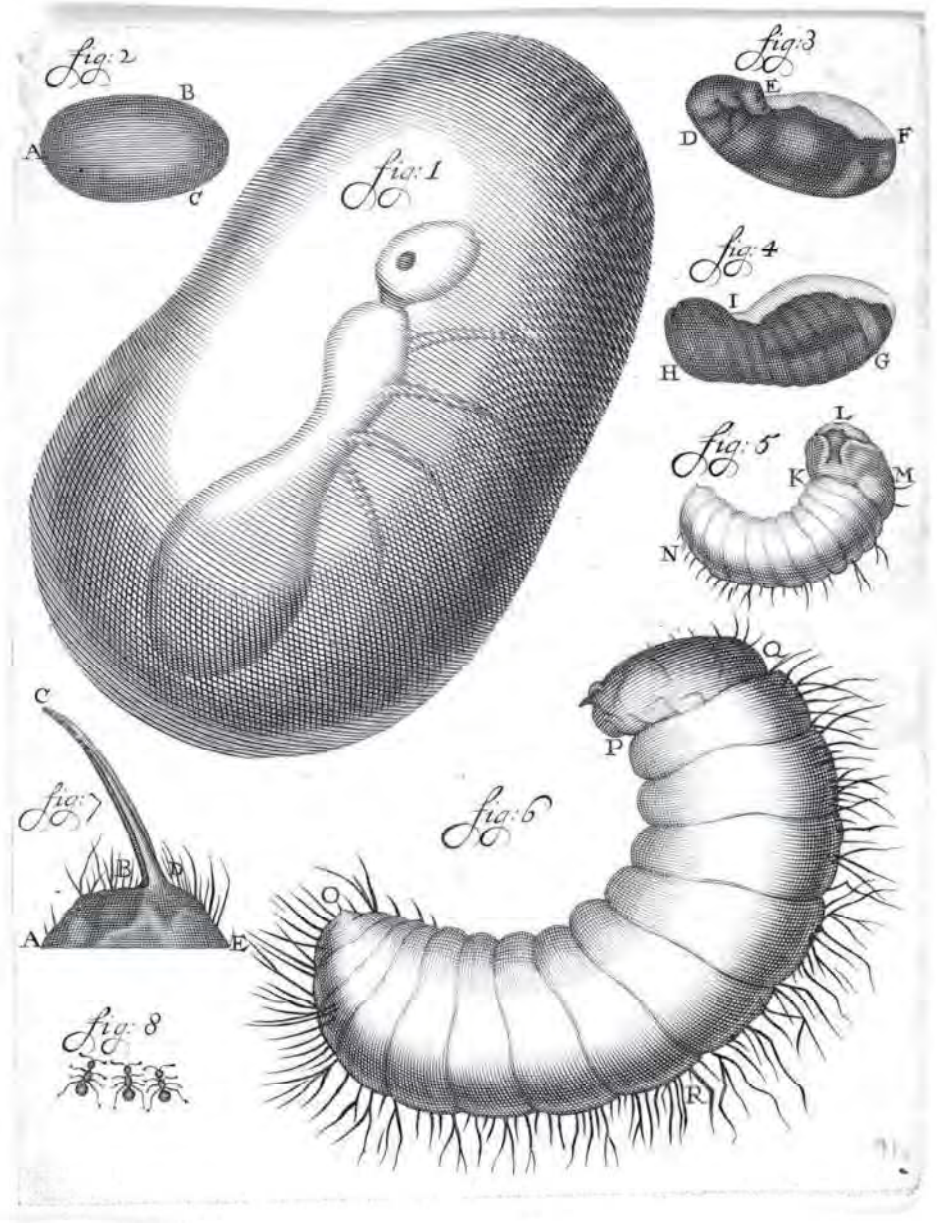


Figure 10.4. Engravings illustrating Leeuwenhoek's observations of ants, particulary ant-larvae. Fig. 1 is a reproduction of J.F. Griendelius's innacurate observation of an ant-egg in Micrographia Nova *(Nuremberg, 1687), which Leeuwenhoek refuted in his letter.* ©*The Royal Society*

self would be reading the text aloud and explicating to his audience as he did so (often referring to his own observations of similar phenomena). Chamberlayne, as we have seen, was concerned to "overhall" his translations so that errata could be published in the *Transactions* where necessary. He was not unwilling to have a slightly defective translation read out at a meeting, but he hoped to have the opportunity for further research in order to perfect the text for print.

Though it is never directly stated, it seems clear that the Royal Society as an institution was most concerned with gaining a clear understanding of the 'Matter of Fact' reported in the letters. The translators may have been frustrated by Leeuwenhoek's impenetrable prose style, but for their audiences, it was the observations themselves, and Leeuwenhoek's interpretations of them, that were important. They wanted to know what Leeuwenhoek had seen, so that they could discuss it, raise objections and ask questions, repeat the observations, and finally add this knowledge to their philosophical storehouse. A translation was deemed successful if it enabled these actions.

Comments and Conclusions

As we have seen, the Royal Society called upon a range of people to assist with its various translation projects. Initially, those most closely involved were the Society's secretaries, to whom many of Leeuwenhoek's letters were addressed. Oldenburg's secretaryship had a profound influence in this respect, as in other areas. He began a pattern of foreign correspondence that later secretaries were often ill-equipped (or unwilling) to continue, but it was some time before the Society responded by electing a Foreign Secretary to oversee this aspect of their work.[58] Thus Hooke, Aston, Waller and Sloane had to come up with their own solutions to a problem for which the Society had no systematic approach. Hooke's strategy was two-fold—to make an attempt at translating Dutch himself, and to call on more knowledgeable friends. Even when they knew Dutch themselves, the other early secretaries were also happy to share the burden of translation. The proliferation of translators may also have been a tactic used to spare any single person from the burden of the whole task. In the early eighteenth century, Sloane seems to have preferred a slightly more formalised approach, engaging Chamberlayne as a semi-professional translator over a long period.[59]

[58] The Society's first Foreign Secretary was elected in 1723.

[59] This was the result, but whether the impetus came originally from Sloane or Chamberlayne is not clear.

The translators called upon by the secretaries were either near-native speakers of Dutch (Lodwick), or were competent translators (Haak, Chamberlayne, Sprengell). They seem to have been chosen because they were personally known to the secretaries, demonstrating the significance of social networks and personal relationships in the working practices of the early Royal Society. Some already had an interest in natural philosophy, medicine, or microscopy, but this was not a crucial pre-requisite— Lodwick, for example, probably developed such interests as a result of reading Leeuwenhoek's letters with Hooke. Chamberlayne openly admitted that he knew "very little" about anatomy and was aware that this hampered his efforts at translating Leeuwenhoek.[60]

The cases of Lodwick and Chamberlayne, who were elected to the Fellowship after (and seemingly as a result of) performing some translation work for the Society, deserve special attention. Despite Michael Hunter's extremely thorough investigation of the early Royal Society's membership profile, there has been no discussion of recruitment patterns stemming from work undertaken for the Society.[61] Yet surely Lodwick and Chamberlayne were not solitary cases. It would be interesting to know whether the Society, always on the lookout for 'curious' and useful men to boost its membership, consciously used election as a reward for services rendered, and whether this may have influenced the choice of translators. Why were Dutch nationals living in London not asked to provide whole translations rather than merely being applied to in case of difficulties? The answer may be that it was seen as preferable to have someone who may go on to become an active participant in the Society's mission to do such tasks.[62]

Examining the employment of translators adds to our understanding of the contributions made to the early Society's work by those who were not active experimenters. Chamberlayne's comment about his translation duties being the only way he could be "Profitable to the Society" was a polite exaggeration—after all, he served on Council and was a useful court contact for the Society. It does, however, point to what must have been a relatively common experience amongst the early Fellowship. As Hunter has shown, only a small core of Fellows actively contributed to what we would consider to be the 'scientific' part of the progamme at the weekly meetings by conducting experiments or reading their own research papers.[63] Especially in the early period there must have been many Fellows like

60 Royal Society Archives EL/C2/41, quoted above.

61 Hunter, *Royal Society*.

62 This is not to say that the Dutch were not interested in the new philosophy—a number were elected to the early Society before and after Leeuwenhoek.

63 Hunter, *Royal Society*, 83-7 and passim.

Samuel Pepys (1633-1703), who wrote plaintively in his diary two weeks after having been admitted to the Society, "Here was very fine discourses—and experiments; but I do lack philosophy enough to understand them."[64] It was one of the strengths of the early Society that those who lacked philosophy were still able to contribute in a number of different ways; these 'non-scientific' tasks provided opportunities for men with a range of skills and social backgrounds to participate in the Society's work. Chamberlayne was, or pretended to be, grateful for a chance to contribute through his linguistic knowledge and his numerous contacts, including his Dutch parson neighbour. Lodwick's mercantile connections proved useful when Hooke wanted to send a parcel to Leeuwenhoek.

Turning to the texts themselves, some aspects of the Society's attitude to translation can be inferred from the case of Leeuwenhoek's letters. The translators regularly called attention to deficiencies in their translations, either by leaving some words untranslated, or, as Chamberlayne did, by noting their dissatisfaction with the translation in a covering letter. Thus it seems that accuracy was a concern, but it was not crucial (otherwise the translators would not have presented what they saw as defective texts). This was possibly because Leeuwenhoek's observations and theories, presented in the translated text, would be debated by the Fellows at meetings and there would be an opportunity then to clarify words or suggest alternative meanings. Many of the manuscripts show revisions to the original translation, often in a different hand, suggesting these revisions were added at some point after the original composition.

Thus the translations were not final products, but were simply a stage in the process of bringing Leeuwenhoek's work to a wider audience. They were intended to convey information and enable discussion or further research. The discussion may then have fed back into a revised translation. One of the key problems for translators was not knowing enough about entomology, biology or anatomy to grasp Leeuwenhoek's meaning or to express it in the correct English terminology. Chamberlayne, for example, had trouble recalling the English words 'chrysalis' and 'tendon.' For the first, he gave a description of what he meant but could not remember the correct word; for the second, he queried his translation of the Dutch "trekker" as "drawer" but was either unclear of Leeuwenhoek's meaning or did not know the word 'tendon.' Technical vocabulary was a problem in both languages: Lodwick asked whether Leeuwenhoek could be requested to add the Latin name of any insect he was discussing, suggesting that he was confident he could

[64] Pepys, *Diary*, vol. VI, 48 (1 March, 1665). Pepys must have attained some philosophy though: he went on to serve as President of the Society from 1684 to 1686.

supply the English name but was not so clear about the Dutch original. The presentation of translations at meetings and subsequent discussion would certainly have cleared up Chamberlayne's difficulties and may well have aided Lodwick in identifying the exact insect under discussion. Similarly, Hooke's repetitions of Leeuwenhoek's observations must have underpinned the translations he made.

Translating natural philosophy required skill, and was not a straightforward task. It is not surprising, therefore, that many of the early Fellows were interested in linguistics and languages. Their experience of dealing with Leeuwenhoek's letters must have fed into these interests and perhaps encouraged them. Leeuwenhoek's letters were not just the largest translation project the early Royal Society engaged in, they were arguably the most important, as it was through these means that his discoveries were first revealed to the learned world.*

* I am grateful to Harold J. Cook, Sven Dupré, Michael Hunter, Sachiko Kusukawa and William Poole for reading and commenting on this article.

Translating Astronomy in Dutch, Latin and Frisian. Adriaan Metius's Textbooks on Mathematics in the Early Seventeenth Century

Arjen Dijkstra

Introduction

[E]ven a child would notice it and it will show here from his stupid answers, not the least bit of proof for his work is given, other than like a parrot would say: I will tell you later.[1]

In 1613, Pibo Gualtheri (c.1580-c.1639), a citizen of the province of Friesland in the Dutch Republic, questioned the mathematical competence of one of his compatriots, using some harsh words. In a very nicely printed, but at times almost impenetrably constructed pamphlet, Gualtheri does not avoid pointing fingers and calling his opponent names. His main purpose is to question his adversary's originality, to counteract the questioning of his own. Gualtheri was not afraid to layer his insults. He calls his opponent a parrot, but a parrot that says "I will tell you later." With this he is referring to the reluctance of his opponent to reveal his sources and give his proof for a mathematical solution. And thus, according to Gualtheri, the opponent is not just incompetent but also unoriginal.[2]

With this line of argument Gualtheri raises all sorts of questions about the originality of authors of mathematical texts. Who can claim to have invented a geometrical question? Is it the person making up the question, the one giving the solution, or the one constructing the proofs? But Gualtheri does not just refer to

[1] Gualtheri, *Antwoort*, 10: "[E]en kindt zoude t' mercken, ut syne sotte hiernae ghesettede antwoorden ghebleecke, niet het alderminste bewijs sijns wercx gegeven, dan seggende metten *Papegay. Dat heb ick u noch te seggen.*

[2] The best introduction to Gualtheri is found in Dolk, "Pibo Gualtheri." My interpretation of Gualtheri's life also relies on archival finds by Philippus H. Breuker, which sometimes have not been published or only have appeared in local Frisian publications. I thank the Fryske Akademy in Leeuwarden and especially Peter van der Meer for granting me access to some of these sources.

mathematics, he implicitly also talks about translating texts from one language to another. The questions he raises about authority and originality thus can also be posed to the translators. If a text is translated, who is the author: the writer of the original text, or the translator? I will also show that the answers to such questions differ from time to time. In fact Gualtheri's actions suggest that copying and reworking texts was not necessarily seen as problem, as long as it was done with expertise and wit. Reproducing other people's work only became problematic when it was nothing more than blatant parroting, simply mimicking someone else's words.[3]

In considering these questions I will discuss three students of the professor of mathematics of the University of Franeker, the second university of the Dutch Republic. This professor was Adriaan Metius (1571-1635), one of the most prolific mathematicians of the seventeenth century, but also a mathematician who is thought to have brought little novelty to the field of mathematics since the core of his oeuvre consisted of school- and textbooks. I will show that when his works are studied in the context in which they were published, Metius was more than a professor who reproduced his own works over and over. The reissued and translated editions give a unique insight in the story behind his success. I will focus on the translations of Metius's own work, translations he supervised himself. Numerous other mathematicians in the Low Countries were translated and reissued, but none as often as Metius, and Metius can serve as a sounding board for all those stories. One of the questions I want to tackle with this approach is to what extent Metius was in fact a highly entrepreneurial publisher.[4]

Two of Metius's former students acted as his translators. They both started their publishing careers with this kind of work. The first was Bernardus Schotanus (1590-1652), who translated Metius's work into Latin in the early 1620s. The second was Petrus Baardt (1580-1645), who translated some of that Latin work back into Dutch. Baardt would become one of the most famed almanac writers of the province of Friesland, with some of his work reprinted as late as 1770. Schotanus, on the other hand, would go on to a brilliant academic career, publishing numerous disputations and textbooks in law. Their role in Metius's books becomes most apparent in prefaces and from circumstantial information.[5]

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3 See also Tim Nicolaije's contribution to this volume.

4 On Metius, see Dijkstra & Jensma, "Wiskunde als familiebedrijf"; Dijksterhuis, Dijkstra & Nicolaije, "Werktuigen van wiskunde"; Christianson, *On Tycho's Island*, 238-9, 322; Boeles, *Frieslands Hoogeschool*, vol. II, 70-5; Jensma, "Uit het huis van Arcerius"; Berkel, "Onderwijs in de wiskunde," 215-6, 220-2; Schippers, "Fuotprinten," 83-6; and Terpstra, *Friesche sterrekonst*, 53-64.

5 On Schotanus, see Hengstmengel & Hengstmengel-Koopmans, "Friese familie"; on Baardt, see

Both translators offer hands-on examples of translation from the early seventeenth century. In order to grasp what motivated these translations it is necessary to chart them closely. In this article I first turn to Metius's story, to give the background in which he operated. Gualtheri's work provides an intellectual and practical framework to place both Schotanus and Baardt. Their stories provide the main point of this article as they hold information crucial to the understanding of how mathematical knowledge was translated, edited and printed at a Dutch university in the early seventeenth century.[6]

This framework can be used to understand similar discussions in the history of mathematics and of science more generally. For example the production of Ramist texts in Germany shows strong similarities with what happened in Franeker. Numerous editions, translations and reprints appeared there, all of them varying slightly, or claiming to be a translation of a previous edition. At the academy of Herborn this tradition culminated in what has been called the "most important baroque encyclopeadia", written by Johann Heinrich Alsted (1588-1638) and published in 1630. But also the tradition of republishing and reinventing the works of Euclid resounds in this story. Metius's publications did not have as large an epistemological impact as those more illustrious examples, but they show the process even more clearly. This article centers on what happened in Friesland, where these large movements of reinvention clearly resounded.[7]

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the introduction to a reprint of one of his works by J. Brouwer in: Baardt, *Friesche boere-practica*; see also Spies, "Satire," and Breuker, "Literatuer yn Fryslân."

6 My analyses of these mathematicians and translators are highly influenced by Carlo Ginzburg's collection of essays *Clues, Myths, and the Historical Method*. The Dutch edition of this book (which varies slightly from the English) was published under the title *Detour as Method* (*Omweg als methode*), which could serve as a motto to the way I have approached Metius, Baardt, Schotanus and Gualtheri. I do, however, not intend such a broad line of investigation as Ginzburg was capable of, nor do I want to discuss the long lines he sees from the Middle Ages to the early modern period; others who were more capable than me have already done this. I do want to take a fresh look at these historical figures, by presenting all kinds of archival material that can be found.

7 On Ramism in Germany, see Hotson, *Commonplace Learning*. The quote on Alsted is taken from Hotson, *Commonplace Learning*, 7. On the early editions of Euclid a massive amount of literature is available, a particular telling example in view of this article is that of how Euclid was reinvented time and time again by none other than Petrus Ramus himself: see Goulding, *Defending Hypatia*.

The Foundation of the University of Franeker

In September 1585 the city of Franeker was officially granted a university, the second in the young Dutch Republic. In need of Calvinist ministers and proper lawyers the States of Friesland, the governing body of that province, had decided to found such an institution in 1584. Within a year the financial, intellectual and physical framework of this institution was established. Franeker would keep its status as the second university of the Dutch Republic, after Leiden, until the nineteenth century. More than any other province in the Dutch Republic Friesland strove for autonomy within the commonwealth. A strong university can be seen as an important part of this. Initially the States even seemed happy to spend money on this project. With these funds some professors of fame were attracted and several academic institutions were founded alongside the university, most notably a 'table' for the students, where all students could eat relatively cheaply, some even for free. A system of scholarships for Frisian students was founded. The university library and a special fund for representational purposes of the university were also instituted in the first decade. This last fund attracted the jealousy of the University of Leiden, where immediately after hearing about this Franeker 'kitty', voices were raised for a similar fund.[8]

From 1594 onwards Franeker had been actively pursuing a professor in mathematics, a position absent in the initial establishment of the university. This professor would have to train students in music, arithmetic, geometry and astronomy, which were all considered parts of mathematics. Together these four mathematical subjects comprised the quadrivium. These four were not commonly part of secondary schools, such as grammar schools, but were considered to belong in the domain of the university. Arithmetic, for example, was thought to be the basis for the study of Hebrew, which in turn was important for divinity students. Mathematics may not have been the first priority when the University of Franeker was established, but by the 1590s mathematics was considered highly desirable by the governing bodies.[9]

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[8] On the foundation of the university and the several bodies and the 'kitty,' see Waterbolk, "Stamboom," 170-1, and "Vormende krachten," 46; on how this money was actually spent, see the recent transcriptions by Anny Bokkinga and Jarich Renema, who kindly granted me access to preliminary results of their labours: Bokkinga, *Extraordinaris*, and *Pensiën*.

[9] On the early history of mathematics in Franeker not much has been published to date, but I will deal with this more elaborately in my forthcoming PhD thesis: Dijkstra, *Between Academics and Idiots*. The best introductions to date are those in which Metius's early years are discussed. See above, footnote 3. On the desirability of mathematics particularly in Franeker, see Waterbolk, "Stamboom," 177; this trend was also visible at several German institutions, see Wemheuer

Some accounts indicate that from the outset the States of Friesland were looking for something more than a teacher who would read Euclid out loud in the university auditorium. The new professor at Franeker had to be schooled in military sciences, such as fortification, as well. The Frisian stadtholder, especially, showed keen interest in this. Most importantly for the new professor himself, were the fields of astronomy and chronology. Especially astronomy was gaining importance in the course of the sixteenth century. The Dane Tycho Brahe (1546-1601) was making a name for himself as a nobleman astronomer. An important scholar like Joseph Scaliger (1540-1609) was publishing well-read folio volumes on chronology. These were fields in which a new professor could lift the status of his chair and gain status among his colleagues in academia. It was Metius who would land the appointment in 1598.[10]

Soon after his appointment the States of Friesland granted Metius the right to instruct in Dutch, alongside Latin, which opened his classes to local navigators, who could greatly benefit from his knowledge of astronomy. In the course of the 37 years Metius kept his position at Franeker, it was astronomy in which he excelled.[11]

Adriaan Metius, a Professor in Mathematics

Metius received his first education at home from his father Adriaan Anthonisz (1541-1620), who was the greatest authority on military fortification at the time in the Netherlands. After Metius had outgrown his parental home he went on to study in Franeker in the 1590s. After a long spell there he started on a extensive *peregrinatio academia*, an academic tour, which brought him to Leiden, from there to Brahe (the foremost astronomer of the day), on to Rostock and Jena, and from there he spent a short period at Marburg. He was not the only *famulus* from Brahe to undertake such a trip among the German lands and probably he was supported (with letters) by Brahe during his trip. Whatever the case, his travels paid off. He established himself as a mathematician, ultimately becoming a *privat Dozent* in Jena. These lessons culminated in a volume that was published in

& Dijkstra, "Mathematik als Bindeglied," passim. A full history of the Franeker philosophy department, of which mathematics was a part, has been published, but mathematics is hardly discussed there: see Galama, *Wijsgerig onderwijs*.

10 On the Frisian *stadholder* Willem Lodewijk having a keen interest in fortification, see Waterbolk, "Willem Lodewijk," 304-8; compare Berkel, "Onderwijs in de wiskunde," 221.

11 Unfortunately the original instruction of the States to Metius is lost. The best source on this instruction is Metius's eulogy, of which a Dutch translation was made by Piter van Tuinen: see Dijkstra et al., *Wiskunde als familiebedrijf*; compare Winsemius, *Oratio funebris*, E3v°.

Frankfurt in 1598.[12] Armed with this publication Metius made his way back to the Republic, where he actively pursued a career in mathematics. Consequently he was appointed professor extraordinaire in mathematics at Franeker in 1598; a full appointment followed in 1600. He would keep this office until his death in 1635 (see figure 11.1).

If Metius is remembered for anything, it is his extensive list of publications. During his life he published no less than 27 editions, most of which comprise several parts, volumes and tomes, often bound separately. He published in both Latin and Dutch, but he was (without his involvement) also translated into German and Spanish during his lifetime. Several of his books were pirated in other provinces of the Dutch Republic. If present-day strict bibliographic method is not employed, the list of his publications would reach well over 50. This poses a problem for historical research, especially because most of these works incorporated other editions and reworked versions of previous books. Central in this article are the following books:

1611 *Arithmeticae et geometriae practica*: a Latin textbook on arithmetic and geometry;

1614 *Institutiones astronomicae & geographicae*: a Dutch textbook on astronomy and geography, republished in 1621;

1623 *Praxis nova geometrica per usum circini et regulae proportionalis*: a Latin treatise on Galileo's proportional ruler;

1624 *De genuino usu utriusque globi tractatus*: a Latin translation of the textbook on astronomy, republished in 1626;

1626 *Maet-constigh liniael, ofte proportionalen ry ende platten passer*: a Dutch book on geometry and fortification, in which parts of the books from 1611 and 1623 were published in translation.[13]

Because of this bibliographical minefield, I refrain from mentioning other editions as much as possible, but some general remarks about the entire oeuvre are in order. Most of Metius's publications are characterized by their practical application: they describe instruments, globes or practical methods for applying mathematics. His method for gauging wine barrels was particularly clear and was used by numerous other writers. More than 90% of his work was printed in Franeker. He

[12] See Metius, *Doctrinae sphaericae*; recently I discovered lecture notes of classes Metius gave in Jena, just prior to the publication of his first book. These notes are kept at the university library of Tübingen: see Röckelein, *Handschriften*, 106.

[13] For full details, see the bibliography Djoeke van Netten will publish this year in her *Koopman in kennis*. She kindly granted me access to this bibliography. It has proved to be a cornerstone for my research for this article.



Figure 11.1. Adriaan Metius (1571-1635), unknown artist. Portrait made for the University of Franeker. Photo: Museum Martena Franeker

used a variety of publishers, not one of which stands out in quantity. Willem Jansz Blaeu's (1571-1638) editions of Metius work attract attention for their neatness.[14]

At Metius's funeral his colleague and close friend Menelaus Winsemius (1591-1639) delivered his eulogy. That piece of prose is the foremost important source on Metius's life, and although it can be corrected on details Winsemius's account still holds today. If this eulogy can be summarized in one sentence it would be that Metius's long spell at Franeker ensured his own fame and added to that of his university in all of Europe. And all sources seem to underline this view. A look at the network of his students, for example, confirms these ideas. In 1969 the Franeker *Album studiosorum* was published. From this edited list of all students who matriculated there it is apparent that attracted students from all over Europe. What springs to the eye, however, is that he hardly attracted any from the Dutch Republic, let alone from Friesland. An obvious conclusion is that his European renown may have been large, but on a more local scale he was not so well liked. As sensible as this may seem, it is the wrong conclusion to draw from the *Album studiosorum*.[15]

For the founders of the university the education of Frisian youth had been the first objective. Yet from 1598 to 1630 only one student who matriculated to study 'math' in Franeker originated from the Dutch Republic, none from Friesland. When Metius died five years later nine more students had enlisted from the Republic as *matheosis* (or something similar), from which four students came from the province of Friesland. This discrepancy between the number of local students and the purpose of the university poses a puzzle. It becomes even more apparent when the number of Frisian students is compared to the 45 students who enlisted as 'math' from outside the Republic. The solution is to take a look at the practice of mathematics in the early modern period. It was impossible to study mathematics as a separate subject at early modern universities. It was a compulsory course for all students. Everybody at Franeker studying divinity, law or medicine had to follow classes with Metius at a certain point in their preliminary studies. Anyone who only did a preliminary arts course in Franeker—as seems to have been a possibility—also had to follow classes in mathematics. More than 2000 students therefore may have attended Metius's classes.[16]

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[14] On Blaeu and Metius, see Netten, *Koopman in kennis*. For wine gauging around 1600 a good introduction is given by Meskens in "Wine Gauging"; although Meskens only mentions Metius once, the practice in Antwerp was remarkably similar to that of the Franeker professor.

[15] On Metius's fame, see Winsemius, *Oratio funebris*, F2; on Metius's students see Winter, *Hoger beroepsonderwijs*, 48-51.

[16] My analyses of Metius's students are based on both the published *Album studiosorum* and the

To understand mathematics at a specific site, then, it is necessary to look beyond the institutionalized lists and standard histories. While they serve as a good indication of what happened at a university, like the one in Franeker, they also eclipse much of what was going on. In Metius's case, his first purpose was to educate local boys in mathematics—it was after all the Frisian States that paid him. For this he used his publications, his practical books on mathematics. But he also 'added to the fame' of Franeker, for which these publications were likewise important. Over time Metius's local fame started to grow and his publications appeared more and more often in Dutch. These Dutch publications were geared toward Metius's own classes, which were partially given in the vernacular. Metius in turn used his own students for his own publications. Baardt, for example, was a translator of Metius's work and the composer of several dedicatory poems. Schotanus, the son of one of Metius's colleagues, the professor in law, Henricus Schotanus (1548-1605), also translated Metius's work. And Gualtheri, one of Metius's very first students in Franeker, published a pamphlet that Metius may have used in his Dutch classes.

Pibo Gualtheri, a Gentleman Mathematician

The pamphlet Gualtheri published in 1613 bore the peculiar title *An answer to a clever and not self made introduction*. Like the title, the whole pamphlet is packed with seventeenth-century riddles and rhymes, which makes it at times extremely difficult to understand.[17] The central theme is a defense by Gualtheri against the attacks of a certain Jan Beerentsz (d. after 1630), who had responded to a geometrical question he had posed. Gualtheri had nailed this question to his house in the city of Leeuwarden and challenged anyone capable to a sort of mathematical duel. Perhaps—but he gives no hints on this—he presented this public question completion of the construction of his house, which occurred around the same time. According to Gualtheri, this Beerentsz had answered him, but not with his own writings: the title of Gualtheri's pamphlet refers to the 'not self made introduction' of this answer. Beerentsz probably had his reply printed, but there are no known copies today, nor there any other contemporary references to it.[18]

original sources of that book, of special help has been the Herculean work by Ferenc Postma and Jacob van Sluis, who have traced numerous disputations and other ephemeral prints attached to the University of Franeker: see Fockema Andreae, *Album studiosorum*, passim; and Postma & Sluis, *Auditorium*, esp. 597-639.

17 Gualtheri, *Antwoort*. On Gualtheri's life see Dolk, "Pibo Gualtheri," 18.

18 On Beerents little is known, he may have been born in the city of Dokkum and became a citizen

In his sharp and harsh pamphlet Gualtheri tried to shred Beerentsz to pieces. Both the discussion with his adversary and the mathematical content are intriguing and they deserve full attention elsewhere. What is important here are several other things that can be taken from this pamphlet. First of all, the central theme questions authorship: when a mathematical problem is posed that looks like a known problem, but with different numbers, or with new proofs, who is the author of this? Gualtheri tries to tackle this problem by translating a text. And secondly, the pamphlet establishes the relationship between Metius and Gualtheri. The latter had dedicated this pamphlet to Metius, whom he considered his 'very dear friend' ('veelgunstige vriend'). This relationship has been suggested, but nobody has offered any proof for it until this passage came to light. Important, too, is the fact that their relationship had not started out as a friendship. Gualtheri writes:[19]

> I recall, when I started to practice the mathematical fundamentals in the University under Your Honor's liberal profession, and gradually Your Honor like other scholars opened books, which kindled great hope, alertness, joy and friendship towards Your Honor in me like [in] others, and [this] is truly preserved today.[20]

Gualtheri underlines the presumptions made by later historians about his relationship with Metius, and in doing so he also offers some new information: It was the bookish education that won him over to the side of the mathematicians. This perfectly fits Gualtheri's library, which was probably one of the finest collections of mathematical works in the whole of the Netherlands at that time. It also fits the practice of Metius, who not only wrote mathematical manuals, but often referred to other books and other writers in those publications.[21] Apart from the several

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of Leeuwarden in 1605, and he may have been a shipper by profession, see Historisch Centrum Leeuwarden (HCL), Oud Archief, inventory no. M226, page 195. In the 1630s, Beerents would be a land surveyor in the Frisian harbour town of Harlingen, where he published riddles much like Gualtheri had done in Leeuwarden: see Hoen, *Natuerlycke astrology*, 216-7.

19 I know of no references to Gualtheri's pamphlet in the literature. Oddly, however, several authors have concluded that Gualtheri was a student of Metius, for which I know no other concrete proof than this particular pamphlet. Most have made this connection with some caution, but likewise Gualtheri's relationship with Metius has been questioned, most recently Bakker concluded without reservations the hypothesis that Gualtheri studied with Metius, see Bakker, *Friese schilderkunst*, 132.

20 Gualtheri, *Antwoort*, 5: "My ghedenckt, wanner Ick d'Mathematische beginselen inde *Vniversiteyt* onder V.E. liberale professie begonste te leggen, en allenxkens V.E. als andere Geleerder Boecken opsloech, dat ick met overgroote hope, wackerheyt, vreuchde ende vrientschap neffens V.E. als andere onsteken ware, ende eernstelijck tegenwoordich beholde."

21 Gualtheri's library has attracted the attention of several historians, although the lists which recorded his books have not been published in full. I used a transcript and consulted copies

difficult geometrical questions that are discussed in his pamphlet, Gualtheri also gives a justification for his involvement in mathematics. He claims that mathematics is useful, giving numerous possible applications. From typography to politics and 'Bombardica', yes, all free arts would be 'crippled without mathematica.' This line of reasoning is an important hint that he and Metius not only knew each other, but shared a common agenda. Gualtheri argues that in his opinion mathematics should be protected by the government because of this utility, almost literally echoing the words of Metius, arguing that arithmetic and geometry form the basis of all science. To this he appends a quotation from the French philosopher Petrus Ramus: '[. . .] that Argus, by the poets equipped and portrayed with 100.000 eyes, can never look as sharp, far, wide and deep as with these two lights *arithmetic and geometry.*[22]

How well the pamphlet may have fitted the classes of Metius is shown by an inventory of a bookshop in Franeker in 1623. A decade after the pamphlet was printed, it was still for sale in the university town. In the inventory a stack of copies of the pamphlet is listed between disputations and textbooks. This could be an indication that it may have functioned as a Dutch introduction to geometry or a playful way to tackle difficult mathematics. The use of pamphlets for such purposes was certainly common in Franeker at the end of the seventeenth century, and it may have already been so in the 1620s. By that time Metius had made a name for himself with both his teaching and his standard textbooks in the vernacular. These books were translated editions of the book he had brought from his European study journey, his *peregrinatio academia*. Gualtheri's pamphlet would have been a welcome addition to that work.[23]

A year after it was published, Metius seems to have publicly responded to the dedication, but he did so with new hidden messages in a Dutch edition of his textbook on astronomy. Some of these messages can be solved and this helps to establish a frame within which Metius's translations make more sense.

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of one of the (two) originals at De Fryske Akademy in Leeuwarden: see "Apparaat Breuker," 161809. The originals can be found at the Historisch Centrum Leeuwarden. Among Gualtheri's possessions in 1618 was a sign board which depicted "A scene at the land surveyor" ("Een taffereeltie ofte bord bij den Landtmeter") and which was valued at 3 guilders, see Dolk, "Pibo Gualtheri," 18; see also Dolk, "Muzikanten rond 1600."

22 Gualtheri, *Antwoort*, 2-3.

23 The inventory can be found at the Fryske Akademy: see "Apparaat Breuker," 162301. For another example in Franeker where common pamphlets were used in the classes on mathematics, stemming from the end of the seventeenth century: see Dijkstra, "Opleiding van Friese edelen."

Fundamental Education

In 1614 Metius published his first book in Dutch. It was a revised edition in two parts of his Latin work on astronomy and geography, which was also the first of his books published by his friend Blaeu, the famed cartographer and publisher. The Dutch edition was printed by a local Franeker printer. According to Metius's introduction to one of the books, he had only translated the books because other people had insisted he should. Comments like these should be treated with caution, since they were commonplace among early modern writers and Metius especially seems fond of such phrases.[24]

The first part of the book was dedicated to the Dutch Estates-General, the stadholder Maurice and the governing body of the admiralty of the Dutch Republic. Metius argued that they were the rightful addressees, because it was the commonwealth that would benefit most from his writings. After addressing them, he continued his dedication with the classical story of the doubling of the cube. This was a famous historical narrative about one of Apollo's altars. When mayhem struck ancient Athens the Oracle advised a doubling of that altar, which was shaped like a cube. The desperate citizens did so, but this did not stop disaster. Only after a philosopher (in Metius's version, like in many others, a role taken by Plato) had pointed out that a cube is not doubled when the sides are doubled, was advice sought from a mathematician. The mathematician solved the problem and thus saved the city.

Metius did not cite this story arbitrarily, he was referring to a wider discussion on this matter, citing the German educator and reformer Philipp Melanchton (1497-1560) as his source.[25] And he was also referring to Gualtheri's pamphlet, although a little more implicitly. In the pamphlet Gualtheri used the story in a completely different way and with a completely different purpose. He cited the story of the doubling of the cube to show how vital proof is in mathematical texts. To make his point he used a rather particular sentence:

> Gelooft ghy wel dat Euclides t'schone *Problema van t'Orakel Appollinis* voorgestelt de *Cubo duplando* oft t'verdubbelen des Altaers overgeslagen soude hebben, so t'selfde met bewijsreden hadde bekledet gheweest?[26]

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[24] Metius, *Institutiones astronomicae*, Introduction. Terpstra claims this translation was done by Schotanus, this is incorrect, see Terpstra, *Friesche sterrekonst*, 144.

[25] See Metius, *Institutiones astronomicae*, introduction. Metius refers to a preface by Philipp Melanchton in George von Peuerbach's *Theoriae novae planetarum* on this matter.

[26] Gualtheri, *Antwoort*, 6.

Which translates as:

Do you think that Euclid would have skipped the beautiful problem proposed by the *Oracle of Appolo* de *Cubo duplando*, or on the doubling of the altar, if this had been been furnished with proof?

His point here was that Euclid, although he had known about the problem of the doubling of the cube, did not include this in his *Elements* because Euclid did not have any proof of a solution. Thus, Gualtheri reasons, his own problem may not have been brand new, but his proof was his own.[27] Gualtheri's reasoning seems crystal clear, especially since he finishes this paragraph with the Latin phrase 'Nil [sic!] est jam dictum quod non dictum sit prius', 'Nothing has been said that has not been said before.' There is however a catch. His whole argument was in fact a *translation* of something that had been previously put into print. It was the sixteenth-century French mathematician Jacques Peletier (1517-1582) who was cited by Gualtheri, without any reference. No less than twenty lines were directly taken from a letter Peletier had written to Jean Fernel (1497-1558) and published as sort of defense to his edition of Euclid's *Elements* of 1557.[28] For example, the sentence Gualtheri used to defend himself against claims of plagiarism, read in the original:

[A]n denique Euclidem Problema illud ab Oraculo propositum de Cubo duplicando, praetermissurum fuisse credemus, si constitisset demonstratio?[29]

Which was translated by Robert Goulding (2010) as:

And finally, do we believe that Euclid would have left out that problem of duplicating the cube, proposed to him by the oracle, if there had been a demonstration?[30]

Gualtheri does not try very hard to hide the fact that he is masquerading behind someone else's words, he just does not mention it. He even left the Latin phrase *de cubo duplando* unaltered in text, as if he wanted to point readers in the right direction. And he gives more hints, like a direct and open quotation from Peletier in his address to the reader, which preceded the dedication to Metius. His problem

27 Gualtheri, *Antwoort*, 6.

28 Gualtheri defends himself for printing someone else's problems with: "Ultimately, what can any writer actually attribute to himself, or hold his own, other than the intelligent turn of phrase?" ("In summa wat isser dat eenich scribent sich selfs eygentlijck toekennen, ofte voir t'sijne houden kan, behalven d'verstandige stellinge?") Gualtheri, *Antwoort*, 6. The Latin quote is on the same page.

29 See Euclid, *Elementa geometrica* (1557), p4v°; compare Goulding, *Defending Hypatia*, 155-6.

30 Goulding, *Defending Hypatia*, 155.

was not with using somebody else's words and phrases but using somebody else's proof. And he gives an example or proof of this precisely when he is building his defense to the contrary! It more or less frames all ideas about translation in the narrow sense of the word (moving a concept from one language to another; i.e. Latin to Dutch), as well as in a more general sense (a concept moving from one mathematician to another).[31]

The second point that ties Metius's dedication of 1614 with Gualtheri's dedication of 1613 is the claim by the latter that the use of arithmetic and geometry is the basis for all good mathematics—in fact for all sciences. Gualtheri explicitly stated that he had taken this point from Metius, although Metius in turn had not been very original by stating it. Gualtheri was thus echoing the words of his master. But, in 1614 Metius suddenly deviated from this path, and he did so by using the story of the doubling of the cube. In Metius's version it is Plato himself who saves the day and after he does so, he warns the Greeks by telling them that in times of war they should "exercise themselves rigorously in *geometry* and other very important arts." Metius continues that teaching geometry precisely is what he had done, but since peace was upon the Dutch now, it was time to move on and 'leave geometry at rest.' With this he did not mean that geometry should not be practiced anymore, but that the focus should be on something else: astronomy. Astronomy could help shippers and seamen and so Metius was in fact swapping warfare for trade.[32]

The whole discussion on the doubling of the cube, Plato and Euclid's roles in this history and the usefulness of mathematics had carried over from the sixteenth century. Both Gualtheri and Metius stressed the importance of an education in mathematics. They seemed to have shared an agenda—the references are too obvious to dismiss—but it is hard to completely grasp all the refinements of the discussions they are quoting, especially since these discussions were clearly sometimes stacked with forms of irony. What is central to these debates, besides the call for government stipulation, is a debate on authorship. Who owned the text published? Did authorship lie in the questions or the proofs—as Gualtheri asked? It is important to note that I am not pointing to our modern understanding of plagiarism and intellectual property. In our case what Gualtheri did to Peletiers's text may be considered fraud, whereas there is no indication that this was perceived as such in the early seventeenth century. To put the matter of 'translation' even more

[31] Peletier's edition of Euclid had just been reprinted in 1611, and would have been available at the time. Gualtheri owned several different editions of Euclid.

[32] Metius, *Institutiones astronomicae*, Introduction.

sharply it is necessary to take a look at two other students of Metius. Their relation with Metius will show that the connection with Gualtheri was not a one-off.

A New Practical Geometry

Metius's Dutch translation of 1614 was reissued in 1621. The text is almost unaltered, although the woodcuts were largely renewed. In 1623 he turned to the presses again, when he published his *De praxis nova geometrica*, printed in Franeker by Uldricus Balck (died ca. 1648) but published by the Amsterdam publisher Johannes Janssonius (1588-1664). The book centered on a proportional ruler, an instrument to use as a sort of calculating tool. This tool, as Metius is happy to state, was not of his own invention but that of a certain Galileo Galilei (1564-1642), professor in Padua. Metius offers no explanation for returning to geometry after he had set it aside so blatantly in 1614. Since the war with Spain had started again in 1621 there was perhaps no need to make excuses. The book again had two dedications, the first directed to the Deputy States of Friesland and the Curators of the university. In this Metius made the status of the Dutch Republic as a seafaring state the reason for the publication of the book. There were competitors, Metius argues, and in order to stay ahead, his book could prove to be a welcome guide.

The second dedication, which is more oriented toward the content of the book, is presented to Laurens Reael (1583-1637), a former governor of the Dutch East India Company in the Far East. This second name may have added to the international status of the book and appealed to a more interprovincial and international audience. Since the book was written in Latin, its proposed audience was international.[33] Metius also offered a glimpse of how his work had grown into the book that was presented. He talks to the deputy states about how he had given lectures on geometry and how he had published on these matters, in both Dutch and Latin. Some of these lectures had been on Galileo's proportional ruler, others on more common geometrical subjects. The Dutch texts were translated with advice from Schotanus, whom Metius called an "expert in mathematical matters."[34]

Apparently this cooperation was a success. Only a year later, in 1624, Metius re-published his astronomy textbook of 1614, this time in a translation by Schotanus back to Latin. Here the book is presented as an extensive guide to accompany a set of terrestrial and celestial globes. The book was again published

[33] Metius, *Praxis nova geometrica*, *2-A.

[34] Metius, *Praxis nova geometrica*, *2-A. Metius refers to Schotanus with the words "rerum Mathematicarum [sic!] perito."

by Janssonius in Amsterdam and printed by Balck in Franeker. Metius had presented his 1614 edition as a translation of a previous Latin book into Dutch. In the dedication to this 1624 edition Metius seems to have forgotten about that. The new edition differs a great deal from those that had formed the basis for the 1614 book, but it is still framed by them. Schotanus gets full credit for the translation, moving up from an advisor. But this credit is only presented in the dedication and at a few places in the text. He is not mentioned on the title page, or in a colophon, where one might expect the name of a translator.

There are some indications as to what Schotanus did and what he did not do. For example, the Dutch textbook of 1614 was supposed to be a book for seamen and one of Metius's major feats was presenting his material in an orderly and comprehensible fashion. He made expert knowledge available for a broader audience. A nice example was a so called 'star song' he quoted, written by the navigation master Robert Robbertsz le Canu (1563- after 1630), initially intended to help illiterate and poorly educated sailors to remember the position of the stars. Of course a song, clever as it may be, will not achieve this completely, so the effectiveness of it has been questioned. The song did not feature in any edition before 1614, but in Schotanus's translation of 1624 it made an appearance. And as a reminder to the reader who had made this translation Schotanus's initials are explicitly quoted, "[...] per D[r] B[ernardus] H[enrici] S[chotanus] parum mutate, & Latinitate donati." He not only translated the song, but also reworked it. When the translator took such an active role, he was made more visible.[35]

Metius's Wonderful Year 1626

From 1626 onwards it is particularly hard to keep track of Metius's publications. That year he published no less than five new editions, his most productive year ever. Of these five books only one was 'new', a translation made by Baardt. Four were printed in Franeker by the printer Balck and one in Amsterdam by Blaeu. The book printed by Blaeu was also published by him. Of the four books printed by Balck, one was published by him, two were published by the Amsterdam publisher Hendrick Laurensz (d.c.1648) and one by the Elzevier publishing house in Leiden. In fact, the Elzevier book was neither a reprint nor a new edition of a previous book. Only the first few pages of that edition had been swapped for new ones, making it look like a newly printed book whereas in fact it was printed and

[35] On Schotanus's role, see below. On the star song, see Gent & Rasch, "Sterrenlied"; Metius quotes it in full in Metius, *Institutiones astronomicae*, 74-6 (page 76 is misprinted as 72); and in Latin in Metius, *De genuino usu*, 72-3.

published by Balck the previous year. This form of 'title editing' or 'title issuing' was not uncommon, especially with Metius's works.[36]

Three books presented Metius as a M.D. He had acquired this doctorate only in the fall of 1625, honorably awarded to him by the Senate of the University of Franeker. It may be that these books were published because of this doctorate; two of them were in fact just reissued editions. The other two books were the last ever that were published under Metius's name without mentioning the doctorate. One of them, the one published by Blaeu, was a new edition of the book translated by Schotanus, which had been published in 1624 by Blaeu's competitor Janssonius. In the dedication to that book Metius had explicitly thanked the printer for publishing his *De praxis nova geometrica*, the book for which Schotanus had been instrumental, calling it a *Geography*.[37] In the same sentence Metius also mentioned his publications in the vernacular, which had appeared with Blaeu, of course without explicitly naming this second publisher. In the 1626 edition Blaeu copied the whole dedication almost *verbatim*, not even changing the dating, but he did change Janssonius's name into his own. The original sentence had read:

Nostram autem Geographiam cum recudisset Ioannes Iansonius Bibliopola Amstelodamensis, & ea quae de usus utriusque Globi scripseram linguae Belgica & nostrate, Doctiss. D. Bernardus Schotanus, auctum opus secunda mea cura, latinitate donavit.[38]

Which can be translated as:

However when our Geography [=geometry] was reprinted by Johannes Jansonius [in 1623] a bookseller in Amsterdam, and what I had written on the uses of both Globes in

[36] On Metius's publicizing strategies and his relationships with different publishing houses, see Netten, *Koopman in kennis*.

[37] On Metius's strong interests in medicine little has been published to date. As a student he already participated in a network of students of medicine and later in his life he would keep on pursuing several medical and alchemical projects. Telling in this respect is that some of his closest friends were well known professors of medicine, like M. Winsemius, J. I. Pontanus and N. Mulerius. For a more in-depth analysis of these networks, see Cook, *Matters of Exchange*, esp. 147-8, 233. I thank Torsten Schlichtkrull of the Royal Library in Kopenhagen, who provided some crucial photos of a very rare edition of one of Metius's 1626 books. These photos helped me (among other things) to complete my search of where Metius was presented as a medical doctor. On Janssonius publishing a Geometry of Metius, but never a Geography, several explanations are possible, two stand out: the first is that it was a typographical mistake of some kind; the second is that (military) geometry and (military) geography did not have such different meanings in this context.

[38] Metius, *De genuino usu*, Introduction.

our own Dutch language [in 1614 and 1621], the most learned D. Bernardus Schotanus, translated the work, revised and expanded by me, into Latin [in 1624]."[39]

Blaeu replaced "Ioannes Iansonius" with "G. Jansonius", giving himself credit for his previous work of Metius—piling up his own edition of the *Geographiam* and the *de usus* [...] *Globi* and delicately pointing out the typographical mistake of his competitor. In this one sentence the whole bibliographical mess that Metius's works seemed to have created was summed up. After Bleau's alteration the sentence should be read more or less like this:

However when our Geography [in 1614 and 1621] was reprinted by W. Jansz [Blaeu] a bookseller in Amsterdam, as well as what I had written on the uses of both Globes in our own Dutch language [in 1614 and 1621], the most learned D. Bernardus Schotanus, translated the work, revised and expanded by me, into Latin [in 1626].[40]

Schotanus still was not credited on the title page of this 1626 book. This shows Metius's characteristically complex involvement with printers and publishers and how difficult it is to unravel all connections.

In 1626 Metius also published a Dutch translation of his geometry and arithmetic of 1623 and added a translation of a tract on *Fortification*. This last tract was composed of work he had found among his father's papers, thus being a sort of commemoration. The translation was not by him, but by Baardt, as stated on the title page of that book. This was a notable difference from the previous translation, where Schotanus was mentioned in one of the introductions, but not on the title page. This suggests that Baardt's involvement may have been larger. It could also point towards a different publication strategy. The Latin books were meant for an international market, in which Metius had a reputation. Adding Schotanus's name to that would probably not have improved sale figures, whereas Baardt was building a local reputation and his name would have meant something locally. This theory is corroborated by the fact that the dedication of the book is also written and signed by Baardt and not by Metius. A reader could get the impression that Baardt had created the book. Of all the books by Metius published during his

[39] See also Krogt, *Globi Neerlandici*, 189-190. Van der Krogt translates the sentence in such a way that Janssonius claims to have published both the *Geography* and the Dutch works. That was not just untrue, it would have also been an open insult to Blaeu. Janssonius may not have hesitated to have done so, but Metius would have. He maintained a good relationship with Blaeu, which makes Van der Krogt's explanation improbable.

[40] Metius, *De genuino usu*, introduction.

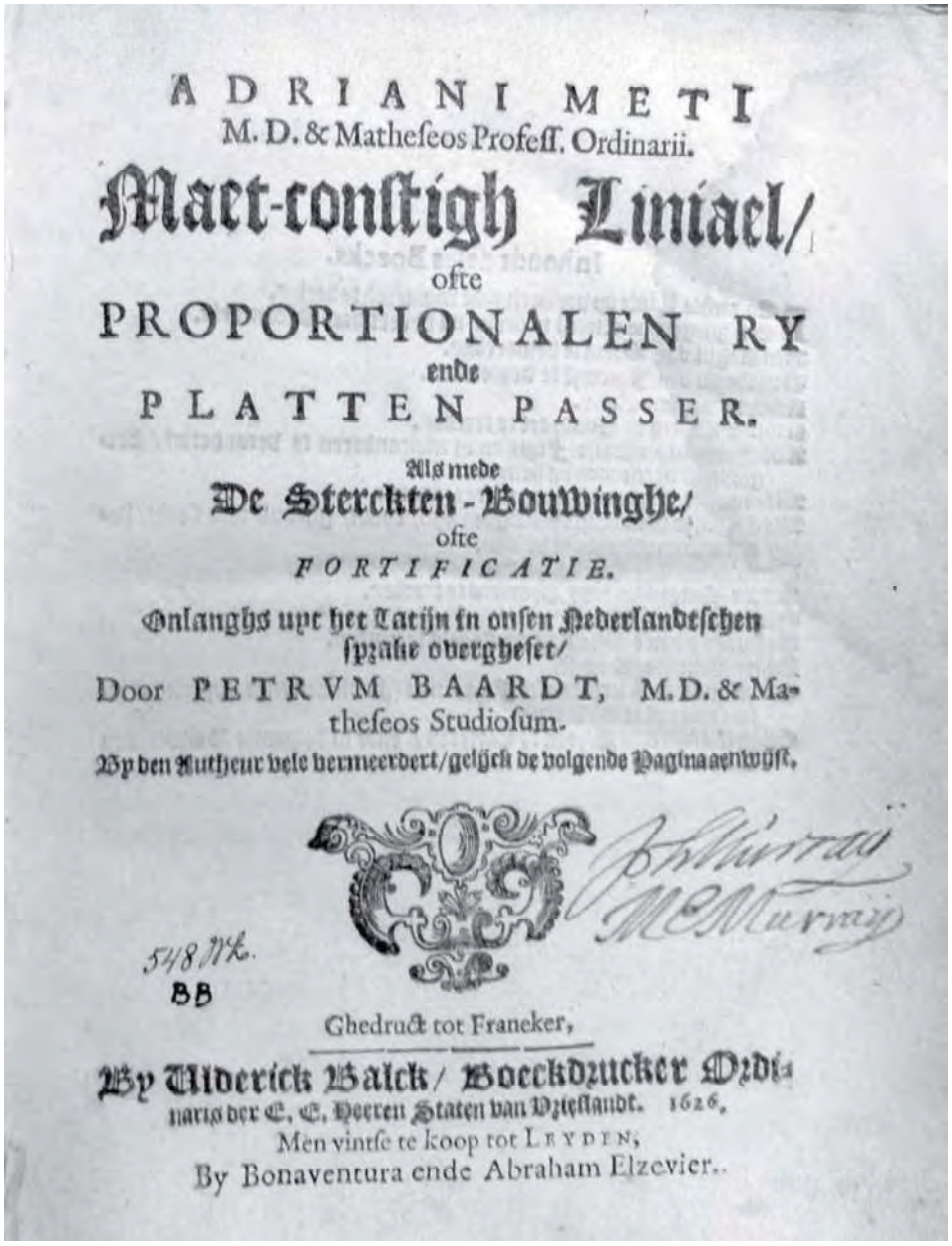
lifetime this is the only one that had a dedication written by someone other than him.[41]

At the bottom of the title page of Baardt's translation the Elzeviers explicitly take credit (see figure 11.2) stating: "Men vintse te koop tot Leyden, by Bonaventura ende Abraham Elzevier" ("These are found on sale in Leiden, with Bonaventura and Abraham Elzevier"). Such information may have been practical in the seventeenth century, but today it must be treated with care. The 'title issuing' already showed some entrepreneurship by the Elzeviers and so does this edition. These lines are clearly added later and were not printed by the original printer. The exact distance between these lines to the lines above differ from copy to copy, varying from a millimeter to half a centimeter. Some copies lack these lines all together, like the one in the City Library of Leeuwarden. In this 'Leeuwarden' copy (see figure 11.3) the blank is filled with a handwritten note by Metius, dedicating the copy to Johannes Nijs. The autograph is dated 'D.D.', making it likely that the book was given to Nijs in 1626, the printed date visible on that page. The occasion will probably have been the moment Nijs was appointed as curator of the university, an office he would take in 1626 and keep till his death in 1649. Apparently Metius gave him a copy to congratulate him on the appointment. The copy in the City Archives in Alkmaar also lacks the Elzevier imprint and also has an autograph by Metius. This book is dedicated to his colleague Sixtinus Amama (1593-1629), professor in Hebrew. Because someone has crossed out Metius's address, it is impossible to track the specific occasion on which Amama was presented this copy.[42]

These personal dedications show that although the book appears on the one hand to be a construction of Baardt, it was also a book used by Metius. In the game of acquiring patrons and keeping good relations with colleagues Metius used his own copies of this book as gifts. Such a use of books as a form of 'social capital' also fits the content of the book. It was a good introduction to the use

[41] Metius, *Maet-constigh liniael*.

[42] I have consulted several copies of this book or have seen a photo or scan of the title page. The copies that stand out are the ones in the City Library, now kept at the Historisch Centrum Leeuwarden, shelf mark B 1313 (signed title page by Metius); Gemeentearchief Alkmaar, shelf mark 22 A 5/2 (also a title page signed by Metius, but blacked out at a later date); the other copies I have consulted are kept at the University Library of Amsterdam, the Royal Library in The Hague, Tresoar in Leeuwarden, the Royal Library in Stockholm, the University Library of Leiden, the library of Museum Boerhaave in Leiden and the Library of the Netherlands Defence Academy in Breda. I own a complete photocopy of the one kept in Tresoar in Leeuwarden, which was made in the 1980s and was generously given to me by Gerard van der Heide from Franeker.



ADRIANI METI
M. D. & Matheſeos Profeſſ. Ordinarii.

Mact-conſtigh Liniael/
ofte
PROPORTIONALEN RY
ende
PLATTEN PASSER.

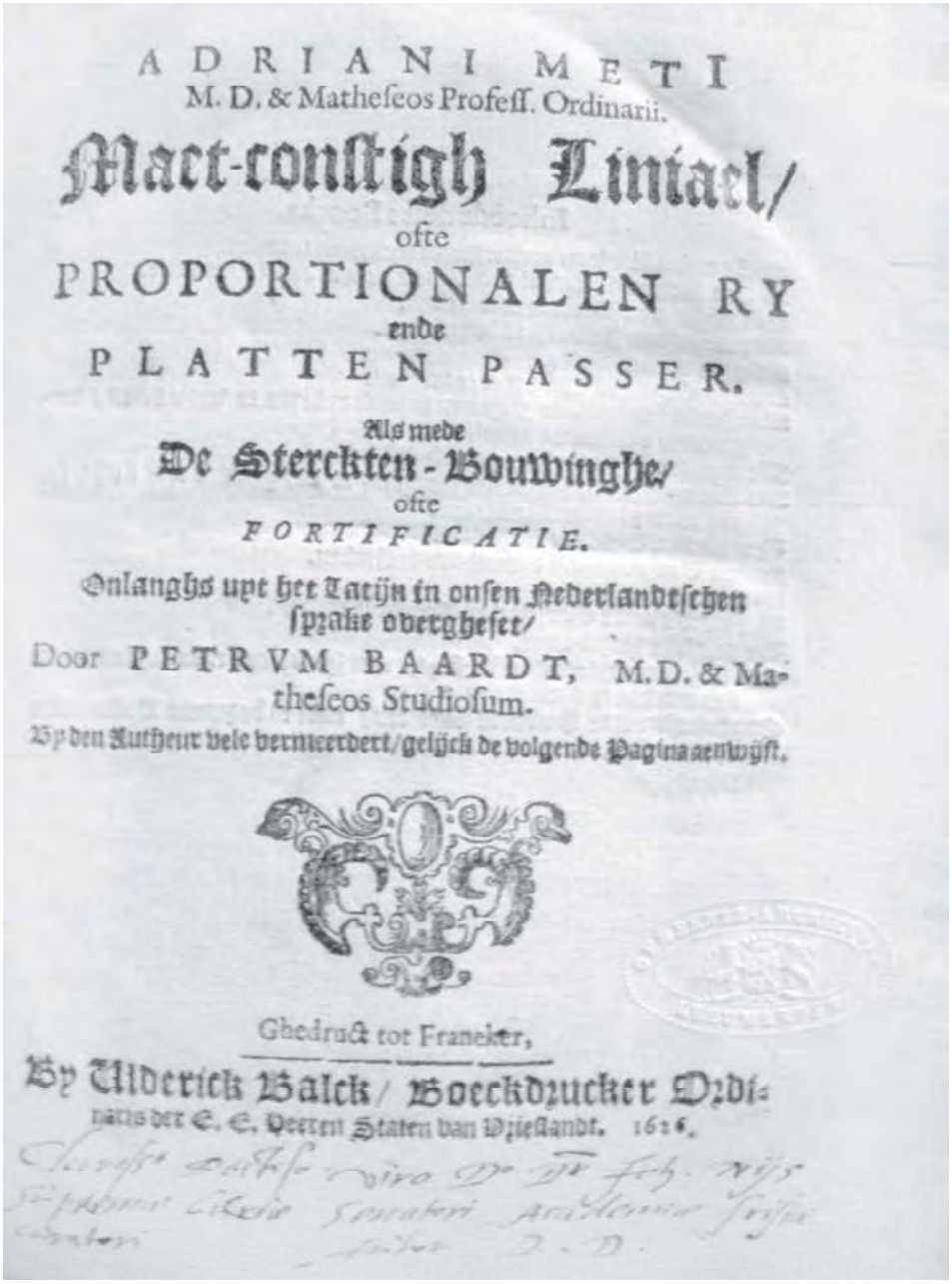
Als mede
De Sterckten-Bouwinghe/
ofte
FORTIFICATIE.

Onlanghs uyt het Latijn in onſen Nederlandeſchen ſpraeke overgheſet/
Door PETRVM BAARDT, M.D. & Matheſeos Studioſum.
By den Autheur vele vermeerdert/ghelijck de volgende Pagina aenwijſt.

548 Wk.
BB

Ghedruckt tot Franeker,
By Uderick Balck/ Boeckdrucker Ordinaris der E. E. Heeren Staten van Vrieſlandt. 1626.
Men vintſe te koop tot LEYDEN,
By Bonaventura ende Abraham Elzevier.

Figure 11.2. Title page of Metius, Maetconstigh Liniael*, with a reference to the Elzevier publishing house. Tresoar Leeuwarden, shelf mark 548 Wk BB*



ADRIANI METI
M. D. & Matheſeos Profeſſ. Ordinarii.

Mact-conſtigh Liniael/
ofte
PROPORTIONALEN RY
ende
PLATTEN PASSER.

Als mede
De Sterckten-Bouwinghe/
ofte
FORTIFICATIE.

Onlanghs upt het Latijn in onſen Nederlandeſchen ſprake overgheſet/
Door PETRVM BAARDT, M.D. & Matheſeos Studioſum.
Op den Autheur vele vermeerdert/ gelijck de volgende Pagina aenwijſt.

Ghedruckt tot Franeker,
By Ulderick Balck/ Boeckdrucker Ordinaris der E. E. Heeren Staten van Vrieslandt. 1616.

Figure 11.3. Title page of Metius, Maetconstigh Liniael*, lacking the reference to the Elzevier publishing house, but with a handwritten dedication by Metius. Historisch Centrum Leeuwarden, shelf mark B 1313*

and possibilities of Galileo's ruler—of which a paper model was supplied with the book. The book was not a thorough discussion of everything there is to know about war and mathematics. It was more an introduction to the art of fortification for gentlemen and enthusiasts alike. Or as Metius and Baardt put it, they presented the "pith and the marrow" of fortification, so everyone could pursue it. The whole book was thus aimed at people like Nijs and Amama, people with high status, who could help and protect the mathematical arts. On the other hand it was oriented toward people who could not afford expensive large volumes (or training in Latin, for that matter). The book thus was a perfect combination of the professor Metius and the local mathematician Baardt.[43]

Baardt and Schotanus as Mathematical Practitioners

With his translation Baardt established his name as a writer in Dutch. He would go on to publish numerous almanacs, poems and other ephemeral prints, which are still considered of high quality today. At the same time it is precisely Baardt's activities as an author and publisher of this sort of work that would frame his translation of Metius's work. Baardt's most important publication was a yearly almanac, not only because of the huge distribution of these, but also because of the freedom of expression they allowed him as a writer. Figure 11.4 shows a title page of one of these small calendar-like prints, which also depicts Baardt. All almanacs had an introduction, and it is in these that Baardt showed his writing talents, while in the calculations he showed his skills as a mathematician and his medical degree gave him authority for prognosticating the year to come. Oddly enough these prognostications did not keep him from mocking predictions, since like Gualtheri he showed a talent in using irony. 1627 is traditionally staged as the starting year for the Frisian almanac. Two Dutch authorities in this field, Jeroen Salman and Philippus Breuker, state that it is unlikely that almanacs were produced in the province of Friesland prior to this year.[44] If this is indeed the first year an almanac appeared and it was written by Baardt, it would again point to a strong influence

[43] See Metius, *Maet-constigh liniael*, vol. II, 39, where the following is stated: "Wij hebben alleen in't corte het pit ende merch der fortificatien den genen willen voorstellen die metter herten de konst beminnen nochtans door de wreedtheyt van't geluck de middel niet overich zijn omme eensdeels de langhduyrighe studie te achtervolghen: Anderdeels vermidts het een Const-liever die den oorloch vervolghen moet seer beswaerlijcken valt groote Boecken na te slepen."

[44] On the oldest Frisian almanacs, see Breuker, "Betekenis van de Franeker Academie", 160; see also Breuker, "Fryske almenakken", 36-7; compare Salman, *Populair drukwerk*, 49, 69, 244.

of Metius. In this year he published a guide to calculating almanacs, again based on papers he found among his father's inheritance.[45]

With the publication of his almanacs Baardt took the training he had received from Metius to the presses. This sort of practical enterprise by a mathematician found fertile soil with the Frisian regents. Not only had Baardt's university studies been paid for by the province, every year from 1628 to his death in 1644 Baardt received payments from the province. He was awarded several stipends and rewards for his almanacs and other books—some of which had an explicit mathematical character. The government of the province thus became one of his most loyal customers. The States had good reason to grant Baardt this position. Besides all sorts of different mathematical content, the almanac was also the one place where annual markets were advertised. To have a specific Frisian almanac was thus in the interest of the Frisian community.[46]

Until his death in 1645, Baardt would publish almost anything he could. In addition to the almanacs, he printed instructions for sailors, translations of classics and prognostications. From 1630 onwards he was an established name in Friesland, even becoming one of the first to publish in the Frisian tongue. Frisian as a language was mainly used in books of law, but these almost all predated the common use of the printing press. What made him really special was that he published in Frisian outside the field of law, for a broad audience. Until his very last publication he presented himself as a medical doctor and a 'student' of mathematics. He used the name he had built for himself as a translator of Metius's work throughout his career.[47]

Likewise Schotanus's translation activities would also form an important facet of his career. He would be appointed Professor of Law in Franeker in 1624 and in 1635, directly following the death of Metius, he accepted a similar position in Utrecht at the Illustrious school. This school acquired the rights of a proper university the following year and Schotanus was appointed its first Rector. He came to Utrecht not just to teach Law, the subject in which he had held a position in Franeker. He would also teach mathematics, making him the first professor of mathematics at Utrecht University. He was awarded an additional 300 guilders

[45] See Metius, *Maet-constigh liniael*, vol. II, 12, and *Fundamentale onderwysinghe*, 103, 116. See also Breugelmans & Dekker, "Adriaan Anthonisz."

[46] Baardt, *Friesche boere-practica*. See also the homepage by the former director of the Frisian Provincial Library, Martin Engels, http://home.wanadoo.nl/mpaginae/, accessed 24 Feb, 2012.

[47] Baardt had himself depicted as a mathematician on almost all the work he published under his own name. For an overview of the surviving almanacs published by Baardt, see the digital bibliography in Salman, *Populair drukwerk*.



Figure 11.4. Title page for Petrus Baardt, Heren-Feenster almanach voor 't jaer 1639 *(Leeuwarden 1638). Tresoar Leeuwarden, shelf mark A 3338*

for this, on top of his ordinary salary of 1200 guilders. These 300 guilders were precisely what made Schotanus's Utrecht position more desirable than the one he had held in Franeker. Mathematics thus had a practical profit for him.[48]

Although he would not publish anything on mathematics himself, he supervised some disputations on astronomical and mathematical matters (see figure 11.5). One of them was defended by a student who went on to the mathematics post at the University of Harderwijk before becoming Schotanus's successor in Utrecht. Schotanus's lessons in mathematics must have been solid to produce such alumni. It also shows that his appointment was not just an excuse to grant him a higher salary. This does not mean that mathematics enjoyed a similar academic status in Utrecht as Schotanus had experienced during his time in Franeker. Several sources seem to point to a much more theological approach to mathematics. For example Schotanus's colleague (and actual leader of Utrecht University), the theologian Gisbertus Voetius (1589-1676), found arithmetic useful because it could help students understand those parts of the bible where numbers are mentioned. He even defended the idea that counting (arithmetic) was invented by God himself.[49] The professor in Mathematics was not just any odd teacher, he attributed to an important part of the education of future ministers.

Neither Baardt nor Schotanus were typical mathematical practitioners, nor were they typical translators, although both epitaphs could be applied to them. In the early modern period they found a way to use their skills that suited them best. Both had control over several languages, both knew how to apply mathematics.

Conclusion

Gualtheri's pamphlet called his adversary a parrot to brush him off. I propose using the same word, but with little more dignity, to characterize Metius's works. Metius's publishing strategy showed a lot of what could be described as parroting.

[48] On Schotanus's later career see Hengstmengel & Hengstmengel-Koopmans, "Friese familie." On him earning extra as a professor in mathematics, see Boeles, *Frieslands Hoogeschool*, vol. II, 124; see also Berkel, "Onderwijs in de wiskunde." Johannes Phocylides Holwarda, another of Metius's students, benefitted greatly from his education and built an academic career around the same time Schotanus did. I recently published an article on him which shows that he, much like Baardt and Schotanus, built his own name on the foundations laid by Metius, see Dijkstra, "Wonderful Little Book."

[49] See Voetius, *Sermoen van de nutticheydt*, 35; esp.: "[A]ls hy [=God] sich selven het tellen toeschrijft," which translates as "[W]hen he [=God] attributes counting to himself." The student who would ultimately succeed Schotanus was Jacob Ravensberg, he would publish an *Encyclopedia Mathematica* in 1642 and he would clash with Voetius on Copernicanism. In the years to come that debate would gain momentum; see Vermij, *Calvinist Copernicans*, 123-6.



Figure 11.5. Bernardus Schotanus (1590-1652), unknown artist. Portrait made for the University of Franeker. Photo: Museum Martena Franeker

With this I refer primarily to him parroting his own work, which he recycled and reprinted in all sorts of ways.

The translation of his mathematical tracts can best be understood in that fashion. He was an author that made the most out of his writings by reprinting them. This does not mean that he stood by passively. With every reprint, edition and translation, things were changed. Sometimes these were small subtle changes and are hard to detect. At other times his work was completely reworked or translated. There is one common distinctive feature: he never presented his works as entirely new. All his books are published with a history. By referring back to his own publications, or citing others, Metius gave status to his textbooks. The parroting of his own works is not something that can only be detected with hindsight, it was in fact a crucial part of his publishing strategy and it shows Metius as an entrepreneur in the mathematical landscape.

Metius's writings and his translations had an important place in a local market, he had most of his work printed in Franeker, but he also used local translators. His publishing success was thus an economic success for Friesland as well. The presence of Metius in Franeker more or less also coloured the mathematical scene of the entire province. Gualtheri's dedication of his pamphlet to his old professor fits such a framework. But at the same time his tract was an elaborate multi layered puzzle, printed to defend his own good name and status. This points to the conclusion that the participants of the Frisian mathematical scene had something to lose. If they were proved incompetent their status would be undermined. In the case of Gualtheri this would mean he could lose his credibility, which would affect his social position.

How far the effects of an association with Metius could be taken, becomes clear with Baardt. Although he was clearly a talented author, he still needed an introduction to the world of printed culture before he could establish himself. This introduction was handed to him by Metius, who had him translate one of his books, the *Maet-constigh liniael*. That particular book is a strange amalgam of authorship and publishing strategies. The book is written by Metius, but partly an adaptation of work by Galileo and also presented as a complete translation into Dutch (from Latin) by Baardt. In the book itself Baardt functioned as its author, writing the dedication to the stadtholder. But on the title page it is Metius who is presented as writer, and it contains a laudatory poem to Metius by Baardt. And it was Metius who gave complimentary copies to his colleagues. The book was printed in Franeker. Yet in Leiden the Elzeviers claimed the publication as theirs. This shows how virtually impenetrable the bibliographical history of these works is. One thing is clear though, Baardt benefited greatly from it. His name was made

and he would live from his pen, one of the very few authors in Friesland who could manage this at that time. Whereas Baardt reached a wide audience writing in Dutch and Frisian, his mirror image is to be found in Schotanus, who reached an academic audience. Schotanus translated Metius's works into Latin (from Dutch). But, like Baardt, he only did so at the very beginning of his career. He would have a splendid career at the three major universities in the Dutch Republic and along the way his mathematical skills served him well.

The translator of mathematical texts had great opportunities. Careers were built, with a single translation as a stepping-stone. Yet this also unearths the problem translators had: it may have been a worthy practice at the beginning of a profession, but it would soon become unworthy of the established scholar or mathematical practitioner. The best example of this is perhaps Metius himself. In the beginning of his career he still made his own translations, but after a while he had people do this for him. Even when a text passed through different languages into the original one, others were responsible for this, thus creating distance between himself as author and the text that was presented to the audience. Reworking, editing and republishing, or parroting, was business a university professor could pursue in Friesland in the first half of the seventeenth century. But once his name and fame were established Metius used young and promising authors to translate his mathematics. For these translators it proved a great opportunity on route to building a reputation for themselves.*

* Acknowledgments: Several people have helped me with writing and composing this chapter, all of whom own my gratitude. I would like to explicitly thank the following: Harold J. Cook and Sven Dupré not only invited me to participate in the workshop where the basis for this book was laid, they also offered numerous suggestions for improvements and corrected the English—all remaining errors are of course my responsibility. My colleagues at the University of Twente contributed greatly with comments and critique, especially Fokko Jan Dijksterhuis and Tim Nicolaije. In Leeuwarden the ageing archivist W. Dolk helped me with his expert view on Gualtheri's life. Marika Keblusek commented an earlier version of this chapter, her enthusiasm has helped the argument very much. Finally Goffe Jensma, Djoeke van Netten and Piter van Tuinen have contributed to my understanding of Adriaan Metius.

A Translation Translated: The Educator as Translator in the Works of the Dutch Mathematics Master Abraham de Graaf

Tim Nicolaije

In the history of science, translation and education usually perform similar functions. Both are traditionally seen first and foremost as a means to facilitate the travelling of scientific knowledge across certain boundaries. Translation and education create the opportunity for science to spread beyond its point of origin, but in themselves they do not contribute to the development of science. The works produced by translators and educators are thus seen as merely derivative, the results of passive adaptation processes, which are only useful as indicators of the success and geographical spread of a scientific idea. This latter use of both translation and education can for example be found in a comment by C.L. Thijssen-Schoute on the position of René Descartes's (1596-1650) *Géométrie* (1637) in the Netherlands:

> The *Géométrie* [...] found immediate recognition and application in the Netherlands, as is shown by the Latin translation by Fr. van Schooten [...] and by the thorough textbooks in Dutch by a Gerard Kinckhuysen in Haarlem and by the Amsterdam mathematics master Abraham de Graaf.[1]

Both practices of translation and education, however, require further problematisation. As far as translations are concerned, historians of science are slowly starting to realise the importance of studying them in their own right. Work done in the field of translation studies the past few decades by among others Hans Vermeer, Theo Hermans, Gideon Toury and Justa Holz-Mänttäri points us towards the importance of the translator as an active participant in the development of scientific knowledge. A translation is not only a shift from one language to another,

[1] "De *Géométrie* [...] vond in Nederland onmiddellijk erkenning en toepassing; getuige de Latijnse vertaling door Fr. van Schooten verzorgd [...]; getuige ook de degelijke leerboeken in kloek Nederlands van een Gerard Kinckhuysen te Haarlem en van de Amsterdamse rekenmeester Abraham de Graaf" (Thijssen-Schoute, *Republiek der Letteren*, 61).

but also a change between two different cultures, so that a technically correct rendition of a text in another language does not ensure that certain aspects of it will not be 'lost in translation.' In this process of shifting not merely from one language to another, but also from one culture to another, the role of the translator is of vital importance. It is the translator who makes the changes in the original text that he considers necessary for the cultural relocation of the work under translation. He may choose to leave certain passages out, correct mistakes, or add commentaries or even more elaborate material of his own. In translating Ludolph van Ceulen's (1540-1610) *Arithmetische en geometrische fondamenten* (1615) into Latin, Willebrord Snellius (1580-1626) did indeed leave out certain parts of the original work, correct mistakes made by Van Ceulen, and add elaborate commentaries and a long dedicatory letter of his own to make the work better suited for the target audience of the Latin translation. The same is true for the aforementioned Latin translation of Descartes's *Géométrie* by Frans van Schooten Jr. (1615-1660), professor of mathematics at the Engineering School (the *Duytsche Mathematique*) of the University of Leiden, which was elaborated with notes and commentaries by Van Schooten and, in the second edition, with work from Van Schooten's students Hendrik van Heuraet (1634-1660?), Johannes Hudde (1628-1704), Christiaan Huygens (1629-1695), and Johan de Witt (1625-1672). It is because of this kind of involvement that the translator himself becomes a nontrivial element in how a translated text is read.[2]

While the role of the translator in the circulation of scientific knowledge is receiving more and more attention, the part of the educator is still often neglected. Education in science is presented as a straightforward process, the handing down of a simplified form of science from the teacher to the student. When we come across the verb "to teach" in writings on the history of science, it is usually followed by some broad, unspecified category like "mathematics", "natural philosophy", or "Cartesianism." This way of phrasing completely marginalises the work done by teachers. It is not the case that in all those instances students learned the 'entire' mathematics, natural philosophy, or Cartesianism—whatever that may actually mean.[3]

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2 On the cultural turn in the field of translation studies in the 1980s, see Snell-Hornby, *Turns of Translation Studies*, 47-67. On translators and culture, see, for example, Horton, "Describing Intercultural Transfer"; Eco, "A Rose by Any Other Name"; and House, "Universality versus Culture Specificity." On translations in the history of science, see e.g. Rupke, "Translation Studies"; and Petrou, "Greek Textbooks." On Snellius's translation of the *Fondamenten*, see Wreede, *Willebrord Snellius*, 186-201. On Van Schooten's translation of the *Géometrie*, see Dijksterhuis, "Moving Around the Ellipse," 121.

3 A couple of examples: Grafton, "Libraries and Lecture Halls," 241: "where Simon Steven

Although it has long since been recognised in the historiography of science that interpretations of a scientific theory may vary when put in a different setting, this is generally not addressed in the case of different educational contexts, and if it is brought up, historians still tend to view teaching of scientific theories as a straightforward and unproblematic enterprise. Robert Westman has, for example, argued that the Wittenberg Interpretation of the Copernican theory adhered to by the circle of scholars around Philipp Melanchton (1497-1560) affected the way in which Copernicus was taught in relation to Ptolemy at the University of Wittenberg in the mid-sixteenth century. Nevertheless, he still mentions "the Copernican theory" as a broad category when discussing its position in a textbook of Caspar Peucer's (1525-1602), therein seeing Peucer's abbreviated version of Copernicus's (1473-1543) ideas as nothing more than an unproblematic simplification of the original. The part played by the educator in how scientific thought is perceived by his students is thus in the main seen as trivial or at best as unproblematic. Nonetheless, it should be recognised that in all such instances the educator has made choices regarding the scientific content of textbooks and is thus, just like the translator, an active participant in the process of knowledge circulation.[4]

In the role played by the educator we can recognise a translational aspect. Even the naïve view that science teaching is merely a simplification of 'real' science turns the educator into a translator. Although he works within just one language, the educator still has to translate the original scientific works into something that is on the level of the understanding of his students. In his textbooks he has to take the scientific material across the boundaries of one cultural domain into another. Yet, as was also the case with interlingual translations, such 'cultural translations' made by the educator cannot be a mere literal rendition of the original. Once again we see that the educator becomes an active participant in the teaching process. In making a 'translation' of a scientific work, the educator is facing the same choices as the interlingual translator where, in order to bridge cultural differences, certain alterations may be thought necessary. In writing his textbook he may choose to leave some material out, rearrange parts of the original work, or add clarifications and commentaries.[5]

(1548-1620) taught practical mathematics in Dutch"; Berkel, "Legacy of Stevin," 49: "The Cartesians then avoided the use of Descartes's name but continued teaching his ideas"; Ben-Chaim, *Experimental Philosophy*, 98: "During the 1680s, Newton's theory was taught at Scottish universities."

4 Westman, "Melanchthon Circle," 179-180. A noteworthy exception is Warwick, *Masters of Theory*.

5 On 'cultural translation,' see for example Burke, "Cultures of Translation." George Steiner has argued that all understanding in principle involves an act of translation. See his *After Babel*,

In this article I argue that the educator is indeed an active player in the formation of scientific knowledge. To illustrate this, I discuss the works of the seventeenth-century Dutch mathematics master Abraham de Graaf (1635-1713). I demonstrate that what is presented in his textbooks is not simply 'the' mathematics, but material strongly influenced by De Graaf himself. I shall describe two special cases in which the publication of two (interlingual) translations into Dutch (from Latin and French) influenced the contents of his books. We shall see De Graaf acting as a translator, translating the material that he read in translation into textbook mathematics.

Cartesian Cosmology

De Graaf was a *rekenmeester*, a teacher of mathematics in seventeenth-century Amsterdam, who had a private school at his home where students could learn the elements of mathematics, ranging from the "six books of Euclid" to such practical mathematical subjects as navigation, surveying, and bookkeeping. When De Graaf took over the school of the successful master Sybrant Hansz Cardinael (1578-1647) in the 1650s, Amsterdam was at the height of its power as a centre for world trade and commerce. Skills in e.g. navigation and bookkeeping were thus in high demand, thereby creating more than enough work for De Graaf's and other mathematics schools to flourish. His talent as a mathematics teacher brought him significant social advancement, as he made the climb from simple linen-weaver (his father's occupation) to renowned mathematician with a considerable reputation in the mathematical circles of the city of Amsterdam.[6]

Although De Graaf wrote many textbooks on mathematics during his long life, he was never as active as he was at the end of the 1650s, when he had just entered the Amsterdam mathematical market. In only five years he published at least six books on arithmetic, geometry, navigation, and astronomy, clearly trying to demonstrate his mathematical knowledge and competence as an educator. However, his writings show that at this time he was still studying parts of the mathematical sciences himself, efficiently turning his newly-learned material into textbooks. This can clearly be seen in the preface (*Voorreden*) to his book on astronomy, *De starre-kunst* (1659): "thus I have turned to astronomy, which I had left aside for some time, where I discovered, much to my surprise, that almost everything concerning it was truly, or at least very probably, different from how it

ch. 1.

6 On Abraham de Graaf, see e.g. Blok & Molhuysen, *Nieuw Nederlandsch biografisch woordenboek*, 293-6.

had appeared to me." The shift in De Graaf's thinking about astronomical matters after reading the literature is evident when we compare *De starre-kunst* to a handbook on navigation that he published one year earlier. In this, *De seven boecken van de Groote Zeevaert*, De Graaf also discussed astronomy as far as it was useful to the art of navigation. However, whereas in this handbook he presented a geocentric system of the heavens to his readers, in *De starre-kunst* his cosmological views had clearly shifted towards heliocentrism.[7]

It would thus appear that before 1659 De Graaf had held a geocentric worldview. This was in keeping with the position of his predecessor Cardinael who had published a pamphlet called *Mathematische ofte wisconstige bewijs-redenen, waer mede bewesen wordt, dat de Aerdcloot stil staet* (Mathematical argument, by which it is proven that the Earth stands still), and was allegedly visited by Descartes who—unsuccessfully—tried to convince him of the heliocentric view. De Graaf may thus have taken over Cardinael's perspective regarding the motion of the sun, but in his discussion of the sun and the planets in his navigation manual of 1658—his first comment on this topic in print—he made no explicit statements in favour of geocentrism. In the chapter on the circles and motions of the planets (*circulen ende beweginge der planeten*), he merely gave factual statements on the differences with respect to the annual and diurnal motions of the sun and the earth in the Ptolemaic and Copernican systems, respectively. His only commentary on the two world systems is that his "feeling" (*gevoelen*) was contrary to both, after which he briefly proposed a structure in which a central earth makes a daily revolution around its axis while the sun revolves around the earth over the course of one year. The accompanying image (see figure 12.1) showed a Tychonic system, wherein the moon and the sun circle around the central earth and the planets in turn revolve around the sun. De Graaf, however, did not mention Tycho Brahe (1546-1601) by name, as he had Ptolemy and Copernicus and his very brief description of the motion of the planets did not necessarily point towards a Tychonic worldview. Concerning the planets he just noted that because of the diurnal motion he attributed to the earth, the planets only have an annual—instead of a daily—west-east motion, without any mention of the noteworthy change of their centre of rotation. Whether De Graaf really had a Tychonic system in mind or whether the image was not directly related and perhaps the work of the publisher will thus remain uncertain, since after this sketchy account of his "feeling" concerning the

[7] "Zo heb ik, die voor een tyt wat ter zyden stellende, my begeven tot de Starrekunde, waar in ik vont tot myn verwonderinge, dat byna alles, desaangaande, waarlyk, ten minsten zeer waarschynlyk, anders was als het my voor 't gezicht vertoonde" (Graaf, *Starre-kunst*, fol. ***2r).

system of the world he quickly recommended this topic for future research and moved on to the eclipses of the sun and moon, "all according to the thesis of a fixed Earth" (*alles volgens de stellinghe eens vasten Aertkloots*).[8]

From all this it is clear that by 1658, De Graaf believed in a geocentric construction of the heavens. However, just one year later, with the publication of *De starre-kunst* in 1659, he had turned into an enthusiastic supporter of Copernicanism. In the preface to this book he explained that because of his readings on astronomical matters he had come to realise that by making the earth go around the sun all the "disorderedness" (*wanschiklykheit*) of the motions of the heavenly bodies that turned up in a geocentric system would disappear. The heavens would no longer need to revolve around the earth with incredible speed to complete their daily revolutions, and epicycles (*bykringen*) would not be necessary anymore to properly explain the motions of the planets. On top of that, De Graaf claimed that the physics of Descartes had "powerfully" (*krachtig*) confirmed the reality of heliocentrism by "giving natural reasons for all the characteristics of the changes in its [the heaven's] course" (cf. figure 12.2).[9]

The first two arguments that were brought forward, the speed with which the heavens would have to move to complete their daily circles around the earth and the need to use complicated constructions involving epicycles to explain the seemingly irregular motions of the planets, were probably not decisive to De Graaf. In his *De seven boecken van de Groote Zeevaert* he showed, as we have seen above, that he is familiar with the Copernican system, and thus with the fact that it could solve the motions of the planets without using epicycles. We also saw that De Graaf claimed to believe in a (Tychonic) compromise between the Ptolemaic and Copernican systems, in which the earth had its own diurnal rotation and the sun and the planets only an annual motion around the earth. This would have solved the problem of the heavens moving around with incredible speeds to make their daily revolutions around the earth, while retaining a geocentric universe.

Taking this into account, it seems likely that it was the system of Cartesian physics that eventually convinced De Graaf to change his mind. Descartes's philosophy had become available to him only recently through the translation into Dutch of the *Principia philosophiae*, the *Beginselen der wysbegeerte*, by Jan Hen-

[8] Abraham de Graaf's discussion of the motion of the sun is in Graaf, *Groote Zeevaert*, Book I, 6 [fol. A4v]. On Cardinael's geocentrism, see Sitters, *Cardinael*, 60-1; and Vermij, *Calvinist Copernicans*, 108-10. The story about Descartes visiting Cardinael comes from Nierop, *Sonnestilstant*, 11.

[9] "[...] daar door wert natuurlyke reden gegeven, van al de hoedanigheden der veranderinge in haar loop [...]" (Graaf, *Starre-kunst*, fol. ***2r-v).

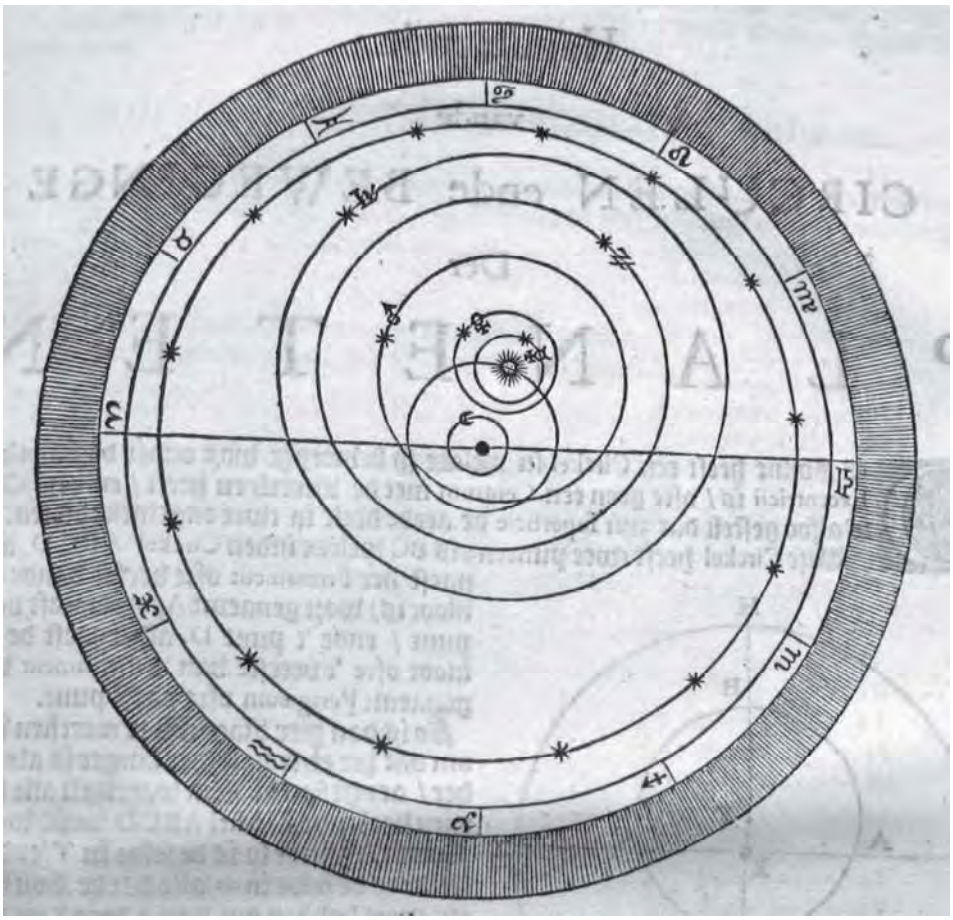


Figure 12.1. The Tychonic system of 1658. De Graaf, Groote Zeevaert, *6*

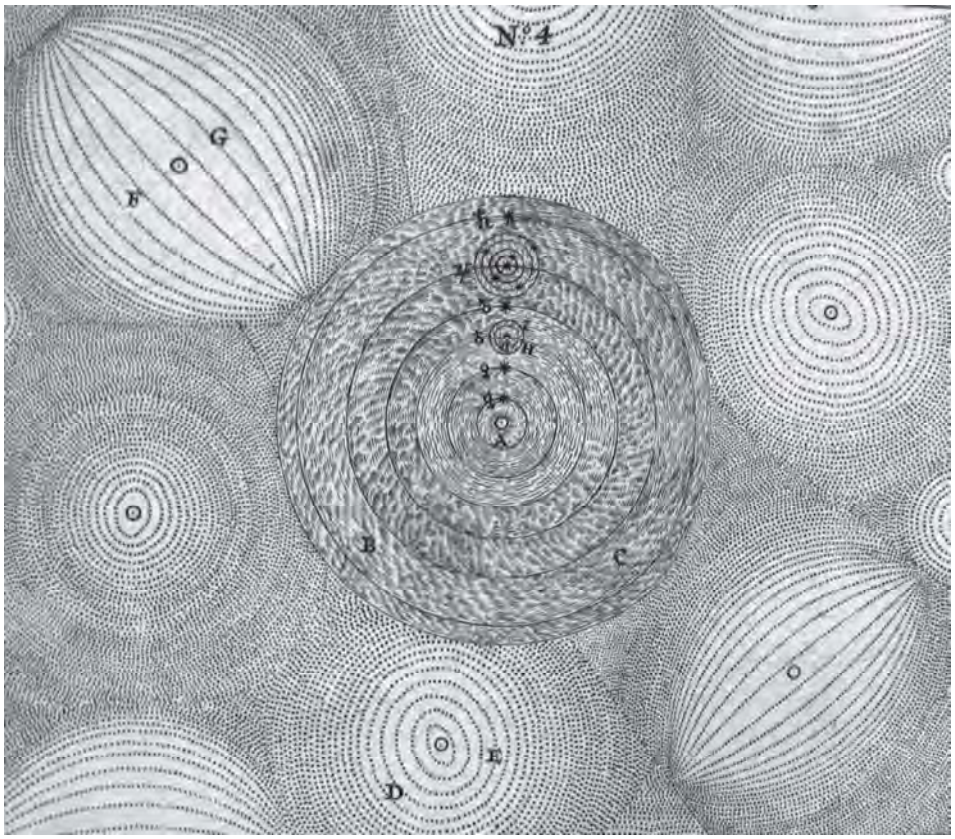


Figure 12.2. The Cartesian system of 1659. De Graaf, Starre-kunst*, second fold-out sheet (*De Tweede Print*)*

driksz Glazemaker (1620-1682), the husband of Cardinael's daughter Catalijntje (1620-1680). There is no evidence to show that De Graaf could read any other language than Dutch, so this translation, published in 1657, was his first opportunity to become acquainted with the works of Descartes. From what we have seen above it would thus seem likely that De Graaf had read the Dutch translation of the *Principia philosophiae* somewhere between the publication of his *De seven boecken van de Groote Zeevaert* in 1658 and *De starre-kunst* in 1659.[10]

The influence of the *Beginselen der wysbegeerte* on De Graaf is clearly noticeable in *De starre-kunst*. Not only did De Graaf change his mind about heliocentrism, he also started to copy Glazemaker's radical purism concerning technical terms, thus constantly opting for a Dutch word even though the Latin or Greek term had by then already become standard. In his *De seven boecken van de Groote Zeevaert*, De Graaf still talked about *Planeten* ("planets") and the *Ecliptica* or *Zodiac* (both used as terms for ecliptic), but in *De starre-kunst* he had switched to the literal Dutch translations of these terms, which were also used by Glazemaker in the *Beginselen der wysbegeerte*. Glazemaker and De Graaf thus both used *dwaalstar* (wandering star) as the word for "planet" and *taanront* (fade circle) for "ecliptic." Even more unusual was the use of *ayronts* (egg-round) to describe the elliptical orbit of the moon. The influence of Glazemaker's translation of the *Principia* on the language of De Graaf can also be seen in the title of De Graaf's book. He called it *De starre-kunst* (with an "A") instead of *sterre-kunst* (with an "E"), which was the preferred spelling of all the other authors of the time who used that word in their title. Again contrary to his practice in *De seven boecken van de Groote Zeevaert* where he spelled it as *ster*, De Graaf systematically spoke about a *star* in his *De starre-kunst*, thereby once more following Glazemaker who had done the same in the *Beginselen der wysbegeerte*.[11]

The greatest impact of the *Beginselen der wysbegeerte*, however, can be found in De Graaf's views on the way in which the solar system worked, as described in the first four chapters of *De starre-kunst*. After reading Descartes, De Graaf quickly turned parts of the *Beginselen der wysbegeerte* into something that he

[10] Descartes, *Beginselen der wysbegeerte*. On Glazemaker, see Thijssen-Schoute, *Republiek der Letteren*, 206-61.

[11] On Glazemaker's purism in translating, see Akkerman, "Glazemaker's wijze van vertalen," ix. "Planeten," "Ecliptica," "des Zodiacx," "vaste Sterren": Graaf, *Groote Zeevaert*, 2, 5, 3. "Dwaalstarren," "taanront," "ayronts": Graaf, *Starre-kunst*, fol. ***2v, 5, 13. "Dwaalstar," "taanront," "airont": Descartes, *Beginselen der wysbegeerte*, 186, 106, 225. The only books published before De Graaf's *Starre-kunst* that had the word "sterre-kunst" or any variant thereupon in their (long) title are Metius, *Institutiones astronomicae*; Holwarda, *Friesche sterre-konst*; and Nierop, *Friesche sterre-konst*.

could use in his textbook on astronomy. In *De starre-kunst* he included a Cartesian explanation—partly based on a similar account found in Dirck Rembrantsz van Nierop's (1610-1682) *Nederduytsche Astronomia*—of the characteristics and causes of the motions of the heavenly objects, which, although it, according to De Graaf, actually belonged to the domain of Physics, would be quite useful for students of astronomy. However, it would be going too far to conclude from this that *De starre-kunst* was a Cartesian textbook. Descartes's natural philosophy was a rather small part of a still very traditional handbook on the mathematical art of astronomy, which meant that De Graaf's focus was in the main on teaching how to e.g. calculate the positions of the heavenly objects and times of solar and lunar eclipses. The Cartesian physics that was included in *De starre-kunst* only served as a quick introduction to how the solar system was built up and to the physical reasons behind certain astronomical phenomena.[12]

Because of this function of the natural philosophy in *De starre-kunst*, De Graaf adapted parts of Book III of the *Beginselen der wysbegeerte* for his own purposes. In De Graaf's description of the Cartesian heavens we do not find Descartes's elaborate and systematic structures of reasoning, building up a system of the world from first principles. De Graaf began *in medias res* by stating that the world was completely filled with matter and that this matter was moving around in giant vortices. By means of Descartes's analogy of a vortex of rapidly moving water in a river (Book III, Article 30), he explained the motions of the planets around the sun and of the satellites of the earth and Jupiter through the introduction of two separate smaller vortices for the earth and for Jupiter. Following Descartes, De Graaf used this to illustrate why planets closer to the sun moved faster than planets that were farther away, why the orbits of the planets were not perfectly circular so that planets were sometimes closer to the sun than at other times, and that the point at which a planet is farthest away from the sun (the aphelion) is not constant but moves with respect to the fixed stars. With the latter point about the shifting aphelion of a planet, De Graaf went beyond Descartes in using the watery vortex as an explanation. Descartes noted the phenomenon in Article 36 of Book III, but did not explicitly link it to the analogy of straws floating in a whirlpool, whereas De Graaf did make the connection, albeit by simply saying that one could see this happening with objects circulating in a vortex.[13]

However, unlike Descartes, who went on to re-examine these phenomena within the context of his system of three elements, De Graaf stayed close to

[12] Esp. Nierop, *Nederduytsche astronomia*, 1-7.
[13] Graaf, *Starre-kunst*, 11-2.

the whirlpool analogy. In fact, he never discussed Descartes tripartite division of matter but limited himself to a gradual division between "thinner" (*dunder*) and "thicker" (*dikker*) matter. For him, such a classification sufficed to explain the remaining phenomena of the heavens. The disturbances in the rotational speed of the moon, for example, were caused by a difference in speed of the earth's vortex (on which the moon floats) when positioned in either thinner or thicker matter. In a vortex, the matter at the centre was the thinnest and would become thicker the farther one moved away from it. Hence, when the earth's vortex was closer to the sun it would be in thinner matter than when it was farther away, and therefore its speed was highest when it was at its closest point to the sun, and would decrease when it moved away from the sun. Because of these variations in the speed of the earth's vortex the moon, being dragged along by this vortex, also had to move slower or faster depending on its position relative to the sun.[14]

In this example we again see De Graaf using a shortcut when discussing the variations in the thickness of the matter with respect to the centre of the vortex. While the eventual conclusion concerning the moon's motion is perfectly Cartesian (cf. Book III, Article 153), the statement about the thickness of matter is not. Descartes's explanations involved particles in motion, for which the characteristics "thinner" and "thicker" are meaningless. The idea of "thinner" and "thicker" matter allowed De Graaf to stay close to the Cartesian descriptions of the motions of the heavenly bodies while at the same sticking to the simple model of a rotating circular bathtub.

In staying so close to this whirlpool analogy, De Graaf presented a physics that was different from Descartes's. Where Descartes introduced the whirlpool in the river as merely an analogy to illustrate the far more complicated system of vortices made out of the first, second, and third element that he deduced later on, De Graaf turned this whirlpool into the basic building block of the system of the world. Throughout his description of the motions of the celestial objects, De Graaf presented the rotating circular bathtub as a physical reality, and as such made it seem as if the heavens were actually made out of water.

De Graaf's use of language reinforced this concept. He typified the matter out of which the universe was made as "a thin water, or water-like substance." This is far more specific than Descartes in Article 24 of Book III, where he described the matter of the heavens more generally as "fluid," which was duly translated by into Dutch with the equally general *vloedig of week*. Furthermore, De Graaf used

[14] Graaf, *Starre-kunst*, 14. Descartes's further thoughts on the variations in orbital speeds are in *Principia*, Book III, Article 148, and on the varying distance of planets to the sun in *Principia*, Article 141.

the word *vloet* (flood) when talking about a vortex, which again related to water more specifically than the word *draaikring* that was used by Glazemaker in his translation of the *Principia Philosophiae* which De Graaf, as we have seen above, must have used.[15]

A final suggestion concerning the watery substance of the heavens comes from De Graaf's brief discussion of the firmament. In the *Beginselen der wysbegeerte*, Descartes only mentioned the firmament as the surfaces separating the various vortices, through which the light of the stars (the centres of other vortices) passed. De Graaf, however, deviated from this view and pictured it as a shell around the earth, placed there by God on the second day of Creation: "Approaching the earth, we find that placed around it there is a fixed perimeter, expanse, or firmament, with which the Almighty, on the second day of Creation, has separated the waters from the waters, that is, the waters that are above the expanse—which yet, with regard to us, do not differ from an infinite water—from the waters on the earth." Thus here De Graaf identified the waters above the firmament with the heavenly matter that he had discussed before, reinforcing again the suggestion that the heavens were actually made out of water.[16]

Whether De Graaf took the fluidity of the heavens literally cannot be determined from the available evidence. If so, it would mean that his textbook material on Cartesian cosmology was based on a (partial) misinterpretation of the *Beginselen der wysbegeerte*. But even if he only emphasised the whirlpool analogy for didactic reasons, his readers would still be led to the conclusion that the heavens were actually made out of a watery substance. De Graaf's discussion of Cartesian cosmology was thus not merely a simplified version of the 'real' natural philosophy, but a re-organisation and re-interpretation that substantially changed the contents of Descartes's ideas.

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15 "Een dun water, of waterachtige stoffe": Graaf, *Starre-kunst*, 9. "Fluid": Descartes, *Principles of Philosophy*, 93. "Vloedig of week": Descartes, *Beginselen der wysbegeerte*, 98. "Vloet": Graaf, *Starre-kunst*, 10 ff. "Draaikring": Descartes, *Beginselen der wysbegeerte*, 103 ff.

16 Descartes's discussion of the firmament is in *Principia*, Book III, Article 131. De Graaf's views on the firmament and the waters of the heavens are in Graaf, *Starre-kunst*, 14: "Nader de Aartkloot komende, zo bevinden wy, dat rontom dezelve, een vaste omtrek, uitspanzel, of firmament gestalt is, waar meê de Almachtige, op de twede dag der Scheppinge, gescheiden heeft, de wateren vande wateren, dat is, de wateren die boven 't uitspanzel zyn, (welke dog niet anders zyn, ten aanzien van ons, dan een oneindelyk water) van de wateren op de Aartkloot [...]."

The Elements of Geometry

There is a further instance in the works of De Graaf where we find him integrating parts of a book that was translated into Dutch around the same time as the publication of a book of his own. This time, however, it was not the content of the translated text that was adapted and taken over by De Graaf, but rather a method of structuring the elements of geometry, as found in the first six books of Euclid's *Elements*. De Graaf explicitly criticised the use of Euclid in teaching geometry in his *Inleyding tot de wiskunst* ('Introduction to Mathematics'; 1706), claiming that he did not like the order in which the material was treated and that Euclid included many items that were no longer of any importance. According to him, the times had changed and for that reason it would be necessary to change the way in which geometry was taught: "Then they made mountains of propositions, now they would barely tolerate hills." His textbook would therefore "go an entirely different way."[17]

The re-structured elements of geometry that De Graaf then presented to the readers of his *Inleyding tot de wiskunst* were overall the same as those in the geometry chapter of a much older work of his, *De geheele mathesis* ('The Whole of Mathematics'), first printed in 1676. As the title already suggests, De Graaf meant this book to be a summary of the entire structure of mathematics, or at least of the useful parts of it. *De geheele mathesis* has a systematic composition, starting with chapters on the basics of proportions, arithmetic, geometry, and trigonometry, and then moves on to the mixed mathematical sciences of astronomy, surveying, navigation, fortification, gnomonics, perspective, optics, and mechanics, finally ending with a separate chapter on algebra. The order was such that the whole of the mathematical sciences was logically built up, meaning that any area of mathematics that was needed to understand another was indeed discussed first. Thus, in the chapter on surveying, De Graaf could refer back to principles that were explained in the chapters on geometry and trigonometry, while the navigation chapter relied on the basics of geometry, trigonometry, and astronomy.[18]

A central place was taken up by the geometry chapter, where De Graaf thus discussed his own 'new' elements of geometry, which would later on end up in the above-mentioned *Inleyding tot de wiskunst*. The most important change with respect to Euclid was that De Graaf included only those parts of the *Elements* that he considered to be "useful" (*nuttelyk*). De Graaf went back and forth through the

[17] "Toen maakte men Bergen van Propositien, nu wil men naulijx Heuvelen gedogen"; "[...] een geheel andere weg [...]" (Graaf, *Inleyding tot de wiskunst*, 1).

[18] Graaf, *Geheele mathesis* (1676).

material of the *Elements* to end up with a logical system of his own in which he introduced only those propositions that he thought were worth knowing. This selection of propositions was highly influenced by matters of practicality, especially in the context of the following chapters on the mixed mathematical sciences. In re-arranging the geometry of the *Elements*, De Graaf furthermore combined the propositions according to subject, so that he had separate sections on e.g. triangles, squares, and circles, whereas in the *Elements* these were scattered over various books because of the strict Euclidean structure of proofs.[19]

In another way, however, De Graaf stayed rather close to the system of Euclid. Despite the re-organisation of many propositions, his arrangement of the elements of geometry in *De geheele mathesis* was very Euclidean, that is, he presented it by means of axioms, definitions, propositions, and proofs. Even though he had criticised Euclid for placing too much emphasis on propositions, De Graaf himself also portrayed geometry as nothing more than a sequence of propositions, which relied on a number of given axioms and definitions.

In the axioms and definitions, De Graaf also made some alterations, the most notable of which is that he reversed the standard order of first giving the definitions and then the axioms. Within the definitions, another noticeable change was that the order of the definitions of a point, a line, a surface, and a body were reversed. De Graaf started with the definition of a body, which is something that his readers could observe in the real world, and then stated that a surface is the extremity (*het uyterste, of het buytenste*) of a body, a line the extremity of a surface, and a point the extremity of a line.[20]

These changes in the order of the axioms and definitions, in the arrangement of the definitions of bodies, surfaces, lines, and points, and in the grouping together of the propositions on the various geometrical objects were not original contributions by De Graaf, but had already been made by earlier authors. The particular combination of these modifications of Euclidean geometry is of interest, but it is once again not De Graaf's own invention. We can find this same characteristic set of modifications in the *Nouveaux élémens de géométrie* ('New Elements of Geometry'), a textbook on geometry published anonymously in 1667, which is nowadays attributed to the French Jansenist Antoine Arnauld (1612-1694), a member of the Port-Royal circle, who famously contributed to what is known as the Port-Royal Grammar (1660) and Logic (1662). In this *Nouveaux élémens de géométrie* we find the same sort of search for foundations as can be discerned in

[19] Graaf, *Inleyding tot de wiskunst*, fol. *2r; Graaf, *Geheele mathesis* (1676), Book III.
[20] Graaf, *Geheele mathesis* (1694), 39.

these works on grammar and logic. The resulting textbook aimed to rebuild the whole system of geometrical knowledge from the base up.

The Dutch translation of the *Nouveaux élémens de géométrie*, the *Nieuwe Beginselen der Meetkunst*, was published around the same time as the publication of *De geheele mathesis*, and because of a long quotation in De Graaf's book taken from this translation we know that he must have been familiar with it. This quotation is given in the introduction of *De geheele mathesis*, where De Graaf used it to list the "theoretical"—as opposed to practical—uses of mathematics. These were considered to be ways to exercise the mind, both as a means of detachment from the stimulations of the senses and for practice in the art of reasoning. But it seems that De Graaf took more from the *Nieuwe beginselen der meetkunst* than just this long passage.[21]

As mentioned above, as in De Graaf's *De geheele mathesis*, Arnauld arranged his book so that everything relating to one particular geometrical object would be placed close together. This means that in the *Nieuwe beginselen der meetkunst* he discussed all the propositions relating to e.g. lines, squares, or circles in one or several consecutive chapters, a way of organising that was taken over by De Graaf. Similarly, Arnauld gave the definitions of a point, line, surface, and body in the reversed order that we already noted in *De geheele mathesis*, and also made the axioms appear before the definitions. These latter modifications actually made more sense in the *Nieuwe beginselen der meetkunst* than in De Graaf's work because of the larger structure of the book. Arnauld started his geometry with a discussion of the axioms in relation to the rules of proportions, after which he moved on to additions, subtractions, multiplications, and divisions before coming to actual geometry. It thus made sense for Arnauld to first take up the axioms before giving the geometrical definitions, whereas in De Graaf's geometry chapter this switch appears to be somewhat random.

However, when we look at how Arnauld tried to found geometry on general rules for proportions and arithmetic, and note that Euclid first dealt with proportions in Books V-X of the *Elements*, we can see yet another parallel between the *Nieuwe beginselen der meetkunst* and De Graaf's *De geheele mathesis*. Before

[21] Anonymous (attr. Arnauld), *Nieuwe beginselen.* This quotation on the uses of mathematics can be found in Graaf, *Geheele mathesis* (1694), fol. *4v-**2r. Although the years of publication given on the title pages of *Geheele mathesis* and *Nieuwe beginselen* seem to indicate that De Graaf's book appeared one year before the translation of Arnauld's work was even published, we know from the quotation given by De Graaf in *Geheele mathesis*, which was literally taken from the translation, that De Graaf must have known the book in this particular translation. A possible explanation is that either or both of the given years of publication are wrong, or that De Graaf in some way had access to the book before it was officially published.

the geometry chapter in *De geheele mathesis*, De Graaf also discussed the principles of proportions and arithmetic, copying the overall structure of the *Nieuwe Beginselen der Meetkunst*. Yet, there is an important difference in the way both authors used this structure of proportions, arithmetic, and geometry: for Arnauld the chapters on proportions and arithmetical operations were the building blocks for his later chapters on geometry, while for De Graaf these chapters were all standalone topics. De Graaf may have been inspired by the *Nieuwe beginselen der meetkunst* to place proportions and arithmetic before geometry, but did not take over Arnauld's interrelations between those topics. This is clearly shown by the placement of the axioms before the definitions in the geometry chapter discussed above. Most of these axioms were already stated in the chapter on proportions, and if De Graaf was strictly following Arnauld in using that chapter and the following one on arithmetic as the foundation for his geometry there would have been no need to repeat them at the beginning of the geometry chapter. Nevertheless, that is what De Graaf did, thereby making his geometry chapter more a standalone summary of the relevant parts of Euclidean geometry than an integral part of a book that links together the whole of mathematics.

Thus, while De Graaf took over parts of the structure of Arnauld's *Nieuwe beginselen der meetkunst* to organise his own elements of geometry, he did not make the underlying aim of that structure his own. The intentions of both the authors were just too different: Arnauld filled an entire volume with a novel presentation of the first six books of the *Elements* whereas De Graaf had only one chapter in a book on the "whole of mathematics" to do the same. Moreover, De Graaf did not intend his book to challenge the philosophical foundations of mathematics, but aimed first and foremost at the practical aspects of the various mathematical arts. As such, his arithmetic chapter was not meant as a stepping-stone towards the elements of geometry, but rather as an overview of those parts that would most likely be relevant to, for example, merchants. Similarly, the chapter on geometry merely gave an impression of the geometrical way of reasoning and introduced all the propositions needed in later chapters. In this case it was De Graaf who adjusted both Euclid and Arnauld to fit his own purposes.

Conclusion

In his *The Structure of Scientific Revolutions*, Thomas Kuhn wrote that textbooks "aim to communicate the vocabulary and syntax of a contemporary scientific language." This statement presupposes that the only thing that is done in education is the passing on of a fixed corpus of scientific knowledge. In this view, the work

of an educator is considered to be similar to making an as literal as possible translation of the 'real' science, such that it is understandable for the students who are trying to learn it.[22]

Current developments in "translation studies" have, however, shown us that such a literal translation is in principle impossible. There is always something 'lost in translation,' primarily because of differences between the culture in which the text was originally written and the culture into whose language it is being translated. Certain elements of a text may be untranslatable or turn out to be incomprehensible to readers when translated verbatim because of a missing shared background with the author of the original. In such cases, it is the translator who plays an active role in making the text fit into the receiving culture, while at the same time trying to sacrifice as little of the original meaning as possible. The role of a translator is thus larger than simply replacing the words of one language with words of similar meaning in another, since it may also involve choices of how to make alterations such that a text can actually be understood in a culture different from the one in which it was conceived.

In this article I have argued that the part played by an educator is the same as that of a translator, including his active involvement in shaping the eventual reading of a text. A science educator translates an element of scientific knowledge into something that is understandable in the receiving student culture. As in the case of the translator, however, the educator is an actively involved middleman, who has the power to make selections from the scientific material or adaptations in its structure of argumentation as he sees fit and who, occasionally, might also make mistakes in his interpretation of the original text. We should thus not assume that an educator always faithfully communicates the "vocabulary and syntax" of scientific knowledge, but consider him rather an active contributor to the development and circulation of science.

We have seen how the Dutch mathematics teacher Abraham de Graaf included elements of other scientific books in his textbooks. However, when we compared these with the original texts, we saw that De Graaf made some significant alterations. In discussing Cartesian cosmological theory in his astronomy textbook *De starre-kunst*, De Graaf changed Descartes's "vocabulary" so that it would better fit his presentation of the causes of the motions of the heavenly bodies. Because De Graaf had taken up the analogy of the whirlpool in a rapidly rotating circular bathtub as a physically real representation of the constitution of the heavens, he consequently used a terminology that stressed this watery composition of the

[22] Kuhn, *Structure of Scientific Revolutions*, 136.

world. Furthermore, he did not discuss these matters in terms of logical deductions from first principles, but simply stated Descartes's most important conclusions as a matter of fact, thereby thus also adjusting the "syntax" of Book III of the *Beginselen der wysbegeerte* to make it fit within the context of his textbook on the mathematical art of astronomy.

While it would seem that de Graaf, Abraham had indeed taken over Arnauld's "syntax" in his *De geheele mathesis* by, like Arnauld, first introducing the rules of proportions and arithmetic before moving on to geometry, we have seen above that that was not entirely the case. De Graaf took over only bits and pieces from Arnauld's *Nieuwe beginselen der meetkunst* which were useful in his discussion of the "whole of mathematics," including the structure of placing the chapters on proportions and arithmetic before the one on geometry. Nevertheless, the superficial similarity of the ordering of mathematical material was not imitated in the deeper structure of De Graaf's chapters. Whereas Arnauld had presented the principles of proportions and arithmetic as steps towards a new foundation of the elements of geometry, De Graaf still saw them as separate entities, turning his chapters into self-contained parts of his book that were deeply influenced by earlier textbook traditions.

We can thus conclude that educators like De Graaf were not passive transmitters of knowledge, but actively changed the way in which scientific ideas reached a wider public. By translating scientific or mathematical content from one cultural domain to another they opened up a world that would otherwise have been inaccessible to many people, just as translators did by making a work available in one's own language. For De Graaf, the scientific thoughts of Descartes and Arnauld would have remained out of reach had they not been translated into Dutch. Similarly, De Graaf made their works accessible to those who could not understand the originals, whether or not in translation. Yet, from what we have seen we should keep in mind that the versions of scientific knowledge that ended up in these textbooks could on occasion differ significantly from the original works, thereby making the educator a participant in the development of science that should not be ignored.*

* I would like to express my gratitude to Sven Dupré and Hal Cook for inviting me to the Ghent workshop at which the ideas put forward here were first presented, and for their constructive criticisms on the resulting chapter. Furthermore, I would like to thank my Twente colleagues Fokko Jan Dijksterhuis, Lissa Roberts, and Arjen Dijkstra for their helpful comments and remarks.

Translation and Transformation of Knowledge

Translating Facts: From Stories to Observations in the Work of Seventeenth-Century Dutch Translators of Spanish Books

Antonio Barrera-Osorio

In this chapter I briefly discuss the role of translators and translations in the emergence of empirical practices as a tool of knowledge production in the Atlantic World during the sixteenth and seventeenth centuries. My contention is that a small yet influential group of translators emphasized the empirical aspect of Spanish scientific works in their translations. This happened in one of two ways: either the translator made commentaries about these aspects in his translation or the translator translated only what he considered the empirical aspects and left other aspects aside. In either case, translators added to or influenced the information about the natural world as the book entered the literary or scholarly tradition the translated version belonged to.

A significant element in the emergence of empirical practices in sixteenth- and seventeenth-century Europe was the accumulation of information about the natural world.[1] Translators played a crucial role in this process, particularly in literary and scholarly contexts. In general, translators served as intermediaries between users of different languages by translating texts "from one language to another," as the lexicographer Sebastian de Covarrubias (1539-1613) in his 1611 Spanish dictionary defined *traduzir*, to translate.[2] The seventeenth-century English writer Edward Phillips (1630-c.1696) provided a similar definition for "translation": "a turning out of one language into another."[3] Covarrubias qualified further the work of the translator and pointed out that translating needed to be done with "prudence," and the translator should "know equally both languages," "according to

1 Cook, "Global Economies," 100. On the relationship between Dutch and Spanish scholars, see Navarro Brotóns, "Spain and the Low Countries."

2 Covarrubias, *Tesoro de la lengua castellana*, s.v. "Traduzir": "[...] en la Española significa el bolver la sentencia de una lengua en otra [...]." This dictionary was first published in 1611.

3 Phillips, *New World of English Words*, s.v. "Translation."

the letter," not to the "sense." In this last case, the translator, according to Covarrubias, is "pouring" a text into another as in "to spill it over" or "to spoil" the original text.[4]

Covarrubias's qualification of the task of translators reflects the positions of the period. Scholars, writers, and translators debated the issue of translation in their works without reaching a consensus. Some, usually authors, argued that a translation must be literal, a word-by-word translation; some, usually translators, argued that a translation had to allow for enough flexibility to make it understandable to a new linguistic and cultural audience (in relation to the audience of the original text). The Jesuit Jose de Acosta (1539/40-1600) translated his own book on natural history and explained "I have translated it into Spanish [from Latin], using more the liberty of an author, than the strict bonds of a translator."[5] The historian Francisco Lopez de Gomara (1511-1564) asked his possible translators to "watch the sentences, taking in consideration the properties of Spanish, which many times expresses important reasons with few words," and not to "take out or add or change letters to the Indian and Spanish names, if they want to do their work as faithful translators."[6] Covarrubias's definition makes the same point.

Lopez de Gomara seemed to have understood very well the difficult position of the translator: he needed to find a balance between a faithful translation and a translation appropriate to the new target language.[7] He asked translators to tilt the balance in favor of the original language. Nevertheless he understood that translators played the role of a broker: translators negotiated texts for new audiences. In doing so, translators negotiated texts for new purposes. Spanish books that related to the New World—books on natural history, navigation, medicine, and geography—seemed to have been particularly prone to the translator's transformation of the original texts into a new and translated text. In this chapter, I discuss the case of translators who transformed in significant ways Spanish scientific books about the New World. I argue that they did so because they used the

4 Covarrubias, *Tesoro de la lengua castellana*, s.v. "Traducion": "Traducion, esta misma obra y traductor, el Autor della. Si esto no se hace con primor, y prudencia sabiendo igualmente las dos lenguas, y trasladando en algunas partes, no conforme a la letra, pero segun el sentido seria lo que dixo un hombre sabio, y critico, que aquello era verter, tomandolo en su significacion de derramar, y echar a perder."

5 Acosta, *Naturall and Morall Historie*, "to the Reader."

6 López de Gómara, *Historia general*, "A los Trasladores," unpaginated: "[…] guarden mucho la sentencia, mirando bien la propiedad de nuestro romance, que muchas veces ataja grandes razones con pocas palabras"; "[…] no quiten ni añadan ni muden letra a los nombres propios de indios, ni a los sobrenombres de españoles, si quieren hacer oficio de fieles traducidores."

7 Burke & Hsia, *Cultural Translation*, 7.

compendium as a model to translate Spanish scientific works. By translating Spanish books on America in the form of compendium, translators introduced readers not only to new information but also to a new vocabulary, topics, examples, and authors dealing with the New World.

A compendium, following Phillips's dictionary, was "an abridgement."[8] The dictionary of John Bullokar (bap. 1574-1627) provides this definition: "A short way, a saving Discourse."[9] Covarrubias is more explicit: "commonly [a compendium is] a subject, speech, reasoning, or book that had been abbreviated from a larger text and is limited to the necessary and essential of the matter."[10] In some cases the author of the compendium added text from other sources to aid comprehension or to offer a more complete account of the matter at hand. The scholar Diego de Funes y Mendoza (c.1560-c.1625), who translated Aristotle's works on birds, explained that he had "reduced it to a compendium, and added many other things from other important authors, both Greek and Latin."[11] Perhaps within the scholastic tradition, there was a consensus about what were the essential and necessary topics of a given book when reduced to a compendium. But this was not the case regarding books about the New World: translators had to make decisions about what was the essential information about the New World.

English, French, and Dutch translators translated Spanish scientific books and, in the process, changed the order of the books' sections, took material out, and added new material to the translated books. Dutch scholars such as Carolus Clusius (1526-1609) and Joannes de Laet (1582-1649) translated Spanish scientific books into compendia. These translations, in the form of compendia, constituted a significant element in the circulation of information about natural things in the Atlantic World. The Dutch adventurer John Huyghen von Linschoten (1563-1611), for instance, reports on American geography, based on Spanish and Portuguese books, "to shew the readers the principall places therein."[12] English readers learned about tobacco from Richard Eden's (1521-1576) translation of Peter

8 Phillips, *New World of English Words*, s.v. "Compendium."

9 Bullokar, *English Expositor*, s.v. "Compendium": "Compendio, comunmente se toma por alguna materia, discurso, razonamiento, o libro, que se ha recogido, y abreviado de mayor volumen, ciñendose con lo necessario, y essencial de la materia."

10 Covarrubias, *Tesoro de la lengua castellana*, s.v. "Compendio."

11 Aristotle, *Historia general de aves y animales*, "El Rey," unpaginated: "[...] para reduzilla a compendio, añadiendole otras muchas cosas de otros graves autores, ansi Griegos, como Latinos."

12 Linschoten, *Discours of Voyages*, 217.

Martyr, the official chronicler at the Spanish court of Isabel and Ferdinand.[13] How did translators decide what to translate from the book under consideration?

The case of Clusius and Laet and their translations of Spanish books dealing with medicine, geography, and natural history illustrates how some European scholars, in this case Dutch, used and transformed the work of Spanish scholars for a wider non-Spanish speaking, European audience—to the extent that they translated those books into Latin, Dutch, and French.[14] Both scholars selected and translated observations, or facts, from the Spanish books and compiled those observations into accounts that can be characterized as collections of facts about medicinal plants, in the case of Clusius, and about the geography and natural history of the New World, in the case of Laet.

The significance of these translations is that they legitimized empirical practices embedded in the Spanish books for the production of knowledge based on personal experience. Spaniards engaged with America, on both sides of the Atlantic, had a clear and profound understanding of the role of experience in the production of knowledge about America. As the writer and royal official Gonzalo Fernandez de Oviedo (1548-1557) remarked in his book on natural history, the Spaniards were " *experimentadores* [. . .] *buscando el mundo*—experimenters, [. . .] looking for the world."[15] The geographer and lawyer Martin Fernandez de Enciso (c.1470-1528) also emphasized the role of experience in his book on geography by stating, "experience in our times is the mother of all things." My contention is that sixteenth- and seventeenth-century translations of Spanish books dealing with the New World focused in particular on the empirical information and related aspects contained in those books. To show this point, this paper discusses the case of Clusius who translated the work of Nicolas Monardes (1493-1588), and to a lesser extent the case of Laet who translated the work of several Spanish authors.

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13 Mancall, "Tales of Tobacco," 657.

14 On the relation between Monardes and Clusius, see Pardo-Tomás, "Two Glimpses of America"; and Monardes, *Historia medicinal*. On Clusius, see Egmond, Hoftijzer & Visser, *Carolus Clusius*; López-Piñero & Pardo-Tomás, "Contribution of Hernández"; Swan, "Collecting Naturalia"; and Ogilvie, "Many Books of Nature," 33. On Monardes, see López-Piñero, "Nuevas medicinas"; Guerra, *Nicolás Bautista Monardes*; and Bleichmar, "Books, Bodies, and Fields."

15 The context for this quote is a distinction Fernandez de Oviedo made between classical authors and his contemporary Spanish authors: "Quanto más que [los autores antiguos] no como experimentadores, como nuestros españoles, buscando el mundo, sino como especuladores, estándose quedos, hablaban á su beneplácito." ("This is so as [the classical authors] talked as much as they wanted as speculators and not as experimenters like our Spaniards searching the world and staying quiet.") See Fernández de Oviedo y Valdés, *Historia general y natural* vol. III, 636; Fernández de Enciso, *Suma de geografía* fol. 58r.

Translating into Compedia: Transforming Accounts into Particulars

Monardes was a physician working in Seville in the 1530s. At some point in his career, he came in contact with medicinal plants from the New World. Monardes refused to use medicines from the New World the first time someone, a certain Pascual Cataño, proposed that he use a purgative from the New World:

> I [Monardes] caused him [Cataño] vtterly to forsake the vse of suche like new Medicines, of the which there was nothing written nor knowne. And did perswade with him to purge with the Medicines that we had heere, of the which there was so greate experience and knowledge, in written Authors.[16]

Cataño tried Monardes's Old-World medicine but it did not work well. When he "came to the second purgation, hee woulde take none other but his owne Ruibarbe of *Mechoacan*, with the which he did purge so well, that he remayned whole." Spaniards learned about mechoacan from indigenous people, and that knowledge circulated widely in Mexico before it reached Spain and then the rest of Europe.[17] After this experience, Monardes began to study New World medicines intensely.[18] He wrote three reports on New World medicinal plants in 1565, 1571, and 1574. They were published together as the *Primera y segunda y tercera partes de la historia medicinal de las cosas que se traen de nuestras indias occidentales que sirven en medicina*.[19] These reports were translated into Latin, English, Italian, French, and Flemish. Monardes's books circulated widely in Europe—and with them circulated not only information but the empirical practices embedded in the book. The origin of these reports, as mentioned above, was the interaction between Native Americans and Europeans in America. In the case of Monardes, most of his information came from Spaniards who interacted with Native Americans in the streets and markets, the *tianguez*, of Mexico.[20] This is a story about information that circulated between Indians and Europeans in the streets and fields of America and ended up in the books of European desks and libraries.

Clusius helped make Monardes available to scholars by translating his work into Latin. In 1569, Clusius received a synthesis of the first part of the *Historia medicinal*; but he did not obtain the first and second parts of the *Historia medic-*

16 Monardes, *Ioyfull Newes*, fol. 25r. For a larger discussion of these issues, see Bleichmar, "Books, Bodies, and Fields."

17 The story is in Monardes, *Historia medicinal*, fol. 29r-30r.

18 Monardes, *Ioyfull Newes,* fol. 25r.

19 See the full reference in the bibliography.

20 Mechoacan was available in the markets or *tianguez* of Mexico, see López de Hinojoso, *Summa y recopilacion de cirugia* fol. 181r.

inal until 1571, in London.[21] He began to translate them in 1573, and published this translation in 1574 in his *Simplicium medicamentorum.*[22] Clusius introduced changes to this book each time it was republished in 1582 and 1593 (this last edition included Monardes' third part of his *Historia medicinal*). In 1605, Clusius published *Exoticorum libri decem*, his most important book concerning new medicinal plants.[23] The *Exoticorum* was a compilation of texts and illustrations from different sources about plants and animals from the New World, Asia, and Africa together with his translations of Garcia Da Orta (c.1501-1568), Cristobal Acosta (c.1525-c.1592), and Monardes.

In Clusius's hands, Monardes's *Historia medicinal* became a different book. As Pardo Tomas has shown, Clusius expanded the thirty-seven sections of the *Historia medicinal* into forty-three by dividing some of Monardes's sections into two or more. More importantly, Clusius decided to combine parts one and two. Monardes never combined the three parts of his book: he added the second book to the first book, without making changes; and added the third book to the previous two without attempting to reorganize and combine the material. Clusius combined and reorganized the material of the three books. Finally, Clusius also made important annotations to the information he translated from Monardes.[24]

Clusius used the compendium model to reorganize Monardes's books as well as to add and subtract material. If a compendium is a synthesis of the essential matter contained in the book from which the compendium is produced, what was the essential matter in Monardes's books? Clusius tends to suppress the anecdotal elements of Monardes's narratives to focus on observations: he extracts the facts. Clusius transformed Monardes's book from an account into a report on particulars.

Clusius organizes paragraphs to emphasize certain types of information: sensory information and experimentation. For instance, Monardes presents the information on tacamahaca, a resin, in the form of a narrative. He says, for instance that "*Desta Resina o goma, usan mucho los Indios en sus enfermedades*—Of this resin or gum, the Indians use a great deal in their illnesses." Clusius reorganizes the paragraph to emphasize the *mucho* (a great deal), and begins his paragraph with *plurimus*, in capital letters: *PLURIMUS huius usus est apud Indos.* Monardes's next paragraph is about color: "Su color es de color de Galuano." Clusius again emphasizes the term color: "COLORE est Galbani." Finally, Monardes's next

[21] I am following Pardo Tomás, "Two Glimpses of America," 185.

[22] Clusius, *Simplicium medicamentorum.*

[23] Clusius, *Exoticorum libri decem.* On the *Exoticorum libri decem*, see Egmond, "Exotic World," 11.

[24] Pardo Tomás, "Two Glimpses of America," 186-7.

paragraph begins with this sentence: "*Tienese ya por remedio muy averiguado, y muy experimentado*—It is a remedy well known and experimented." Clusius emphasized the term experimented: "*EXPERIMENTO comprobatum est.*" In this example, the changes are minor yet significant since Clusius seems to emphasize the empirical aspects of the book. Clusius rearranged the order of words, and used capital letters, to emphasize the characteristics of the tacamahaca. Clusius description is about the facts of the medicinal plant.[25] In contrast, the physician Juan Fragoso (1530-1597), who wrote a book in Spanish on medicinal plants from Asia and the New World, lifted Monardes's report on tacamahaca almost without change (and without citing his source).[26]

In general, Clusius suppressed many of the stories that Monardes wrote as part of his account (although he did translate some of the stories). Monardes, for instance, wrote about a passenger who brought along gray amber, or ambergrise.[27] In the story, Monardes wrote that when he "was with Juan Gutierrez Tello, a very principal gentleman, treasurer of the House of Trade, a passenger who came from Florida gave him [Gutierrez Tello] a very excellent piece of gray amber, claiming that he had brought it from Florida." Monardes "took the piece, broke it, and a Gray [substance], of very good color, came out." Afterwards, Monardes discusses the different opinions about the source of ambergrise, some people claiming that it comes from whales; others argue that it comes from the sea. This last view was Monardes's opinion. To support his point, he mentions that people had not found gray amber in hunted whales. Then he proceeds to tell the story of how Indians in Florida hunted whales.[28] Clusius suppressed both stories: the story of Monardes examining a piece of gray amber and the story of whale hunting in Florida. Clusius's interest was in the facts about gray amber or *ambarum,* not in the stories Monardes wrote. Yet these stories were provided fundamental support for Monardes's information about New World medicines: the stories legitimized the information. The stories accomplished their purpose to the extent that Clusius

[25] Monardes, *Historia medicinal,* fol. 4r-v; Clusius, *Simplicium medicamentorum*, 5. *Galbano* or *Galbani* was resin from Syria: among other beneficial uses it was good to relieve coughs, to eliminate freckles, and against serpents, see Dioscorides, *Materia medicinal,* 328.

[26] Fragoso, *Discurso de las cosas aromáticas*, fol. 18v.

[27] On ambergrise, see Bullokar's definition in his *English Expositor*, s.v. "ambergrise."

[28] Monardes, *Historia medicinal,* fol. 91v, 93r. Juan Guitierrez Tello was appointed treasurer of the House of Trade on March 23, 1562; the humanist and historian Diego Ortiz de Zuñiga called Guitierrez Tello "one of the most principal persons of this city [Seville]." See Ortiz de Zúñiga, *Annales eclesiasticos y seculares*, vol. IV, 6. On his appointment, see Pacheco, Cárdenas & Mendoza, *Documentos inéditos*, vol. XIV, 253.

takes Monardes's observations as valid and solid observations: Clusius dropped the stories (in some cases) and kept the observations.

Robert Boyle (1627-1691) would call these stories "historical testimonies."[29] In the story of the gray amber, Monardes had a witness, Gutierrez Tello, a very important person in Seville, supporting his account of the gray amber, a very rare and precious substance at the time. Incidentally, Boyle sent a letter on the *amber greece* to the *Philosophical Transactions* with a historical testimony similar to the one Monardes offered in his account: Boyle received from a "very Intelligent Gentleman" an English translation of a Dutch report on ambergrise, and sent it for publication to the *Transactions.*[30] Monardes also discussed the properties of certain oil and wrote the story of a gentleman who applied it to his abdomen. Eventually, this oil healed him of his digestive problems. Clusius did not translate the story.[31] In another case, Monardes tells the story of a gentleman who gave him a type of pepper, *pimienta luenga*, which the gentleman brought on a regular basis for use in his kitchen. Clusius did not translate this story either.[32]

By suppressing some of the Monardes's stories in his translation, Clusius was implicitly deciding that the set of facts about medicinal plants was the essential element in Monardes's account. Monardes, on the contrary, had decided that the stories supporting his information were fundamental to his account. The circulation of information about New World natural commodities involved Native Americans and Europeans exchanging information (voluntarily or not) in places like Mexico, Peru, and Virginia, and the production of verbal or written reports about a given commodity to a companion or partner, scholar, official, or superior (as in the case of religious orders).[33] Some scholars, like Monardes, collected several of these reports in books.[34] Monardes worked with oral reports or his own experience or both, as in the case of ambergrise. He once received a written report, a letter from a soldier in Peru, about bezoar stones and other medicines, and then transcribed it in his book (Clusius translated it).

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29 Boyle, *Reconcileableness of Specifick Medicines*, 131-2.

30 Boyle, "Letter of the Honarable Robert Boyle."

31 Monardes, *Historia medicinal,* fol. 7r; Clusius, *Simplicium medicamentorum*, 7.

32 Monardes, *Historia medicinal,* fol. 86r-v; Clusius, *Simplicium medicamentorum*, 68.

33 In the European sources, the references to indigenous people as sources of information tend to be very perfunctory, see the case of the Santo Domingo balsam in Barrera, "Local Herbs, Global Medicines."

34 He was not the only one doing it. To name just a few examples: officers at the House of Trade collected geographical information from pilots and sailors; the cosmographer Alonso de Santa Cruz collected information also from pilots and sailors; and the Franciscan Bernardino de Sahagun collected information from Mexica people.

The stories, or historical testimonies, were significant because they supported personal information that otherwise could be easily questioned. The story added an element of veracity to the information collected in the way a reference to classical sources added an element of authority. Clusius accepted the authority of those stories to validate the information contained in Monardes's books, and consistently translated the information on medicinal plants but not necessarily the stories.

Clusius's translation of Monardes inverts the relationship between historical testimonies and observations (or facts) and places the historical testimonies in the background and brings the facts of the medicinal plants to the forefront. The stories were lost in translation; the facts were found in translation. Clusius presented Monardes's work as a collection of facts: the local details and the stories, so important in Monardes's book, somehow disappeared in Clusius.

In this argument, the success of Monardes's observations, articulated in his reports, came from the experience of merchants, adventurers, gentlemen, pilots, Franciscans, other religious people, and women. What they had in common was their experience with New World medicinal plants and, in most cases, access to information provided by indigenous people.[35] The legitimacy of their information did not come from their social status.[36] Monardes received reports, in many cases, verbally about medicinal plants or, in one case at least, written reports. For him, the truth of the report came from the experience of his informants in the New World. Clusius seemed to have accepted the validity of the claims contained in Monardes's book based on the same premise: the informants' experience with medicinal plants in the New World, and their access to information provided by indigenous people. Monardes included a letter from a soldier in his books; Clusius translated this letter into Latin. The validity of the information contained in the letter came from the actual experience of the soldier in Peru: not from his social status as a soldier.[37]

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35 Monardes, *Historia medicinal,* fol. 2r, 24r, 59v, 61v, 108v.

36 My argument regarding empirical practices moves away from Shapin's *Social History of Truth* where the social status and presence of witnesses in the production of knowledge was seen as relevant. In the context of the Atlantic World direct experience or personal experience had more weight than the social status of the informant. Thus pilots, merchants, indigenous people, royal officials, farmers provided reports that were considered legitimate by scholars, commercial partners, and royal officials on both sides of the Atlantic.

37 Clusius, *Exoticorum libri decem*, 351-3.

Translating into Catalogues: Collecting Facts and Observations

Similar to Clusius's work, the translations of the "accurate," "Diligent and Judicious" Laet, as Boyle called him, the scholar and director of the Dutch West Indies Company, transformed the work of Spanish scholars from collections of stories and information into, chiefly, collections of observations.[38] In 1625, Laet published *Nievve Wereldt ofte Beschrijvinghe van West-Indien,* a compilation of geographical and natural history information about the New World. Laet used many different sources (he provides the list) and among the Spanish sources, he used the works of Pedro Cieza de Leon (1518-1554), Antonio de Herrera (1559-1625), Agustin de Zarate (b.1514-1560), Diego Fernandez (fl.1570), Acosta, Martin del Barco (1535-c.1602), Alonso de Ercilla y Zuñiga (1533-1594), Peter Martyr (1457-1526), Inca Garcilazo de la Vega (1539-1616), Pedro Ordoñez de Cevallos (c.1545-c.1630), Francisco Lopez de Gomara, and Francisco Ximenez (c.1560-1620). He read these books in Spanish with the exception of Martyr, who wrote in Latin.[39] He did not mention Monardes in his list but he used him. He mentions Clusius's *Exoticorum,* which includes a translation of Monardes, and Laet refers his readers to this book.[40] His main goal was to provide a description of the New World's geography and natural history.

Laet uses his sources to extract facts about America: he followed the "exact observations" from the sources and "corrected many things, where the Spaniards and others were mistaken."[41] He did more than correct his sources: he selected from his sources only certain pieces of information—as Clusius had done before.

For example, Laet's description of the manatee follows that of Lopez de Gomara (and preserves the order of Lopez de Gomara description). Laet, like Lopez de Gomara, mentions, among other things, that the manatee lives in the sea and rivers; that it has the shape of a wineskin with two limbs; that it tastes like veal, if fresh, or like tuna, if salted; that its fat is good *"& on s'en fert a divers usages*

[38] For the expression "Diligent and Judicious Johannes de Laet," see Boyle, *Experiments and Considerations*, 396; for the expression "the accurate Johannes de Laet," see Boyle, *Some Considerations*, 208.

[39] Laet published the first version of *Nievve Wereldt* in 1625 but he expanded it in the second edition of 1630, and expanded it again in the Latin version of 1633. The French edition of 1640 follows the 1633 edition. Laet probably did these translations himself. I am using the French edition: Laet, *Histoire du Nouveau Monde.* For a list of Laet's editions, see Vannini de Gerulewicz, "Introducción," 18-9.

[40] Laet, *Histoire du Nouveau Monde*, 132.

[41] Laet, *Histoire du Nouveau Monde*, "Preface," unpaginated: "[. . .] les exactes observations desquels nous avons conferees ensemble, & suivans ce qui y estoit avee plus d'approbation, nous avons corrigé utilement beaucoup de choses, ou les Espagnols & autres avoyent failli."

mechaniques—it is beneficial for divers mechanical uses"; and that it has little stones in its head that are considered useful for dealing with kidney stones. With the exception of the fat's *divers usages mechaniques,* Laet's description comes from Lopez de Gomara's account.[42] It seems that in turn Lopez de Gomara's account comes, at least in part, from Fernandez de Oviedo, since Fernandez de Oviedo claims that the manatee tastes like veal, if fresh, or tuna, if salted. It is a claim that Lopez de Gomara, who did not go to the New World and probably did not taste fresh manatee, repeats as a matter of fact. But Laet left out Lopez de Gomara's stories about a domesticated manatee that belonged to the Taino chief Caramatexi. This played with people, enjoyed singing, and helped people to cross the lake where it lived.[43] Laet omits the stories and focuses only on the observable facts. As a translator, Laet selected information from the books he translated, and did not follow Lopez de Gomara instruction to translators "to do their work as faithful translators"[44] because he translated Lopez de Gomara's book into a compilation and placed it together with other books to compose a single, unified book on the American geography and natural history.

As Laet translated Spanish books, he organized the information from different sources into a coherent description of the New World; and he extracted "*les exactes observations*—the exact observations" from the sources about the geography and natural things of the New World.[45] Laet established a comparative method to arrive at the most accurate observations, or matters of fact.[46] In cases of strong disparities between the authors, Laet provides information and lets the reader decide the issue. This was the case in his attempt to establish a chronology of the Mexica kings: he provided a comparative table with the years from different sources, Lopez de Gomara, Acosta, and a Mexican codice.[47]

An interesting source in Laet's compendium is the book by the Dominican lay brother and apothecary Francisco Ximenez (c.1560-1621), *Quatro libros de la naturaleza, y virtudes de las plantas, y animales que estan recevidos en el uso de*

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[42] Compare the two accounts: López de Gómara, *Historia general,* fol. 37v-38r; and Laet, *Histoire du Nouveau Monde*, 6. See also Fernández de Oviedo y Valdés, *Historia general de las Indias,* fol. 56r-57r.

[43] López de Gómara, *Historia general,* fol. 37v-38r.

[44] López de Gómara, *Historia general*, "A los Trasladores," unpaginated: "[. . .] hacer oficio de fieles traducidores."

[45] Laet, *Histoire du Nouveau Monde*, "Preface," unpaginated.

[46] The terms observations and facts are linked in some texts, see, for instance, the document Anonymous, *Answer to the Objections*, in which the expressions "Matter of Fact and Daily Observations" come together to explain the influence of tides on rivers.

[47] Laet, *Histoire du Nouveau Monde*, 162.

la medicina en la Nueva España, a book published in Mexico in 1615.[48] This book was based on the work of the Spanish physician Francisco Hernandez(c.1517-1587), who had been sent by Philip II to research the medicinal plants of Mexico in 1570. Hernandez worked in Mexico for seven years collecting information about medicinal plants and samples from "Indian doctors."[49] He wrote a book of several volumes about Mexican medicinal plants for which he "relied both on the evidence of other curious persons and of the doctors of this land and my own experiences, beyond what can be deduced using the rules of medicine."[50]

The book was not economically viable for publication and the crown ordered the Italian physician Nardo Antonio Recchi to make a compendium of Hernandez's book.[51] In the 1580s, Recchi finished the compendium, in Latin (as was the original book), and somehow a manuscript copy (it had not been published yet) found its way to Mexico, where Francisco Ximenez translated it into Spanish. Ximenez's translation was the first publication of Hernandez's work, and the first book to make available the work of Hernandez in both Mexico and Europe.[52] Somehow a copy of Ximenez's translation arrived on Laet's desk who used it in his second edition of *Nievve Wereldt;* Laet added new material from Ximenez's book in his 1633 Latin translation of *Nievve Wereldt* (the one Laet used for his French translation of 1640).[53]

Laet translated Ximenez's book back into Latin, as he mentioned it in his preface to William Piso's *Historia Naturalis Brasiliae*, and was trying to find illustrations to publish it.[54] Yet he used sections of Ximenez's book in his *Nievve Wereldt*. Laet's discussion of copal, for instance, followed Ximenez's account of copal but only to a certain extent: he omits some of the stories and contextual elements in Ximenez's account as did Clusius. Ximenez had divided his entry on

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48 Ximenez, *Quatro libros de la naturaleza*. On Ximenez, see García Icazbalceta, "Médicos de México," 97-8.

49 On Hernandez, see Somolinos d'Ardois, "Vida y obra de Francisco Hernández"; and *Doctor Francisco Hernández*; and Varey, Chabrán & Weiner, *Searching for the Secrets of Nature.*

50 Letter of Dr. Francisco Hernandez in Varey, *Mexican Treasury*, 52. He used the expression "Indian doctors" in this letter as well.

51 On Hernandez's books, see Alvarez Peláez, "La obra de Hernández." See also Archivo General de Indias (AGI), Indiferente General 739, no. 60, Consulta del Consejo de Indias, May 20, 1578, Madrid.

52 For the circulation of Hernandez's work in Mexico, see Vetancurt, *Teatro mexicano*, vol. I, 163.

53 López-Piñero & Pardo-Tomás, "Contribution of Hernández," 128; Chabrán & Varey, "Hernández in the Netherlands and England"; and Varey & Chabrán, "Medical Natural History," 138.

54 See Laet, "Ad benevolos lectores," unpaginated; for a discussion of this, see Pardo-Tomás, "Francisco Hernández," 240-1. In 1636, Laet was making inquiries about possible illustrations for his Latin translation of Ximenez, see Varey & Chabrán, "Medical Natural History," 137.

copal in chapters, one for each type; Laet provided a single entry on copal, with descriptions of the different types as part of a single section. He dropped many local elements from Ximenez's account. For instance, Ximenez's text mentioned that the Indians considered the *copal quahuitl patlahuac* a type of copal but that the Spaniards considered it a type of tree-incense, *arbol de incienso*. Ximenez's text clarified that there were many different types of trees similar to the copal tree and that it was necessary to discuss each one in detail. Laet did not translate this context behind Ximenez's discussion of copal trees. Ximenez's text mentioned that the *copal quahuitl patlahuac* came from hot regions, in particular from Cuernavaca, where it is very common. "If I am not mistaken," commented Ximenez, "it would not be difficult to take it to Spain and plant it in its hot regions."[55] None of this is in Laet's translation. He limits his translation to a description of its leaves, characterized by their size, "la largeur de ses sueilles;" its branches that are like wings; and its resin, white but produced only in small amounts.[56] Laet is able to collapse the different types of copals in a single section because he translated basically physical descriptions of the copal trees: he used one long paragraph for what Ximenez discussed in seven (short) sections.[57] Laet ended his paragraph on the copal by sending his readers to Monardes, "Voyes de cela *Monard.*"[58]

The work of Clusius and Laet as translators allowed them to become brokers of observations for the study of the natural world.[59] Spaniards embedded their observations in stories, or "historical testimonies,"[60] to support them. Scholars such as Clusius and Laet translated the essential elements of the books, that is, their observations. It means that they accepted, to a certain extent, the work of the Spaniards as valuable sources of empirical information, as this was information that came from experimentators— *experimentadores*, as Fernandez de Oviedo had called the Spaniards. In the process of translating those books, Dutch translators transformed them into collections of observations and facts. In English translations of the same books, the English tended to translate more material.

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55 Ximenez, *Quatro libros de la naturaleza*, fol. 11r-v. It sounds as if Ximenez is proposing the idea of taking *copal quahuitl patlah* to Spain but it is actually Hernandez's idea: Ximenez translated it from the Hernandez-Recchi manuscript. See Hernandez, *Rerum medicarum*, vol. I, 46: "(ut ego quidem coniecto) in Hispaniae ferventiores agros, non omnino inutili opera per maria deportata transferri."

56 Laet, *Histoire du Nouveau Monde*, 133.

57 Ximenez, *Quatro libros de la naturaleza*, fol. 10v-12v.

58 Laet, *Histoire du Nouveau Monde*, 133.

59 The role of brokers or go-betweens in this period of European expansion is becoming the focus of interest of a number of historians, see Schaffer et al., *Brokered World*; Metcalf, *Go-Betweens.*

60 Boyle, *Reconcileableness of Specifick Medicines*, 131-2.

In the English case, some translators changed the order of the book, as Richard Eden did with his translation of Fernandez de Oviedo's *Sumario.*[61] Eden reorganized Fernandez de Oviedo's book and published it as part of his translation of Peter Martyr's *De novo orbe.*[62] The first chapter of *Sumario* deals with the people of Santo Domingo and the last chapters with gold mines and "two very notorious things about this Occidental empire in the Indies."[63] Eden moved, for instance, the chapter on mine gold (chapter lxxxii in Fernandez de Oviedo) to the third chapter in his translation followed by the chapter on pearls (chapter lxxxiiii in Fernandez de Oviedo). Eden produced a book that discusses, first, navigation, commodities, the Torrid Zone, and brief descriptions of natural things (such as worms, beasts, trees). Fernandez de Oviedo's text discussed, first, people and geographical characteristics of the Caribbean islands followed by descriptions of natural things (birds, serpents, trees, plants) and finally descriptions of gold mines, pearl fisheries, and curiosities.

Eden's reorganization implied also the selection of text; for instance, Eden did not translate Fernandez de Oviedo's text on the Indians of Tierra Firme. Yet Eden's translation was not a compendium, in the way Clusius's and Laet's translations constituted compendia. Eden did not summarize Fernandez de Oviedo's text but rather he reorganized it and in the process left out some passages. The English translators, as well as the Dutch translators, were looking for information and reorganized those books around their own needs. Eden had a very clear commercial interest in the reorganization of Fernandez de Oviedo's text but also an imperial interest, hence his interest in learning from the Spanish experience in the New World. Clusius had a clear scholarly interest on medicinal plants; his book/translation provided also commercial information.

Another English translator, and merchant, John Frampton (fl.1559-1581) translated the work of Monardes and published it in 1577.[64] Of the authors discussed in this chapter, Frampton is the only translator that followed closely the text translated. He did, however, introduce changes by adding, for example, a long text on tobacco, "Hereafter followed a further addition of the Hearbe called Tabaco, otherwise called by the Frenchmen Nicotiane. Which hearbe haht done great cures in the Realme of France and Portugall, as hereafter at large my appeare

61 Fernández de Oviedo y Valdés, *Natural hystoria.*

62 Eden, *Decades of the Newe Worlde*; on Eden, see Gwyn, "Richard Eden."

63 Fernández de Oviedo y Valdés, *Natural hystoria*, fol. li v.

64 Monardes, *Ioyfull Newes*; on Frampton, see Wroth, "Elizabethan Merchant."

in this Treatise following."[65] This text does not appear in Monardes's book. Other than this addition, Frampton followed Monardes's text very closely.

Conclusion: Gained in Translation

Translators followed different practices when translating books. The Dutch translators discussed in this chapter, decided to translate Spanish books into compendia; English translators, in general, tended to translate most of the content of Spanish books. The Dutch translators were looking for information: Clusius looked for medical information on medicinal plants from the New World; Laet was interested in geographical and natural history information. English translators were interested in information (hence they translated books on medicine, navigation, geography, and natural history) but they were also interested in understanding the Spanish empire (to use it as a model) and so they translated the experience of the Spaniards in America as well as information on, for instance, tobacco.

The Dutch not only translated Spanish books into compendia; they also combined several books to make a single volume. I mentioned above the Spanish authors Laet used in his book. Clusius translated Monardes but also Garcia da Orta and Cristobal Acosta and published them in a single book, the *Exoticorum*. Clusius and Laet, as translators, were the center of an unintended collaborative enterprise between different authors. Clusius and Laet received letters, reports, and samples from their friends, contacts, and partners from Europe and America and used the information thus received in their work and did the same with the books they translated. The books constituted reports on medicine and geography from the New World and they became part of a collaborative enterprise to better understand America (and Asia, Africa, and Europe itself).[66]

Translations played an important role in the seventeenth-century transformation of empirical practices as a source of knowledge.[67] The type of translations discussed in this chapter closed a cycle that began with the interactions of Native Americans and Europeans in the streets, ports, and fields of the New World and continued in the articulation of those exchanges in the form of reports and books about the natural world of America. The translations extracted observations, the pieces of information that originated, in many instances, in Native American knowledge about the natural world from these books.

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65 Monardes, *Ioyfull Newes,* fol. 42r.

66 On the collaborative practices and natural history, see Delisle, "Accessing Nature."

67 On this transformation, see Smith, *Body of the Artisan*, 17.

Transcriptions and Descriptions of Exotic Fauna in Barlaeus's *Rerum per Octennium* and de Laet's *Historia Naturalis Brasiliae*

Britt Dams

Je veux, j'exige que tout autour de moi soit dorénavant mesuré, prouvé, certifié, mathématique, rationnel. Il faudra procéder à l'arpentage de l'île, établir l'image réduite de la projection horizontale de toutes les terres, consigner ces données dans un cadastre. Je voudrais que chaque plante fût étiquetée, chaque oiseau bagué, chaque mammifère marqué au feu. Je n'aurai de cesse que cette île opaque, impénétrable, pleine de sourdes fermentations et de remous maléfiques, ne soit métamorphosée en une construction abstraite, transparente, intelligible jusqu'à l'os.

M. Tournier (1967) Vendredi ou les Limbes du Pacifique

The Tapuya-Dance

The *Tapuya Dance* or *Dance of the Tarairiu* (c.1641) is one of Albert Eckhout's (1610-1666) most famous paintings. The scene shows eight Brazilian native men dancing and two native women talking on the side. This is one of the first important artistic documents of Brazilian Indians. At first sight, it looks as though Eckhout painted the Indians in a very stereotypical way: their savageness is stressed through their nakedness and their surroundings. Nonetheless, the Tapuya Indians are carefully portrayed. The men are armed with clubs to which parrot feathers are attached. Their hairstyles, necklaces and bracelets are painted in detail and have

been a source for ethnographic research.[1] The ethnographic and pictorial value of this painting has been debated before and the painting is also an interesting document for the study of the natural sciences.[2] Looking at figure 14.1. those familiar with exotic fauna and flora will easily recognize the parrot feathers from the scarlet macaw, the coconut palm trees in the back—with one cashew tree in the right corner—and the little animal in the front on the right, the armadillo.[3]

Eckhout's painting is only one of many documents that resulted from the Dutch colonization of North-eastern Brazil. The focus here will take up the hint of Eckhout's armadillo, turning to the descriptions of animals in two influential works about Dutch Brazil: the *Rerum per octennium in Brasilia et alibi nuper gestarum* (1647) by Caspar Barlaeus (1584-1648), and the *Historia naturalis Brasiliae* (1648), edited by Johannes de Laet (1581-1649). Both were based on the works of two naturalists: Willem Piso (1611-1678) and Georg Marckgraf (1610-1644). A close look at the descriptions in these works can reveal how knowledge was produced. Even though the authors had different approaches towards exotic reality, both works contain valuable information about similar subjects, while their rhetorical techniques shed light upon the specific strategies of their presentations of the strange realities of Dutch Brazil. Finally, I look in more detail at the importance of 'go-betweens' in obtaining knowledge about colonial realities.

Dutch Brazil

During their Golden Age, the Dutch not only conquered colonies in the East Indies, they also set their eyes on the New World. Following the creation of the West India Company (WIC) in 1621, they successfully established different colonies in North and South America. The WIC was a trading company that made large conquests in Brazil during the 1630s and 1640s. During this period, from 1637 until 1644, Johan Maurits van Nassau-Siegen (1604-1679) was appointed governor-general of Dutch Brazil. This Homo Universalis, well known for his collections of Brazilian and other curiosities, invited a number of artists and scientists to record the territory in an impressive series of texts, paintings and scientific works. The scientific and artistic project that took place under the patronage of Maurits can

[1] This kind of alliance between science and the transmission of knowledge has been discussed by Kemp, "Temples of the Body." Kemp pointed to the importance of the "rhetoric of the real" for anatomists. See also Kusukawa & Maclean, *Transmitting Knowledge*, which brings forward different case studies on how early modern natural philosophers transmitted knowledge. In some chapters the authors are critical of Kemp's theories and his notion of the "rhetoric of the real."

[2] Brienen, *Visions of Savage Paradise.*

[3] Whitehead, *Portrait of Dutch 17th Century Brazil*, 76.



Figure 14.1. Tapuya Dance*, Albert Eckhout, c.1641,* ©*The National Museum of Denmark, Ethnographic Collection*

be seen as a way of taming Brazilian nature through the gathering of knowledge. The vast arsenal of images, maps and descriptions served to demonstrate that the Dutch *comprehended* the region and its inhabitants but also fashioned the image of the New World that circulated in the Netherlands and early modern Europe. The Dutch thus not only participated in an early modern trading network but also in a knowledge and imagination network.

In what follows, I will analyze some selected passages in order to shed light upon different Dutch descriptions about the strange reality of Dutch Brazil. I am convinced that it was especially in the act of describing that some Dutch authors tried to *comprehend* their Brazilian colony and created knowledge about exotic nature.[4] In the descriptions, the strange reality is not just displayed: the act of describing constructs, gives meaning and fashions reality. In short, the description makes it possible to eventually explore and *comprehend*, i.e., to understand and appropriate (parcels of) the world overseas. I am hereby inspired by the work of Michel de Certeau (1975) who suggested that the first colonizers never fully succeeded in *comprehending* the alterity of the New World. Something resisted colonisation and could never be *comprehended*: the complete alterity of the Other.

The Rerum Per Octennium

Barlaeus was a highly esteemed Dutch humanist. He corresponded extensively with several other prominent Dutch humanists such as Constantijn Huygens (1596-1687), Johannes Saekma (1572-1636), P.C. Hooft (1581-1647), and numerous others. He was a preacher, a professor of philosophy (Amsterdam), a poet, and he also studied medicine (Caen)—this stay in France was the only time he ever left the Low Countries. In 1621, he was dismissed from the University of Leiden because he supported the Arminians, also known as *Remonstranten*. In 1632 he became a professor at the newly created Athenaeum Illustre in Amsterdam.

The *Rerum per octennium* was first published in folio by Johan Blaeu (1596-1673), in one Latin and two German editions, and circulated among the seventeenth-century elite. Barlaeus had already published several works about the

[4] Patricia Seed explores a similar idea in *Ceremonies of Possession* where she demonstrates how the different European authorities manifested their claim to the newly discovered territories in the New World. Each nation had its own conception of possession and created this right by specific symbolic actions according to their own legal and cultural tradition. The French, for example, claimed sovereignty by organizing public ceremonies of alliance with the participation of the indigenous people. The Dutch, on the contrary, manifested possession by describing, drawing maps and inscribing names. She points out the connotative equivalencies in Dutch between 'describing' and 'claiming' ('beschrijven').

New World. In 1622 Barlaeus translated Antonio Herrera's (1559-1625) descriptions of the Antilles.[5] Furthermore, he wrote a eulogy on Elias Herckman's (1596-1644) *Der Zeevaert lof* (Amsterdam 1634), and also a poem about Maurits's presence in Brazil (*Mauritius redux*). His personal library in Leiden contained many American travel-books and demonstrated his interest in the New World.[6]

The main goal of the *Rerum per octennium* was to portray, as the title suggests, the eight years Maurits spent in Brazil. On the one hand, the *Rerum per octennium* is a clearly biased work; it is a laudatory text that praises all of Maurits's accomplishments, and he commissioned the work.[7] But on the other hand, Barlaeus was also concerned with facts, giving a careful political and military description as well as an overview of the natural surroundings: the climate, fauna and flora. He also added a number of ethnographic descriptions of the local people of Brazil. In order to achieve this, Barlaeus consulted the extensive archive made available to him by Maurits, which contained a variety of written texts, in addition to maps, dictionaries, pictures and oral information. Furthermore, he wrote his work not only using the notes that he received from Maurits but also the many texts of the ancients that were lying on his writing table and that he found relevant to his work on the New World. The result is a very erudite compilation, a work with an abundance of rhetorical tactics, which made his work very appealing and enjoyable to read for his contemporaries and for us today.

The descriptions in the *Rerum per octennium* are consciously integrated into a rhetorical strategy: Barlaeus wanted to convince his readers of the veracity of his descriptions. He based his account on the reports of various trustworthy eyewitnesses and was, therefore, *re-writing* or *de-scribing* what was written elsewhere. Philippe Hamon, inter alios, points to this relation between *re*-writing and the Latin verb *de-scribere*: the latin verb *describere* means "writing from a model."[8] Barlaeus thus *re-wrote* in *descriptions* the information to create his own version, a more appealing one, of Maurits's eight years in Brazil.

Let us have a closer look at different rhetorical strategies used by turning to

5 Antonio Herrera (1549-1626) was a Spanish historian who never went to the New World. Nonetheless his *Historia general*, 4 vols. (Madrid 1601-15), was a work of reference about the Americas in the early seventeenth century.

6 Worp, "Caspar van Baerle," 172-89.

7 There is no real proof that Johan Maurits financed the work; perhaps it was Blaeu. See Harmsen, "Barlaeus's description," 164-5.

8 "Notons d'abord qu'un savoir (de mots, de choses) est non seulement un texte déjà appris, mais aussi un texte déjà écrit ailleurs, et la description peut donc être considérée toujours peu ou prou, comme le lieu d'une réécriture, comme un opérateur d'intertextualité; de-scribere, rappelons-le étymologyquement, c'est écrire d'après un modèle" (Hamon, *Du descriptif*, 48).

the following paragraphs of the *Rerum per octennium*. Both contain descriptions of animals:

There is a great abundance of wild and tame animals. Some of these I will mention. The wild swines live in the water and on land, their meat is tasty and healthy. Because their legs are unequal in length, for the front legs are shorter than the hind legs, they advance slowly, so that, when they are pursued by hunters, they dive as rapidly as possible into the nearest water. The *Anta's* make one think of hinnies although they are of smaller size; they have a more slender snout, the lower lip is extended, which makes one think of a trumpet, the ears are rounded, the tail short, the further body ash-grey. They shun light and also only forage by night. The *Cotia's*, as they are named in vernacular, are as big as hares or somewhat smaller and almost without tail. The larger are named *Paca's*, have a mouth like a cat, are of a brown colour with white spots and are on account of their tasty meat considered delicacies. The *Tatu's* are as big as a young pig, the skin is covered with scutes, so they seem armoured. They stick out their head in the way of tortoises. The meat, which is tasty, is served during feasts.[9]

While the sea is extremely rich with fishes, the rivers are famous for the multitude of swimming animals. *Olho de Boy* carries that name on account of its oxen eyes, the epithet with which Homer usually indicates Juno. This has the size of the tunies of the Spanish and is so fat that the Natives make of its grease oil that resembles butter. One of the most important fishes is the *Camurupi*, of good taste, with terrible spines, of which he carries one on the back that stands upright. The *Piraembu* that emits a snore like someone sleeping, is 8 or 9 palms [1 palm=10cm] long, high in price and of very good taste. In the mouth it has two small stones between which it crushes the shell-fish on which it lives. The Natives string them to make necklaces. *Beyupira*, which resembles the Portuguese sturgeon, is frequent here; its shape is slender, its back black, its belly white. This is also known from European waters as the Tainha's [*Tagana, Taagfish*] of the Portuguese. They are beneficial against snakebite. Of the Cyprinids there are many species, like carps and

[9] Translation by Boeseman, "Hidden Early Source," 114-6. "Animalium silvestrium & mansuetorum multitudo maxima. Ex eo numero ut pauca referam, Apri sunt amphibii, quorum carnes gratissima sunt & sulberrimae. Ii cum pedibus incedant disparis longitudinis, anteriores enim posterioribus breviores sunt, tardius progrediuntur. Ido pressi a venatoribus, proximus, cum possunt, se aquis mergunt. Antae mulas referunt, licet minores magnitudine sint. Bucca illis gracilior, labrum inferius tubae similitudine oblongum, aures rotunda brevis cauda, corpus reliquum coloris cinerei. Lucem fugiunt, nec nisi noctu adpastum vagantur. Ubidiluculum adventat, in latebri sese abdunt. Carnes ejusdem fere cum bubulis saporis sunt. Cotias quas vocant, gentis vocabulo leporum sunt magnitudine & minores, cauda fere nulla. Qui majores sunt, Pacas appellant, rostro à felibus parum abeunt, fuscocolore, candidus maculis variegato. Ob delicatiores carnes in deliciis habentur. Sunt & Tatusiae, ad porcelli magnitudinem, corio ceu sqamis loricato, ut cataphrasae videantur. Ex eo caput moretestudinum exerunt. Carnes palato gratae in exquisitiores epulas servantur" (Barlaeus, *Rerum per octennium*, 221-2).

breams, ray and other fishes. The Dorado's (gold-mackerels) excel above all; the Natives call them *Waraka Pemme*.[10]

Four of the main rhetorical strategies used in these paragraphs are worth highlighting here. The first is the elaboration of the description with anecdotal information, e.g.: "they advance slowly, so that, when they are pursued by hunters, they dive as rapidly as possible into the nearest water." The added information makes the description livelier and more accessible to a larger audience and at the same time suggests eyewitnessing. The second important device is the analogy. The shape of the animal is compared with a European phenomenon, which could be another animal, but not necessarily. This strategy is used to facilitate the comprehension of the described in ways that every (contemporary) reader will easily understand, such as: "the lower lip is extended, which makes one think of a trumpet." A third rhetorical device is the addition of practical information, i.e. what can be done with an animal or parts of it, most commonly if it is edible and if it has possible medical applications. Through these kinds of descriptions we also learn something about the habits of local people. Eckhout's *Dance of the Tapuia*, discussed at the beginning of this article, followed the opposite movement, from the ethnological to zoological information. The Indians were the main subject of the painting and the animal—the armadillo—was just a detail in the given image. The addition of practical examples shows that there was an interest in local knowledge and that it was considered trustworthy. Moreover, valuable ethnological information is translated, e.g.: "Olho de Boy [...] has the size of the tunies of the Spanish and is so fat that the Natives make of its grease oil that resembles butter."

Finally, one of the most common rhetoric features in Barlaeus and other contemporary works about Dutch Brazil is the importance given to the names of the perceived reality. Words that refer to typical Brazilian facts are written down in Portuguese or are transcriptions from the indigenous language. An alien reality

[10] Translation by Boeseman, "Hidden Early Source," 116-7. "Iam & mare piscosissimum est & flucii vario natantum genere celebres. Boope, marinus piscis, ab oculis bovellis nomen habet. Quali epitheto Iunonem insignire Homerus solet. Thunnos Hisspanienses magnitudine aequat, tam pinguis, ut ex axungia oleum barbari conficiant, simile butyro. Inter praecipuos est Camurupi, optimi saporis, spinis horridus, quarum unam in dorso arrectam attollit. Piraembu ronchos edit, stertentium more, octo aut novem palmorum longitudine, magni precii & saporis gratissimi. Intra os lapillos habet duos, quorum assrictu testaceos pisces, quibus vivit, comminuit. Barbari pro monilibusillos e collo suspenduns. Beyupira, sturioni Lusitanico similis, magna hic copia reperitus, forma ceres, dorso niger, ventre candidus. Etiam Europeo mari noti, ut quos Portugalli Tainhas vocant, adversus anguium morsus salubres. Cyprinorum vario genera, Pargi & Sargi Lusitanis dicti, Scombrorum species, Acus Raäe, aliique. Excellunt Dorades, quos Barbari Vvaraka pemme appellant" (Barlaeus, *Rerum per octennium*, 224-5).

is referred to by the original foreign word, e.g., "The Dorado's (gold-mackerels) excel above all; the Natives call them Waraka Pemme. Araguagua is a fish with a sword [shaped] beak."[11] By using the original denomination the alien aspect of a typical Brazilian phenomenon is stressed. Unlike Christopher Colombus (1451-1506), who gave new names to all new things he saw and by doing so created a new world, Barlaeus ordered and classified the existing alien world.[12] Through the (re-)naming of exotic nature rejected the alien character of the perceived reality. Barlaeus, on the other hand, accepted and stressed the alien character by using the alien word. Barlaeus reused the Indian terms he had read in the reports without ever seeing the animals and plants he mentions. He thus fully trusted the information he had received from the different eyewitnesses and ergo the information they had received from the natives, who are also to be trusted in this context.

These four rhetorical strategies are worth highlighting because they reveal an interest in indigenous information. The local knowledge is trusted and *comprehended* in the description. First it had to be translated from the indigenous language to a European one—in this translation of knowledge hybrid figures and go-betweens played a crucial role (cf. infra). Then it was captured in a first description, most frequently a report for the WIC, before appropriated it, i.e. *re-wrote* it or *described* it in his *Rerum per octennium*. The excessive amount of rhetorical adornments in Barlaeus's descriptions masks the presence of (scientific) information or facts about the colony. But the *Rerum per octennium* is not only a paragon of humanist rhetoric, it also contains valuable information about the natural history and the ethnography of Dutch Brazil.

Historia Naturalis Brasiliae (1648)

While the *Rerum*'s focus was essentially on the Dutch endeavours in the New World, the twenty volumes of the *Historia naturalis Brasiliae*, as the title suggests, are concerned with the description of local nature, covering geography, biology, astronomy, meteorology, and so forth. The *Historia naturalis Brasiliae* was edited and organised by de Laet, one of the directors of the WIC. De Laet did not compose a text from various and disparate sources, as Barlaeus did, but edited works written by two trained and professional scientists who participated in the Brazilian adventure: Piso's *De medicina brasiliensi*, on Brazilian medicine, and

[11] Other typical examples in the *Rerum per octennium*: *moradores* (residents of Dutch Brazil, mainly Portuguese), *ingenio* (farm), *lavrador* (farmer), *negros* (African slaves), *farinha* (flour), and so forth.

[12] In general, only cities or other geographic names were sometimes re-baptized by the Dutch.

Marckgraf's *Historia rerum naturalium Brasiliae*, on the fauna, flora, geography and population. Both Piso and Marckgraf went on different expeditions to collect their data. The scientific value of the information was later validated by Carl Linnaeus (1707-1778), who incorporated some of Piso's and Marckgraf's species in his tenth edition of the *Systema Naturae* (1758).[13] The *Historia naturalis Brasiliae* was, like the *Rerum per octennium*, published at the request of the Count. Maurits was interested at a personal level in all scientific knowledge about the country. He not only commissioned the already mentioned publications but he also cultivated a botanical garden and built a private zoo next to one of his houses in Brazil.

Let us turn to some descriptions made by Marckgraf in the *Historia rerum naturalium Brasilae*. Marckgraf was born in Liebstadt (Saxony). After his scholarly education in Germany and Switzerland (botany, astronomy, mathematics and medicine) he came to Leiden in 1636 to study botany and astronomy. In 1637 he was appointed astronomer by Maurits, who asked him to join him in the Brazilian adventure. In Brazil he practiced medicine, operated a pharmacy and participated in a number of expeditions into the colony to study the natural history and geography and to gather information to draw a map of Brazil. His most important legacy was the first astronomical observatory in South America, in Recife, which was founded at the request of Maurits in order to observe the solar eclipse of 13 November, 1640. In 1643 Marckgraf was sent to Angola. He died soon after his arrival, at the age of 33. He never returned to Europe and his notes therefore had to be deciphered by De Laet. Little is known about the private life of Marckgraf, not even a portrait remains. From the scarce information we can abstract from correspondence it appears that he was short of funds, as he repeatedly asked Piso for loans; perhaps he spent his resources on alcohol, possibly the cause of his death.[14]

During his numerous expeditions into the colony Marckgraf registered the (new) land and people and made inquiries about plants, animals and the climate (he recorded the meteorological data of Recife on a daily basis, giving us probably the first detailed meteorological facts of Latin America); he also recorded the stars of the southern hemisphere and the language and customs of the native population. He took notes, made drawings and classified the information he gathered. These notes were (most probably) written in a cipher to prevent others using them. Moreover they came to Europe in a very disordered way, making it a hard task for De Laet to edit them. But the latter was familiar with Brazil and its natural history, as he had already written various works about Latin America in general and about

[13] Boeseman, "Hidden Early Source," 113-25.
[14] Whitehead, "Georg Marckgraf," 425.

Dutch Brazil in particular.[15] Concerning Marckgraf's sections of the *Historia naturalis Brasiliae* I have used the first edition of 1648. Piso rewrote the work ten years later and made considerable changes. First of all he put his name under all Marckgraf's notes and, as he did not want to make a literal copy of the *Historia naturalis Brasiliae*, he added and modified information where he shouldn't have, introducing various errors into Marckgraf's part.[16]

The *Historia rerum naturalium*, i.e. Marckgraf's part of the *Historia naturalis Brasiliae*, consists of one botanical chapter, four zoological chapters and one about the indigenous population. In the zoological part, not only South-American animals are mentioned but some West African ones, too. Of all these animals very few are fabulous ones, in contrast to Barlaeus, who included far more wonders and marvels in his *Rerum per octennium*. All animals are described in a very meticulous way, see figure 14.2. The descriptions begin with the indigenous name of the species, followed by European ones. Marckgraf's was more concerned about presenting the morphology of animals than analyzing similarities among different species or their habits. The descriptions cover every detail: shape, colour and scale. Marckgraf not only depicted the outward appearance but at times added anatomical notations, as he carried out a couple of dissections.[17] Furthermore, he mentions which animal or which part of it was edible.

In his description of the Armadillo, we encounter all of the features mentioned above:

Tatu seu Armadillo, variae illius species
Tatu or *Armadillo*, and its different species

Tatu and *Tatu-peba* (indigineous term), *Armadillo* (in Spanish), *Encuberto* (in Portuguese): the Belgians call them *Schild-Vercken*. Animal that lives mainly on land, but also in the water and other humid places. There are many species. It has the shape and the size of a little pig. The upper part of the body and the head are covered with a crust, except from the tail. The crust is made of cartilage and composed of very elegant scales: there are two on the back of the head in order that it could move its chest: on the back there are seven parts with a swarthy intermediary flesh: the other parts are whole.

[. . .]

Note: we mentioned this animal in the description of America, book XV, chapter V, where, in accordance with the teaching of Monardes and Fr. Ximenes, we observed that the powder from the cartilage, which is of a bony nature and hard, is very useful in medecine, or against venereal diseases, or against roaring in the ears or deafness; it is in particular the

[15] Laet, *Nieuwe Werelt* (1625) and *Historie ofte iaerlijck verhael* (1644).
[16] Whitehead, "Georg Marckgraf," 445.
[17] Whitehead, "Georg Marckgraf," 440.



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habent digitos, unguibus acutis, quorum tres longiores, & medius itidem longissimus, exteriores duo breviores. Caudam ejusdem longitudinis cum corpore villosam (non tamen tam crispam ut nostrates habent) qua corpus tegere potest. Et eodem modo pedes edens ut notatur. Color totius animalis est ex pallido flavo & fusco mixtus, videlicet leporinus. Subgutture & in ventre est albus; in utroque latere secundum longitudinem maculam lineatem habet album. Cauda pilis longis constat ex nigro & albo mixtis. Mansuetum est animalculum & elegans.

CAP. VIII.

Tatu seu Armadillo, variæ illius species.

TATV & TATV-PEBA Brasilienſibus, *Armadillo* Hiſpanis, *Encuberto* Luſitanis: Belgæ noſtri vocant een Schild-Vercken. Animal potiſſimum in terra degens, quanquam & in aquis & aquoſis locis. Reperitur variæ molis. Figuram habet porcelli & fere magnitudinem. Totum corpus ſuperius ut & caput loricatum eſt, nec minus cauda: Lorica autem eſt oſſea ex ſquamis elegantiſſimis compoſita: prope occipitium duas habens junctiuras, ut collum movere poſſit: in dorſo ſeptem ſunt diviſuræ, cute fuſca intermedia: in reliquis partibus

integra. Pedes qua prominent etiam teniori lorica ſunt obducti. Totum autem inferius corpus, mentum, collum, venter, crura non ſunt loricata, ſed cute veſtita anterina, prominentibus poris prædita & rariſoribus in his pilis digitum longis, ac ita rariſoribus pilis totum inferius corpus veſtitur. Septem juncturæ loricæ in dorſo, raros quoque pilos & ſimiles habent: prope os & oculos etiam aliquot viſuntur. Sunt autem pili coloris albicantis ut in porcis. Caput habet inſtar porcelli; os acutum; oculos parvos & profundos; linguam acuminatam & anguſtam: aures pilis & lorica nudas, fuſcas, breves: dentes haud ita magnos, in qualibet maxilla octodecim. Pedes quatuor ad manuum figuram accedant, quinque digitis ſinguli præditi, etiam quilibet digitorum unum altero longiorem; cum unguibus haud latis, ſed ſubrotundis. Roſtrum habet ut porcus, quo terram velociter fodit. Color univerſi animalis eſt è luteo ſubruſſus. Caudæ in exortu craſſitudo quatuor digitorum: ſinque paulatim teniior, donec in fine plane acuta evadat & rotunda ut in lacertis aut porcis.

Mares aliquando habui, quibus membrum genitale prominens erat, quatuor digitos longum & mediocrem digitum craſſum. Corpore plerumque ſunt obeſo, vidiſtant baratis, melonibus & variis radicibus, & plurimum damni inferunt plantariis. Fodiunt terram libenter. Edulis eſt illius caro; ſequens tamen ſpecies præſtat. Multum bibunt. Imo cuniculos, aves mortuas, aliaque devorant.

Facile capiuntur opera canicolæ, quemadmodum apud nos cuniculi. Nam ſi canis emittatur latrando commonefacit venatorem ubi in terra commorentur, tunc fodiendo ab utroque latere invenitur.

TATV-ETE Brasilienſibus, *Verdadeiro* Luſitanis, priori eſt minor; capite parvo, acuto, auribus longioribus & erectis, cauda etiam longiori, poſtibus altioribus, & unum digitum longo pene, conſentitque cum delineatione Monardis. Caput autem tres digitos longum, aures fere duos erecte ſtantes: os acutum, oculi parvi nigri. Crura tres circiter digitos ſingula longa; in pedibus anterioribus, quatuor digiti, duo medii æquales, unum digitum longi, & ungue ſemidigitum longo præditi, & duo itidem æquales ad quodlibet latus. In poſterioribus pedibus quinque ſunt digiti, tres medii æquales, breviores paulo medius duobus in anterioribus, & duo ad latera parvi, itidem unguibus paulo craſſioribus præditi. Caudam habet novem digitos longam, & verſus extremitatem, acuminatam. Corpus à ceruice ad initium caudæ

ſeptem

Figure 14.2. Marckgraf, Georg and Piso, Willem. Historia Naturalis Brasiliae *(Amsterdam, 1648), p. 231*

little bones that are found at the beginning of the tail that have this vertue. The powder of the tail also has diuretical virtues; the powder from the cartilage can be cooked to become a kind of pasta, that can be usefull to extract thorns from any part of the body. It is easy to make this experience, because the skin of this animal is often brought back from America.[18]

In Marckgraf's text we do not encounter an arsenal of rhetorical devices to persuade the reader. The scientific information is given without adornments. Nonetheless there are important similarities with the *Rerum per octennium*. First, Marckgraf also makes use of comparisons with familiar phenomena, e.g.: "The head looks like the head of a little pig." In the case of the armadillo, exactly the same European animal is used in the comparison in the *Rerum per octennium*. Barlaeus based his description on scientific notes made by the entourage of Maurits, so it is very probable that he consulted Marckgraf's notes to make his own description of the armadillo. Second, both Marckgraf and Barlaeus included many transcriptions from the Indian language: on an ethnographic level Marckgraf's translations are more trustworthy because Barlaeus misread some notes and made various mistakes in his transcriptions. Nonetheless, both used vernacular words in their respective *descriptions* and by doing so both represented the tropical world. Thanks to their transcriptions the vernacular oral word was written down or, following de Certeau's thinking, it was *captured* or *comprehended*. According to de Certeau the spoken word waits to be written down in order to speak: *le langage oral attend, pour parler, qu'une écriture le parcourt et sache ce qu'il dit*.[19] De Certeau argued that in the early modern period a new *scriptural economy* emerged, i.e. a capitalistic enterprise based on the power of writing. Within the *scriptural economy* the voice, in this case of the native, is lost in the act of writing, being captured by the scriptural system. The writing (*l'écriture*) gave the westerner a

[18] My translation. "Tatu & Tatu-peba Brasiliensibus, *Armadillo* Hispanis, *Encuberto* Lusitanis: Belgae nostri vocant *een Schild-Vercken*. Animal potissumum in terra degens, quanquam & in aquis & aquosis locis. Reperitur variae molis. Figuram habet porcelli & fere magnitudinem. Totuum corpus superius ut & caput loricatum est, nec minus cauda: Lorica autem est ossea ex squamis elegantissimis composita: prope occipitium duas habens juncturas, ut collum movere possit: in dorso septem divisurae, cute fusca intermedia: in reliquis partibus integra. [...] Annotatio. Fecimus hujus animalis mentionem in descriptione Americae lib. xv. cap v. Ubi & hoc e Monarde, & Fr. Ximene annotavimus, pulverem laminarum quae plane sunt offeae & durae, utilissimum esse in Medicina: tum contra Luem Veneream, tum contra tinnitum & surditatem aurium: praesertim ossiculi caudae quod proximum est ab illius exortu. Itemque pulverem caudae urinam movere: & pulverem laminarum coactum in massam, extrahere spinas e quavis parte corporis. Cujus experimentum facile capi posset, si quidem saepius exuvieae hujus animalis ad nos es America deferuntur" (Marckgraf & Piso, *Historia naturalis Brasiliae* 231-2).

[19] Certeau, *Écriture*, 216.

powerful tool to colonize the New World, to dominate the *other*. The orality of the *savages* was (partly) swallowed by the *scriptural order*, but the text is only a remnant of the voice (*la parole*) of the natives because something is always lost in the inscription.[20] However there is also something that remains in the descriptions: in Barlaeus's and of course even more in Marckgraf's texts we encounter valuable ethnographic and scientific information.

Marckgraf studied medicine and botany, which gave him a solid basis for his investigations. Moreover, he showed an interest in the world of animals. First, we know that he possessed animals at home, but more importantly, he also had a humanist interest in natural history and must have read a lot on the subject. In his various notes he made references to Scaliger's (1540-1609) *Historia de animalibus*, Aristotle, Pliny, Ximénes (1436-1517), Carolus Clusius (1526-1609) and many others. But his work is not only the result of his bookish knowledge. He also drew from his own experience and observations and from local Indian knowledge when the classical sources failed to inform him on a specimen. The *Historia rerum naturalium* is mainly based on the information he gathered during his various expeditions in the country.[21] On these adventures he was always assisted by a number of local Indians. They were important not only for their knowledge of the land and the local fauna and flora but also for their capacities, e.g. their hunting skills to catch animals. Without their help the *Historia rerum naturalium*, and the *Rerum per octennium*, would have been completely different works. Traces of these interchanges are still visible in the nomenclature of exotic realities. Even today many exotic phenomena still carry the native name, while the therapeutic value of exotic herbs or animals could not have been transmitted without interaction with the local population.

To obtain this indigenous knowledge the Dutch needed go-betweens, i.e. intermediaries such as, for example, translators or traders. Go-betweens played a crucial role in the Americas in the first years after the so-called "discovery" of the New World. They were indispensible in the relations between the Europeans and the indigenous population; thanks to these intermediaries, the different groups could communicate and trade.[22] More than a century after Columbus set foot in

[20] This idea was further elaborated in "Histoire et anthropologie chez Lafitau," wherein Certeau described the frontispiece of *Moeurs des sauvages amériquains* (1724). Lafitau's work symbolizes a new paradigm in the scientific discourse. The anthropologist is now searching for a lexicon and reads the natives as *signs* and he is the only one who can construct their meanings. In the eighteenth century the scriptural order *comprehends* everything.

[21] For more details on Marckgraf's expeditions and how Brazilian zoological and botanical specimens were collected, conserved and transported, see Whitehead, "Georg Marckgraf," 426-42.

[22] La Malinche or Doña Marina, who played a crucial role in the conquest of Mexico, is the

the Caribbean, go-betweens became even more important, especially in Dutch Brazil where a very heterogeneous population produced hybrid figures who became key-figures in the colonisation.[23] These hybrids could circulate between different social and ethnological spaces, partly thanks to their knowledge of different languages. On the one hand, Marckgraf had to rely on go-betweens during his expeditions and to obtain information. On the other hand, he was himself a go-between, as was Barlaeus. Alida Metcalf gives a refined analyse of these intermediators in *Go-Betweens in the Colonization of Brazil* (2005). She distinguishes three major types of go-betweens. The *physical go-betweens* who crossed the Atlantic, the *transactional go-betweens* who translated, negotiated and traded in the New World and the *representational go-betweens* who represented the other culture through words or images.[24] Following this categorization, all three types of *go-betweens* apply to Marckgraf, while Barlaeus was only a representational go-between, like any historian who is depicting colonial society. Marckgraf accompanied Maurits to Brazil as a *physical go-between*, he was a *transactional go-between* during the expeditions into the interior of the colony, and he was a *representational go-between* when he was writing the many notes for the *Historia naturalis Brasiliae*. combined his qualities as go-between with his knowledge as scientist. It is therefore not surprising that the *Historia naturalis Brasiliae* became so influential in the late seventeenth and eighteenth centuries. The work contains an impressive amount of information about the natural history and ethnography of colonial Brazil. The contributions of Marckgraf and Piso were based on thorough research made in situ, which demonstrates the increasing importance of experience in the early modern period.[25]

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most famous one. She was a slave, a princess, an interpreter, the mistress of Hernán Cortés and she still functions as a resonant symbol in Mexico today. On the one hand she is mother of all Mexicans, because she gave birth to the first child of mixed blood. On the other hand she symbolizes the treason that lead to the victory of the European invader.

23 Dams, "Manoel de Moraes," 5-15.

24 Metcalf, *Go-Betweens*, 9-12.

25 I think that to understand the importance of experience in the creation process of the descriptions made by Marckgraf and some of his contemporaries the notion of *curiositas* is very helpful. Hans Blumenberg explained in *Legitimacy of the Modern Age* how the question of curiosity (or *curiositas*) is one of the keys to understand the development that took place in the modern world. This development brings a new form of curiosity about nature in relation to theoretical knowledge. Blumenberg affirms that in the early modern period curiosity about the world becomes fundamental to obtain useful knowledge and to understand the world. By doing so the early modern man will become the master of his own destiny—this attitude of the modern self is characterized by Blumenberg as *self-assertion* (*Selbstbehauptung*). In the early modern world, *curiositas* is thus no longer a contemplative act but an active and positive operation. The

Marckgraf was of course not the first to describe Brazilian animals and plants, he had many important predecessors in the sixteenth century: José Anchieta (1534-1597), André Thévet (1502-1590), and Jean de Léry (1536-1613) among others. The reason why the *Historia naturalis Brasiliae* became so influential is two-fold. On the one hand it contains an impressive amount of detailed illustrations. On the other hand the book remained the only comprehensive study of Brazilian fauna and flora until the early nineteenth century.

Conclusion

Barlaeus and De Laet never set foot in Brazil and relied on the notes of different eyewitnesses to construct their respective histories of the Dutch colony in Brazil. Both authors made a very careful selection for their respective works, which for a long time remained the standard reference works about Dutch Brazil. Their writings became influential loci for knowledge transfer and became part of a European knowledge and imagination network about foreign natural realities. Their texts make clear how the gathering of knowledge about the colony was not only led by utilitarian principles—the colonisation of Dutch Brazil was initiated by a trading company—but also by a desire to *comprehend* the strange reality. Both works were commissioned by Maurits and both contain a *rewriting* of notes from men who 'had been there.' But they treated their sources differently and had distinct strategies and discourses. The *Historia naturalis Brasiliae* is an extensive work that centers on scientific knowledge. The descriptions show a scientific interest and the writings serve that purpose; De Laet edited the notes of two specialists and did not make major alterations, so Marckgraf can still be considered the author of his part. The *Rerum per octennium,* in contrast, was written to celebrate Maurits's eight years as a governor of the Brazilian colony. Barlaeus, who used the documents left by Marckgraf and others, wanted to captivate the reader with the facts, weaving a literary document from the many sources. But the *Rerum per octennium* does not only consist of humanist rhetoric, since behind the veil of textual adornments we can also find interesting scientific material.

To achieve their respective goals, Barlaeus and Marckgraf had to rely on go-betweens, but they themselves also functioned as go-betweens in creating a representation of colonial nature. They did even more: they showed a desire to *comprehend* the strange reality and subsequently produced knowledge in their descriptions not only for their contemporaries but also for the generations to come.

increasing importance of experience in the early modern period is a direct consequence of this evolution.

The Role of Carolus Clusius (1526-1609) as Translator in the Emergence of a Taxonomic Terminology in Botany

Philippe Selosse

Introduction

At the end of the sixteenth century, the new discipline of botany soared thanks to a great extent to eminent Dutch botanists such as Rembert Dodoens (1517-1585), Matthias de Lobel (1538-1616) and Carolus Clusius. But this "Dutch" development is also largely due to Christophe Plantin (1520-1589), a French humanist who moved to Antwerp in 1549 to escape religious persecution in France and who set up as a printer in 1555: Plantin printed most of the books of Dodoens, Lobelius and Clusius, with perfect texts, illustrations of high quality and a great number of copies, which made it possible to spread their works. As for Clusius, he was a polyglot humanist and botanist, who travelled in many countries (Germany, Austria, Hungary, England, France, Spain and Portugal) to discover and describe new plants. As director of the Holy Roman Emperor's garden in Vienna (1573-1587) and then of the Leiden botanic garden, he wove a web that connected many plantsmen through Europe and other countries in the world. As Pavord put it:

> Clusius, though a scholar (and the first plantsman to describe and illustrate a wide selection of fungi), is not much interested in the search for order. By nature he is a describer, a disseminator, a collector. By the time of his death in 1609 he has added more than 600 plants to the known canon, but he has not contributed to the debate, more urgent now with the influx of so many previously unknown plants into Europe, about the right way to group and categorise them.[1]

Many historians of botany thought categorization or taxonomy did not matter to Clusius: for Albrecht von Haller (1708-1777), he was only an "inventor"; for Carl Linnaeus (1707-1778), he belonged to the classes of "inquiring minds" and

[1] Pavord, *Naming of Names*, 322.

"florists," this latter including botanists dealing with the description of plants from a specific area (Spain and Hungary in this case).[2] The belief that Clusius was neither methodist nor taxonomist has to be corrected and refined, as this paper will demonstrate with regard to two main concepts of categories, that is, species and genus.

One of the many publishing projects of Clusius was the edition and Latin translation of famous texts written in vernaculars, most of them dealing with plants from foreign countries (South America, Goa, Turkey, etc.) and describing new plants such as tobacco, tulip, etc.: the Spanish *Dos libros* (1569) of Nicolas Monardes (1493-1588), the Portuguese *Coloquios dos simples* (1563) of Garcia de Orta (1501-1568), the French *Les obseruations de plusieurs singularitez et choses memorables, trouuées en Grece, Asie, Iudée, Egypte, Arabie et autres pays estranges, redigées en trois liures* (1553) of Pierre Belon (1517-1565), etc. In so doing, Clusius served as a prominent go-between, because his Latin translation ensured that these works were at the disposal of the European scientific community—as he said himself—and thus became systematic references in the bibliography of the major botanists by the end of the sixteenth century and early seventeenth century.

This article focuses on Clusius's role as go-between, by studying Belon's most famous book, *Obseruations* (first edited 1553, then 1555, nearly 500 pages in this latter edition), a narration of his travels in the Middle East (1546-1549), and its translation into Latin in 1586 by Clusius, published by Plantin in 1589: *Petri Bellonii Cenomani, Plurimarum singularium* [...] *obseruationes*. I will first describe the epistemic framework within which it was written, its aims and methods of categorization; then, I will bring to light the main alterations made by Clusius to the original text and will corroborate my conclusions by a short comparative study with another Clusius's translation, that of Dodoens's *Cruijdeboeck* from Dutch (Flemish) into French; finally, I will try to explain the signification of these alterations and their implications for the history of botany from a taxonomic point of view.

The choice of Belon's book can be explained by its peculiar status in the history of botany and Dutch printings. First, Belon's *Obseruations* was a great success, quoted by all the botanists of the time and re-published many times during the Renaissance (1555, 1557, 1558, 1567, 1585, 1588): it is an important work for the history of botanical data and ideas. Secondly, this scientific work could have been read in Latin by most of the European scholars at the time of the late Renais-

[2] Haller, *Bibliotheca botanica*, 348-9; Linnaeus, *Bibliotheca botanica*, 57, 59, 97.

sance and even later, in the seventeenth century, thanks to the famous Plantinian printing house.[3]

Thirdly, the Antwerpian editions of Belon's *Obseruations* by Plantin himself, both French (1555) and Latin (1589), cover the whole career of Plantin as a printer and illustrate symbolically how Dutch printings helped extend the spread of a local knowledge (French, in the case at hand).[4] Indeed, if Belon's *Obseruations* was usually printed in Paris, "there is also an edition of the *Obseruations* in Antwerp in 1555, by Christophe Plantin. It is the rarest edition" and, it is worth noting, this edition numbers among the only five books Plantin published the first year of his enterprise.[5] Owing to his book-privilege dating from 1555, Plantin was allowed to print the Latin translation in 1589, the year he died—a publication which is "a typically opportunistic venture by Plantin," considering the size of the scholarly community that consequently had access to this famous book in a language they mastered.[6]

Fourthly, the story of Belon's *Obseruations* and its Latin translation takes place against a background of religious wars. On the one hand, Plantin, originally of Protestant faith, became in Antwerp the "Architypograph of the King," Philip II (1527-1598) of Spain, officially responsible for the main printings of Catholic books (bibles, missals, indexes of forbidden books, etc.). On the other hand, Belon strongly undertook the defence of the Catholic faith, which explains perhaps why he was murdered in 1565, and he dedicated his book *Obseruations* to his patron, the Catholic Cardinal François de Tournon (1489-1562), who was fiercely opposed to the Protestants and counsellor of the French kings during the religious wars. Printing Belon's book with its six-page dedication to the Cardinal de Tournon, which underlines how much this cardinal contributed to the restoration of sciences, may be interpreted as playing a double role in the political activity and propaganda of Counter-Reformation. Not only was this book a symbol of what Catholicism could produce in terms of very good scientific knowledge. It also refuted the idea that the Renaissance of Sciences in the sixteenth century,

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3 Fifteen years after Plantin's 1589 edition, the Officina Plantiniana, directed by Plantin's heir Joannis Moretus, published a second edition of Belon's *Obseruations* within a collection of Clusius's works and translations (Clusius, *Exoticorum libri decem*).

4 As noted by Degeorge, *Maison Plantin*, 210.

5 "Il y a également une édition des *Observations* à Anvers, en 1555, chez Christophe Plantin. C'est la plus rare" (Merle, *Voyage au Levant*, 45; Degeorge, *Maison Plantin*, 134); botanical bibliographies such as Pritzel, *Thesaurus literaturae botanicae*, 22, ignore this Antwerpian edition.

6 Pavord, *Naming of Names*, 322.

especially in botany "re-born" with German plantsmen, was due to rational Protestantism fighting the Catholic darkness of ignorance.[7]

Fifthly, the translator Clusius belongs to a new *episteme* which begins to conceive a discipline in an autonomous way, in that he was perhaps one of the first to call himself a "botanist" and not "doctor of medicine" or "natural philosopher," i.e. he considered botany independent of any connection to philosophy, medicine or religion. Such a conception cannot be without consequences on the main concepts of categories used about plants in the Latin translation of Belon's *Obseruations*—which leads us back to the aim of this paper.

The Epistemic Framework of Belon's '*Obseruations*'

To understand the alterations made in the translation, particularly considering that Clusius is renowned for being an accurate translator and not an interpreter, one has to grasp the epistemic context in which Belon wrote his book.

Writing about plants and animals in a vernacular language

Belon was a humanist who wrote many books about plants and animals. Belon's *Obseruations*, like his *Les remonstrances sur le default du labour et culture des plantes et de la cognoissance d'icelles* (1558), was intended to make knowledge of exotic plants common and to encourage people to cultivate some of them in France, in order to extend the renown and the economy of the French kingdom.[8] Although his book *De arboribus coniferis, resiniferis*, intended for scholars, was written in Latin, Belon generally wrote in the French vernacular.[9] Four reasons can be discerned for his use of the vernacular: (i) from an ontological point of view, Belon is an observer, as he often says, who writes in a simple language, without stylistic devices, the result of simple and direct observation—hence, a language which cannot be the Latin of scholars; (ii) from an economical point of view, Belon writes for noble Maecenas, who do not speak or write Latin; (iii) from a political point of view, Belon wants his knowledge to be popularized beyond the mere scholars who speak Latin, in accordance with the spirit of the Ordinance of Villers-Cotterêts (1539) which promotes and makes French the official and administrative language; and (iv) from a scientific point of view, Belon wants to

[7] See below, the section *The taxonomic vocabulary in French vernacular by Clusius*.

[8] Translated into Latin by Clusius in 1589 as *Petri Bellonii Cenomani medici De neglecta stirpium cultura.*

[9] Belon, *Poissons*; *Obseruations*; *Oyseaux*; *Remonstrances*.

correct errors and misuses of the vulgar language due to erroneous application of antique nomenclatures to plants indigenous to France or poor determination of the reference of names used by Greek and Latin authors.

Observing on site and rediscovering the names of Antiquity

The origin of *Obseruations* was Belon's project to prepare a French edition of Pedanios Dioscorides's *De materia medica*. While preparing this edition, like many humanists of the Renaissance, Belon noted that knowledge about medicinal herbs had become unintelligible for many reasons: transmission of Greek and Latin knowledge by book compilations up until the sixteenth century, adulteration over time of the nomenclatures handed down from Antiquity and confusion of the descriptions of Mediterranean living things in Greek and Latin with those native to France, despite their differences. To overcome these difficulties and to achieve "the intelligence of the things pertaining to the matter of medicines and plants," the only solution, according to Belon, was to go to the Middle East to examine, as a historian, what the Ancients had written about them there and to verify, as a philologist, the identity of the descriptions and names, for, in these countries, everything "still bears, at the present time, the same names the ancient authors set down in writing and left us to denote them."[10]

Observing the variety of species and finding the proper names: the network of ideal forms

However, the historian and philologist did not restrict himself just to the plants or to the things which were described by the Ancients; he observed everything, whatever it was, ancient or modern: geographical peculiarities, plants, animals, minerals, human beings (customs, buildings, techniques, trade). As a cosmographer, he was interested in the network of interactions and similarities woven among these particularities, a network which became the basis for his philosophical and religious reflections, among which the will to magnify God's creation. According to a neo-Platonic theory current at this time, 'Forms' or 'Ideas' are interconnected, forming a network which is known by God alone but unknown to human beings, who are aware of it just by the observation of the 'singularities' which 'partake of'

[10] "[. . .] l'intelligence des choses concernantes la matiere des medicaments & des plantes" (Belon, *Obseruations*, Epistle); "[. . .] retient encor' pour l'heure presente, les mesmes noms que les anciens autheurs nous ont laissé par escrit pour les nous signifier" (Belon, *Obseruations*, fol. 1v).

the Forms and actualize these Forms and whose infinite variety demonstrates the divine power of the great Architect.[11] The consequence is that *Obseruations* has the double aim of describing what is singular, that is, specific to the Middle-East and unknown in France, but also, in order to magnify God, of describing *everything* singular, in so far as it is a specific or particular actualization of the divine Ideas. The historian-observer records "species," that is, things he sees and identifies by their appearance ("species" in Latin) and which he designates by specific names or "proper names."[12] He also records the variety of species and their marks of differentiation but without going into all the details, for his purpose is not to make the nature of things known but to make it "understood" through variety and relationships, which can sometimes amount to only a single difference between two "singularities."

The Taxonomic Vocabulary in French Vernacular by Belon

The vocabulary used by Belon to categorize the plants and animals he observes is consistent both with his aims as an observer and with the epistemic framework previously described. This vocabulary consists of only five words: *espèce* (*species*, 40%), *sorte* (*sort*, 20%), *manière* (*manner*, 14%), *genre* (*genus*, 3%) and *difference* / *diuersité* (*difference* / *diversity*, 23%). This is everyday vocabulary, with many words that seem to be used as synonyms, with no specific semantic signification. In fact, it can first be observed that these words may apply equally to categorize the same plants or animals, e.g. fishes:

[1] All *manners* of fishes.[13]
[2] A *sort* of fish.[14]
[3] Sixty *diversities* of fishes.[15]
[4] All *species* of fishes.[16]

And it is secondly remarkable that they may occur in the same sentence, as if they could be used one for the other:

11 About this theory, see Selosse, "Théorie de l'éponymie."
12 Belon, *Obseruations*, fol. 1r.
13 "Toutes *manieres* de poissons" (Belon, *Obseruations*, fol. 10r). In all of the following examples, italics and underlinings mine.
14 "Vne *sorte* de poisson" (Belon, *Obseruations*, fol. 30v).
15 "Soixante *diuersitez* de poissons" (Belon, *Obseruations*, fol. 52r).
16 "Toutes *especes* de poissons" (Belon, *Obseruations*, fol. 69v).

[5] I wanted them to understand that all the *manners* of beasts, birds, snakes, fishes and plants are like the ones we see in our countries and that, if there is any *difference*, it can be observed in the whole *species*. It is true, they have many *sorts* we do not see in our lands.[17]

Likewise, Randle Cotgrave (?-1634) uses the same definitions of "kind" and "sort," underlining the proximity, indeed the semantic equivalence, of these words in current French:

[6] Difference: A difference, diuersitie; vnlikelinesse.
[7] Espece: A *kind*, or *sort* of.
[8] Genre: *Kind*; a *kind* of.
[9] Maniere: A manner, fashion, form, *kind*, *sort*.
[10] Sorte: *Sort*, manner, form, fashion, *kind*, qualitie.[18]

By studying these French words in their context, one can demonstrate that the impression of equal signification is false, for each word, despite some similarities, has a singular and distinct meaning and denotes a particular method of categorization.[19] I will explain briefly, in the following sections, the main and manifold folk taxonomic concepts and categories these words denote.

The word *manière*: an abstract and undifferentiated category

The word *manière* (*manner*) is used in 50% of cases followed by a general name (hypernym) such as *herbs, legumes, plants, beasts, earth, game, instrument, teeth* [...] a syntactic configuration which is hardly ever observed with *sorte* or *espèce* which are more often followed by a specific name (hyponym) such as Thistle, Goat[...]:

[11] Orobus, which is a *manner* of legume.[20]

This word is even found alone, without any subsequent specification (15%):

17 "I'ay esté meu de leur faire entendre que telles sont toutes *manieres* de bestes, oiseaux, serpents, poissons & plantes, que celles que nous voyons en noz prouinces: & que s'il y a *difference*, on la trouuera manifeste en toute *l'espece*. Il est bien vray qu'ilz en ont beaucoup de *sortes* que nous ne voyons pas en noz pays" (Belon, *Obseruations*, fol. 10r).

18 All definitions given by Cotgrave, *Dictionarie*.

19 As done by Selosse, "Sorte, manière, genre."

20 "Orobus, qui est vne *maniere* de legume" (Belon, *Obseruations*, fol. 20r).

[12] Hyssop, which is of two *manners*.[21]

So, *manière* signifies a category of upper rank, which can be defined as "what characterizes a being by its fashion": the word *manière* underlines the fashioning, which may be attributed in the circumstances to God's hand.[22] *Manière* gives a conceptualization of the category as a group separated through fashioning, a separation which does not need, at this level, any further specification. The *manières* do not particularize, they represent a world that is fashioned, differentiated, they signify categories in abstract terms, more or less close to ideal Forms.

The word *sorte*: a concrete but neutral category

The word *sorte* (*sort*) is used in two types of syntactic configuration, either followed by the name of a type of plant (50%):

[13] A *sort* of Heath.[23]

or preceded by the name of the type (50%), in form of a noun or a pronoun (as underlined in the following examples):

[14] There are also of Muscatel and Malvaisie [wines] two *sorts*, that is, mild and another which is not mild.[24]
[15] There are of it two *sorts* [of Dolphin].[25]

Etymologically, the word *sorte* signifies an object (stone, writing tablet) set in an urn which is taken to ballot or nominate someone; this use explains the sense of "condition, lot, fate peculiar to someone," which gives the meaning "category constituted by what falls to someone's lot." Hence, we can define a *sorte* as "what falls [thanks to fate or God's hand] to a being and characterizes it." It is a neutral word again, but which signifies a greater actualization than *manière*: the category is conceived after the drawing, after God has given it its marks—but virtual marks. These marks are specified, if I can put it that way, in the following word.

21 "L'Hissope, qui est de deux *manieres*" (Belon, *Obseruations*, fol. 2v).
22 Which is consistent with its adjectival etymon *manier*, "that which functions with the hand."
23 "Vne *sorte* de Bruyere" (Belon, *Obseruations*, fol. 51v).
24 "Il y a aussi de Muscatel & de la Malvaisie de deux *sortes*, sçavoir est de douce, & d'autre qui n'est point douce" (Belon, *Obseruations*, fol. 21r).
25 "Il y en a de deux *sortes* [de Dauphin]" (Belon, *Obseruations*, fol. 71v).

The word *espèce*: a concrete and visual category

The word *espèce* (*species*) is almost only used (82%) in the following syntactic configuration: *espèce* + name of "type" of plant (or animal, etc.):

[16] A *species* of Maple.[26]

This phrase is often found in a sentence about a real experience, a particular observation:

[17] This *species* of Thistle yields milk, like Chicory.[27]
[18] We saw the *species* of Fleabanes along the brooks.[28]

This is so much the case that the name of the type, although abstract, is sometimes in the plural (cf. example [18]), which is concrete: this causes a sort of anacoluthon between the virtual reference to a type (e.g. Broom) and the actual reference to individuals (Brooms in example [19]) constituting the type. The *espèce* is then the concrete collection of individuals:

[19] A *species* of Brooms which grow in the deserts of Arabia.[29]

The *espèce* can be defined as "what characterizes a being through its appearance, what is exposed to view." It is the most frequent word in the corpus and, by definition, what concerns the observer and the historian, who mention what they *see*. The *espèces* partake of the nature of a Form and are characterized by marks peculiar to them and to the Forms they actualize. Belon uses the verb *spécifier* (specify) too, when he wants to enumerate the variety of species: *spécifier* consists in speaking of the variety of visual appearances, which is sign of the creative variety. *Spécifier* consists in particular, and systematically by Belon, in enumerating and determining the species, with the help of the vernacular *proper name*, that is a denomination proper or peculiar to a species, which is the better way to make the species "understood" (but not known):

[26] "Vne *espece* d'Erable" (Belon, *Obseruations*, fol. 2v).
[27] "Ceste *espece* de Chardon rend du laict, comme la Cicorée" (Belon, *Obseruations*, fol. 26r).
[28] "Nous auons veu [...] les *especes* des Conizes le long des ruisseaux" (Belon, *Obseruations*, fol. 26v).
[29] "Vne *espece* de Genests qui croissent par les deserts d'Arabie" (Belon, *Obseruations*, fol. 40v).

[20] As we asked about the wild beasts they know wandering in their plains and mountains, they *specified* them for us through their *vulgar proper names*, as follows: Platogni, Gouuidia agria [. . .].[30]

The word *différence*: a concrete and relative category

The words of the paradigm of *difference*, that is *different* (*de*) and (*in*) *differemment* (*different* [*from*], [*un*] *differently*), are generally used relatively and followed by the name of a general or particular type:

[21] It is obvious there is a rather great *difference* between Rhubarb and Rhapontic.[31]

[22] There are Crabs in rivers, *different* from Crayfishes.[32]

The *différence* can be defined as "what characterizes beings, in so far as it leads them (literally) in divergent directions." This word is compatible with *espèce*, as the explicit and visual mark (underlined in the following example) which separates the species:

[23] There is a particular *species* of Seadiver in Crete, swimming under water, *different* from Cormorant and from the other Divers called Mergi.[33]

The word *différence* may be used alone to designate a category:

[24] As for snakes, we observed only three *differences* of them in Crete.[34]

The *différence* presupposes at least two elements which are separated, so that as a designation of a category, the word is normally used in the plural. Nevertheless, it is also found in the singular, in the following case where it signifies what differentiates Greek monks from monks in other countries:

30 "Nous estants enquis des bestes sauuages qu'ils cognoissent errer en leurs plaines & montagnes, nous les ont *specifiées* par *noms propres vulgaires* comme s'ensuit: Platogni, Gouuidia agria [. . .]" (Belon, *Obseruations*, fol. 53r).

31 "Il est manifeste qu'il y a *difference* assez grande entre la Rheubarbe & le Rhapontic" (Belon, *Obseruations*, fol. 74v).

32 "Il y a des Cancres es fleuues, *differents* aux Escreuisses" (Belon, *Obseruations*, fol. 43r).

33 "Il y a vne particuliere *espece* de Plongeon de mer en Crete nageant entre deux eaux, differente au Cormarant, & aux autres Plongeons nommez Mergi" (Belon, *Obseruations*, fol. 12v).

34 "Quant aux serpents, nous en auons obserué en Crete seulement trois *differences*" (Belon, *Obseruations*, fol. 20r).

[25] There is only one single *difference* of monks in all Greece.[35]

The word *genre*: an abstract upper category

The word *genre* (genus) is very little used and is always found in the syntactic configuration *être de tel / de ce genre* (*being of such a / of this genus*):

[26] Another beast of this *genus*.[36]

It is the opposite configuration to the one used for the other words: *une manière/sorte/espèce/différence de + N* (*a manner/sort/species/difference of* + Name). We never find a configuration where the word *genre* is followed by a general name or by the name of a type of animal or plant: **ce genre d'herbe / *le genre du Platane* (**this genus of herb / *the genus of Plane*), etc. It may be deduced from this that *genre* constitutes an upper and inclusive category: such an observed species belongs to such a genus (which is inferred from observation). As a *genre* can be literally defined "what characterizes a being and falls to it by generation," the *genre* is not a category which might be directly observed, contrary to the *espèce* which is perceived visually through differences. As for *manière* and *sorte*, though undifferentiated or neutral, they can be used by the observer to designate a category, whereas the *genre*, particularized through generation, is a category which is more abstract and less useful for someone like the historian Belon, who only writes about what he sees.

The Taxonomic Vocabulary in Latin Vehicular by Clusius

We are now able to understand how Clusius translates Belon's text into Latin. It is obvious that the process of translation distorts Belon's original aim, in that it is contrary to all the ontological, economical and political reasons which led Belon to write his book in French. Scientifically, the main alteration concerns the change of readership, which is now targeted at European scholars; but, as will be seen, another important alteration concerns the perception of the taxonomic categories.

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[35] "Il n'y a sinon vne seule *difference* de religieux par toute Grece" (Belon, *Obseruations*, fol. 33v-34r).

[36] "Vne autre beste de ce *genre*" (Belon, *Obseruations*, fol. 54v).

One need only compare the following quotation [27], where four taxonomic words coexist, with its translation [28], to understand the essential alteration Clusius introduced:

[27] I wanted them to understand that all the *manners* of beasts, birds, snakes, fishes and plants are like the ones we see in our countries and that, if there is any *difference*, it can be observed in the whole *species*. It is true, they have many *sorts* we do not see in our lands.[37]

[28] We wanted them to learn that all the *genera* of quadrupeds, birds, snakes, fishes and plants are similar to those we have in our countries and that, if there is any *difference*, it can be found in the whole *genus*. In fact, it is true, there are many *genera* over there we do not know.[38]

Although *différence* is well translated by *differentia*, the sole Latin word *genus* is used to translate *manières*, *espèces* and *sortes*. Generally, we observe a genuine systematization of the taxonomic vocabulary, which is almost reduced to the single Latin word *genus* (see table in figure 15.1).

	L. *genus*	L. *species*	untranslated	varied translations
Fr. *maniere*	48	0	26	26
Fr. *sorte*	78	0	12	10
Fr. *espece*	75	18	7	0
Fr. *difference*	19	0	5	76
Fr. *genre*	100	0	0	0

Figure 15.1. Translation in Latin of French taxonomic words (in percentages)

[37] "I'ay esté meu de leur faire entendre que telles sont toutes *manieres* de bestes, oiseaux, serpents, poissons & plantes, que celles que nous voyons en noz prouinces: & que s'il y a *difference*, on la trouuera manifeste en toute *l'espece*. Il est bien vray qu'ilz en ont beaucoup de *sortes* que nous ne voyons pas en noz pays" (Belon, *Obseruations*, fol. 10r).

[38] "Eos docere voluimus, similia esse omnia quadrupedum, auium, serpentum, piscium, & plantarum *genera*, iis quae in nostris prouinciis habentur: atque si vlla est *differentia*, eam in toto *genere* conspicuam inueniri. Verum quidem est multa *genera* istic esse nostris ignota" (Clusius, *Plurimarum singularium*, 24).

The word *différence*, referring to a mark of differentiation, is normally translated by the Latin *differentia* but it may be sometimes translated by the Latin *genus*, in rare cases corresponding to its use as designation of a category—a translation which remains, nevertheless, exceptional:

[29] Also we found two *differences* of it [of Goats].[39]
[30] We found two diverse *genera* of it.[40]

This translation specificity, which respects the word *différence* but levels the semantic shades between the other words (*manière, sorte, espèce, genre*), may be explained by the transposition, in Belon's text, of the Aristotelian pattern of logical division, which uses several terms such as *espèce*, *genre* and *différence* (*species, genus, difference*). According to logical division, which is an Aristotelian ontological method for defining beings, for example, the *primary genus* A is divided into two species B and C through a difference of length (Dl); at the following step of division, inasmuch as they are themselves divisible, the *species* B and C are given as *genera* (*intermediate genera*) subdivided in their turn into three (B1, B2, B3) or five (C1, C2, C3, C4, C5) *species* on the basis of new differences of colour (Dc) and habitat (Dh), etc. The last species, if they are no longer divisible, constitute the *ultimate species* and the term of the logical division (see figure 15.2). The being is finally defined by its close genus and its difference (colour for a species like B1, for example).[41]

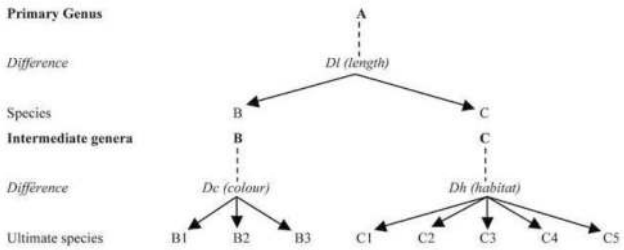


Figure 15.2. The pattern of logical division

[39] "Aussi en auons trouué deux *differences* [de boucs]" (Belon, *Obseruations*, fol. 14r).
[40] "Duo eius diuersa inuenimus *genera*" (Clusius, *Plurimarum singularium*, 34).
[41] For more about logical division, see Aristotle, *Métaphysique*; Porphyry, *Isagoge*; and Gessner, *Categoriae.*

Belon is interested in *species*, in so far as he sees and observes them, but Clusius conceives these categories as capable of being subdivided and containing new species: that is why he translates by *genus*. This logical conception can be seen in particular in the following three cases:

(I) When Belon quotes Aristotle, with logical division in the background, Clusius maintains the term *species*, conceived as the result of a process of logical division applied to a genus:

> [31] In the same way as Aristotle knew three *species* of Blackbird: they have also Blackbirds black and white, which like the ancient Greeks, they call Cossiphos. And a third *species* too, which Aristotle mentioned, which is called by the French proper name 'Merle au collier' (Ring-necked Blackbird).[42]
>
> [32] In the same way Aristotle knew three *species* of Blackbird: they have also Blackbirds black and white, the ancient Greek called by the name Cossiphos and, moreover, a third *species*, which Aristotle mentioned, which the French called by the particular name 'Merle au collier' (Ring-necked Blackbird).[43]

In the same way, since in logical division the difference is what divides genus and since species is a combination of a genus and a difference, the syntagma *espèce differente* (different species) does not have any place in the Aristotelian logical system, because it is incoherent. Clusius resolves the difficulty by systematically translating into *genus diversum*, *genus varium*, *genus dissimilens* (*diverse, various, dissimilar genus*).

(II) Generally, the translation maintains the number of French words: *espèce* in the singular is translated by *genus*, *espèces* in the plural is translated by *genera*. But the words *sortes* (sorts) and *espèces* in the plural are sometimes translated (respectively 12% and 10%) by the word *genus* in the singular.

[42] "Et comme Aristote a cogneu trois *especes* de Merles: Aussi ont des Merles noirs, & blancs, qu'ils nomment comme les anciens Grecs Cossiphos. Et encore vne tierce *espece*, dont Aristote a parle, qui de nom propre François est appelé Merle au collier" (Belon, *Obseruations*, fol. 11v).

[43] "Quemadmodum porro Aristoteles tres Merulae *species* agnouit: sic illi Merulas habent nigras & albas quas veteri Graecorum nomine Cossiphos appellant: tertiam praeterea *speciem* cuius Aristoteles meminit, quam Galli peculiari nomine Merle au collier" (Clusius, *Plurimarum singularium*, 27-8).

The explanation lies in the type of names combined with these words: it concerns rather general names (hypernyms) such as *bird*, *plant*, etc. As a general name can be applied to several kinds (e.g. *bird* to Diver, Eagle, Blackbird, etc. or *plant* to Maple, Broom, Thistle, etc.), it can easily be conceived in the framework of logical division as a genus containing several species, so that it may be more adequate for these names to employ the singular *genus* than the plural *genera*:

[33] French names of several *species* of birds observed in Greece, compared to their ancient appellations.[44]
[34] French names of a various *genus* of birds observed in Greece, compared to their ancient appellations.[45]

(III) The Latin word *genus* is sometimes a translation, despite the fact that there is no taxonomic word in the French text. This translation, unmentioned in the table (see figure 15.1), occurs when the translator considers that a plurality, such as "disciplines" in [35], may be conceived as resulting from the division of a homogenous genus, such as the implicit genus Knowledge in [36], all the disciplines constituting the *genus* of Knowledge:

[35] With scholars cultured *in all disciplines.*[46]
[36] With persons excelling in the whole *genus* of disciplines.[47]

It occurs too when the translator thinks that an observed "singularity," such as the Thistle in [37], is not singular absolutely but may be conceived as one element of a specific plurality resulting from the division of a genus, such as the genus *Spina* ("Thorn") in [38], translation of [37]:

[37] There is a Thistle very common in Crete.[48]
[38] There is a genus of Thistle in Crete.[49]

[44] "Les noms françois de plusieurs *especes* d'oyseaux obseruez en Grece, conferez auec leurs appellations antiques" (Belon, *Obseruations*, fol. 10r).
[45] "Varij *generis* auium in Graecia obseruatorum gallica nomina cum veterum appellationibus collata" (Clusius, *Plurimarum singularium*, 23).
[46] "De gents lettrez en toutes disciplines" (Belon, *Obseruations*, fol. 4r).
[47] "Virisque in omni disciplinarum genere excellentibus" (Clusius, *Plurimarum singularium*, 10).
[48] "Il y a vn Chardon moult frequent en Crete" (Belon, *Obseruations*, fol. 19r).
[49] "Spinae genus est in Creta" (Clusius, *Plurimarum singularium*, 45).

But, as is often the case in the Renaissance, the translation is not systematic, we can only observe tendencies, although in the circumstances they are very strong tendencies, almost regular. So, there are sentences as [39], [41] and [43], whose taxonomic word is not translated, except by a demonstrative pronoun, as in [40] and [42], or an indefinite determiner [44]:

[39] The *species* of yellow Cantharis we have named above.[50]
[40] This yellow cantharis named above.[51]
[41] This *manner* of little river Diver [...] is unknown in Greece.[52]
[42] This little river Diver [...] is unknown in Creta.[53]
[43] They fish there a *sort* of fish.[54]
[44] They catch here a certain fish.[55]

This lack of translation, which is a limited and rare configuration, is two times more frequent with *manière* than *sorte*, and twice as common with *sorte* than with *espèce* (see table in figure 15.1). We can suppose that it is the degree of indetermination of the taxonomic words which leads Clusius to ignore the taxonomic word in his translation. The lack of translation concerns the verb *spécifier* too, which is never translated by *specificare* (specify) but by verbs such as *indicare* (indicate) or *describere* (describe). In the French text, the manner of conceiving *spécifier* is relative to Belon's aim to write in vernacular, that is, to enumerate and delimit the species through their proper names. This aim has no place in the logical division, which enumerates the species through their differences: Clusius restricts the use of the terms *espèce* and *spécifier* to a logical system, distinct from a historical or philological approach.

[50] " *L'espece* de Cantharide iaune qu'auons dessus nommée" (Belon, *Obseruations*, fol. 41r).
[51] "Cantharis illa lutea supra dicta" (Clusius, *Plurimarum singularium*, 95-6).
[52] "Celle *maniere* de petit Plongeon de riuiere [...] n'est point cogneu en Grece" (Belon, *Obseruations*, fol. 12v).
[53] "Fluuiatilis ille minor Mergus [...] Cretae ignotus est" (Clusius, *Plurimarum singularium*, 30).
[54] "Ils y peschent vne *sorte* de poisson" (Belon, *Obseruations*, fol. 52r).
[55] "Capitur in eo piscis quidam" (Clusius, *Plurimarum singularium*, 122).

[45] As we asked about the wild beasts they know wandering in their plains and mountains, they *specified* them for us through their *vulgar proper names*, as follows: Platogni, Gouuidia agria [...].[56]

[46] As we asked the inhabitants of this country about the wild beasts they know wandering in their plains and mountains, they *indicated* to us their *vulgar proper names* and reported them like this: Platogni, Gouuidia agria [...].[57]

The Taxonomic Vocabulary in French Vernacular by Clusius

One may think that the almost systematic translation by Clusius is only a simplification of Belon's text and that it has nothing to do with logical division. Another translation done by Clusius in 1557, this time from Dutch into French, shows it is not a simplification. In his original Dutch in *Cruijdeboeck*, Dodoens uses three current words to designate the plant categories: *Tgheslacht* (genus), *soorte* (sort) and *maniere* (manner), the two latter being of the same etymological family as the French words *sorte* and *manière*. The most frequent word used by Dodoens is the word *Tgheslacht*, which is probably due to the influence of the "German Fathers of Botany" in the Renaissance Otto Brunfels (1488-1534), Hieronymus Bock (1498-1554) and Leonhart Fuchs (1501-1566), who systematically used the German word *Geschlecht*.[58] The French translation by Clusius is remarkable (compare examples [47], [49] and [51] with their respective translations [48], [50] and [52]):

[56] "Nous estants enquis des bestes sauuages qu'ils cognoissent errer en leurs plaines & montagnes, nous les ont *specifiées* par *noms propres vulgaires* comme s'ensuit: Platogni, Gouuidia agria [...]" (Belon, *Obseruations*, fol. 53r).

[57] "Requisiti eius regionis incolae vt earum ferarum quas in planis & montibus errare cognouerunt, *propria nomina vulgaria* nobis *indicarent*, ea sic retulerunt: Platagoni, Gouuidia agria [...]" (Clusius, *Plurimarum singularium*, 124).

[58] See Brunfels, *Herbarum*; Bock, *Kreutterbuch*; and Fuchs, *Herbier*.

[47] *Tgheslacht*. Der cruyden met eenen naem Andoren in Duytsch ghenaempt / zijn drije *gheslachten* van fatsoene malcanderen ghelijck / verscheyden namen by den ouders hebbende / sonder noch dat vierde van den ouders niet beschreven.[59]

[48] THE SPECIES. There are three *species* of the herb called Marrube [Horehound], each resembling one another, whom the ancients gave a particular name, except the fourth, which has not been described by the ancients.[60]

[49] *Tgheslacht*. Der wilder Distelen die aen die weghen ende canten van den velden ende bosschen hier te lande ghemeynlick wassen vindtmen drye *gheslachten* / die gheen sonderlinghe naemen en hebben / ende onder den naem van wilde Distelen begrepen worden.[61]

[50] THE SPECIES. One can find three *sorts* of wild Thistles in this country, which grow commonly along the roads and fieldsides and woodsides and which are gathered under this name of wild Thistle.[62]

[51] *Tgheslacht*. Der cruyden die onder den naem Satyrion in Griecx / ende Standelcruyt in Duytsch nu ter tijt verstaen worden / sijn veelderhande *soorten* ende *manieren*. Die van den gheleerden in vier *gheslachten* ghedeylt ende ghestelt sijn / daer wy noch een ander *gheslacht* toe ghevuecht hebben van den gheleerden die voor ons in die kennisse der cruyden ghearbeyt hebben / niet bescreven oft ghekent / alzoo dat nu van ons alle die *soorten* van standelcruyden / in vijf *geslachten* begrepen worden.[63]

[52] *The Species*. There are many diverse *sorts* of herbs gathered under this Greek name Orchis and Couillon [Orchid] in French, which are divided by scholars in three, but we have added a *species* more, which is undescribed and unknown to those who worked before us in the knowledge of medicinal plants: so that now all the *species* of Orchid are gathered under four *species*.[64]

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59 Dodoens, *Cruijdeboeck*, 87.

60 "*les espèces*. Il y a trois *espèces* de l'herbe appellee Marrube, de figure semblables l'vne à l'autre, lesquelles ont eu des Anciens chacune vn nom particulier, voire sans la quastriesme, laquelle n'a pas esté descrite des Anciens" (Clusius, *Histoire des plantes*, 180).

61 Dodoens, *Cruijdeboeck*, 570.

62 "LES ESPÈCES. Il se trouue en ce païs trois *sortes* de Chardons sauuages, croissans communement le long des chemins, & des bors des champs, & des boys, lesquelz sont comprins sous ce nom Chardon sauuage" (Clusius, *Histoire des plantes*, 358).

63 Dodoens, *Cruijdeboeck*, 252.

64 "*les especes*. Il y a beaucoup de diuerses *sortes* d'herbes comprises soubs ce nom Grec Orchis, & Couillon en François. Lesquelles par gens sçauans sont diuisées en trois, mais nous y auons adiousté encore vne *espèce* non descrite ne cognue de ceux qui ont trauaillé deuant nous en la cognoissance des simples: tellement que toutes les *espèces* de Couillon sont à present par nous

Tgheslacht(en), even in the particular case where it is used as a headline in the singular (in little capitals in the translation), is always translated by *espèces* (species in the plural), or even *sortes* (sorts), whereas *soorten* and *manieren* are translated by *sortes*. This translation is not contradictory with the systematic choice of *genus* used by Clusius when he translated Belon's French text. The plants described by Belon are plants undergoing differentiation, in the framework of a knowledge which is not complete, for it is undertaken as part of a journey: he calls them *espèces* (species), inasmuch as he sees and discovers them globally—but thanks to a more precise observation, each one may appear as divisible into several different plants, i.e. be conceptualized as a genus, so that Clusius translates the French word *espèce* with the Latin word *genus*. The plants described by Dodoens can be conceived as plants whose differentiation is entirely complete in the framework of stable knowledge developed as a result of study and which results from a process of separation or particularization of forms: from the point of view of logical division, these plants constitute ultimate species, so that Clusius translates the Dutch word *Tgheslacht(en)* with the French word *espèces*. The logical approach clearly overrides the other ways of conception: whereas German and Dutch say that a genus (*Geschlecht*, *tgheslacht*) gathers different genera (*Geschlechte*, *tgheslachten*), Clusius says in French, in 1557 (translation of Dodoens's book) that such a *plant* (without any taxonomic word) is realized by different *espèces*; and more systematically, in Latin, in 1589 (translation of Belon's book), that such a *genus* is realized by different *species*. This is, in fact, the terminology he uses more and more clearly and more and more coherently in his own major works:

[53] Mountain Buttercup and its *species*.[65]
[54] 24th *genus* of toxic mushrooms [...] I observed three *species* of it.[66]

The German and Dutch lexical system conceive categories from the unitary point of view of *genus* (*Geschlecht*, past participle of *slahen* / *schlagen*, literally "what is stricken in the same direction"); the French lexical system conceives the categories above all from the *differentiated* point of view of the aspect of *species*. The logical terminology (genus, difference, species) used by Clusius synthesizes and systemizes these two conceptions. The example of the translation of Dodoens's work shows that Clusius does not ignore, when he translates Belon, the existence of different words and that he is able to translate differently words belonging to

comprises sous quatre *espèces*" (Clusius, *Histoire des plantes*, 152).

65 "Ranunculus montanus & eius *species*" (Clusius, *Rariorum aliquot stirpium*, Index).

66 "Vicesimum-quartum fungorum noxiorum *genus* [...] Tres autem ejus *species* observabam" (Clusius, *Rariorum plantarum historia*, cclxxxvij).

the same family (French *sorte*, Dutch *soorte*; French *manière*, Dutch *maniere*). To conclude, if Clusius uses the French word *espèce* and the Latin word *genus* to translate Dodoens's and Belon's works, his aim is clearly not to simplify.

Conclusion

In reality, Clusius uses *espèce* or *genus* because he introduces, in a strongly marked way, the use of a logical terminology in the vocabulary of the botanists, in a discipline which was using current vocabulary but lacked an accurate taxonomic vocabulary. Conrad Gessner (1516-1565) and Andrea Cesalpino (1519-1603), both Aristotelian botanists, referred to Aristotelian logical division but did not introduce clear and precise use of the terms *genre*/*genus* into botany as an upper and divisible category, and *espèce*/*species* as a lower category, resulting from a division.[67] By introducing this terminology and by giving it a coherence in his translations of the texts of various European scientists (Dutch, French), Clusius contributed to the emergence of the logical concepts of species and genus, before they became, in the seventeenth century, morphological concepts, in a pre-biological sense. With his translation, which is, in other respects, faithful to the original text, Clusius introduced a small modification which would be of no little importance in the elaboration of the main concepts of taxonomic thought in botany and zoology. Proof of this is the fact that the Swiss botanist Caspar Bauhin (1560-1624) drew part of the inspiration for his taxonomy and nomenclature from Clusius—the same Bauhin who was to have, like Cesalpino, a great influence on Carl Linnaeus (1707-1778) himself, especially on the elaboration of his taxonomic categories.[68] Hence one can observe that a change in a scientific paradigm can be revealed through studying the translation of just a few words.

[67] See Gessner, *Categoriae* and *De stirpium*; and Cesalpino, *De plantis*.

[68] See Bauhin, *Phytopinax* and *Pinax theatri botanici*; Bauhin's conceptual inheritance from Clusius is established in Selosse, *Œuvre botanique de Caspar Bauhin*.

Stevin in Chinese: Aspects of the Transformation of Early Modern European Science in its Transfer to China

Matthias Schemmel

Language Structures and the Circulation of Knowledge beyond Europe

In a famous introduction to his work on *The Elements of the Art of Weighing*, the Dutch mathematician Simon Stevin (1548-1620) evaluates the attributes of the Dutch language and explains why he considers it to be superior to all other languages, especially as a language of science.[1] The two main linguistic features he considers contributory to the Dutch language's superiority in communicating scientific knowledge and knowledge in general are: its high degree of monosyllabicity; that is, the fact that more words consist of only one syllable than is the case in Latin and Greek. Stevin's idea is that, since the content of thought is succinct, so should be its linguistic expression. He argues that this is best achieved by denoting "single things by single sounds."[2] The second important feature of Dutch, according to Stevin, is its ability to combine these monosyllabic elements to form more complex expressions. Here he is apparently referring to the juxtaposition of elements with no need for intervening particles like prepositions, since he claims that French does not allow such combinations and is thus unfit for composition.

Stevin does not discuss Chinese in his introduction, but according to his criteria it should be considered superior to any European language. Chinese abounds in monosyllabic words. And, as much as this is the case for modern Chinese, it is even truer for literary Chinese, the language that was used to communicate and transmit knowledge in writing throughout the history of imperial China. Among the polysyllabic words in Chinese, those that cannot be decomposed into monosyllabic semantic elements, or morphemes, are very rare. This means that the vast

[1] Stevin, *Principal Works*, 58-93. Stevin was only one amongst many early modern authors who praised the virtues of their mother tongue, see Toon van Hal's contribution to this volume.

[2] Stevin, *Principal Works*, 65.

majority of these words in fact bear testimony to the ability of the Chinese language to compose complex words from monosyllabic ones, the second feature Stevin values in a language. The idea 'one syllable, one thought', that is, the idea that each syllable represents a morpheme with distinct semantic value, is so strong in the Chinese tradition, that even in cases where a syllable etymologically does not carry the meaning of a word, dictionaries tend to artificially attribute meaning to it, i.e., to re-semantize it.[3] From this perspective, the translation of parts of Stevin's work into Chinese, which was accomplished in 1627, only a few years after Stevin's death, should have been a success story. This is, however, only partially true. The present paper discusses the translation and the reasons for its success and failure.

Stevin's discussion of the worth of languages focuses on phonological and morphosyntactic aspects. It is plausible to assume, however, that the semantic resources of a language play a much more central role in deciding whether a given subject matter can be successfully communicated. While semantic aspects of a language are generally not unrelated to morphosyntactic ones (the possibility of juxtaposing two semantic elements to create a new word provides an obvious example), they are inseparably connected to contextual aspects such as the knowledge shared by the community of speakers. There is, in fact, a smooth transition from purely linguistic to contextual issues, such as the experiences people can make in different societies or cultures. When asking what factors will play a role in a successful translation, one may consider the following five, roughly ordered from structural to contextual:

1. phonological and morphosyntactic aspects of the target language,
2. semantic resources of the target language,
3. shared bodies of knowledge of the source and target cultures,
4. shared images of knowledge of the source and target cultures, and
5. character and intensity of interaction between source and target cultures.[4]

As mentioned above, following Stevin's phonological and morphosyntactic criteria, literal Chinese was an ideal language for communicating scientific knowledge. Interestingly, it is exactly on such grounds—for instance the absence of inflection—that Chinese has often been described as being less suited for the expression of rational thought. While such contradictory conclusions may be enough to raise one's suspicions against such claims, Robert Wardy has convincingly

[3] See Boltz, "Emergence of Writing in China," in particular 56-7 note 8.

[4] On the distinction of bodies and images of knowledge, see Elkana, *Anthropologie der Erkenntnis*.

argued that any claim for particular language structures having an influence on thinking is hard to substantiate and that many claims of this kind are simply based on deficient knowledge of the languages under question. It is, in fact, hard to see how phonological and morphosyntactic features could play a role in determining the suitability of a language to convey particular types of knowledge such as scientific knowledge.[5]

It is safe to say, in contrast, that the linguistic representation of scientific knowledge requires specialized terminology. The question of translatability therefore directly depends on the semantic resources of a language, which must either possess terms conveying the appropriate meanings or the semantic means to contruct such terms. One can easily imagine cases of better or worse semantic matches between source and target languages. The more common ground there is, the easier the translation. The less common ground there is, the more additional information has to be provided to make the text comprehensible, which will, in extreme cases, render a translation impossible. What is translatable and what is intranslatable thus largely becomes a question of practicability.

A language's semantic resources, much more than its morphosyntactic properties, vary depending on the historically developing knowledge of the community of its speakers or certain professionalized subgroups. This is the reason for the close relation between the issue of semantic resources available for a translation and that of the bodies of knowledge shared by source and target cultures and their conceptual structuring. In the case of scientific knowledge transfer between two cultures with distinct knowledge traditions, as with the early modern translation of Stevin into Chinese, the question arises: what is the shared knowledge a translation can be based on? Without such a shared basis, translation is impossible, since no scientific text is self-contained. The parts of Stevin's work translated into Chinese dealt largely with mechanics, so the question is one of matches and mismatches between practical and theoretical traditions of mechanics in China and the West.

Different knowledge traditions not only bring about different bodies of knowledge but also different images of knowledge. These affect the ways in which knowledge is reflected upon, how it is divided into fields or branches, and what is considered an appropriate presentation of what kind of knowledge. Images of knowledge clearly shape translations and their impact, from the first considerations of what is worth translating to the final fate of a translation in its reception.

[5] See Wardy, *Aristotle in China*, 1-68. Wardy discusses many historical variations of the claim of the inferiority of the Chinese language for rational reasoning, ranging from Wilhelm von Humboldt to Marcel Granet. See, in particular, 23-4.

Again matches and mismatches between source and target cultures play a crucial role. Obviously, to be well received by the target culture it is not enough for a translation to represent a successful rendering of the original text in the target language. If the product of the translation endeavor cannot be given a proper place within the target culture's knowledge system, it will have no noticeable impact. Thus, a translation, which is linguistically successful, may become a failure in terms of its reception, while a translation which highly distorts the source text but is compliant with the target culture's image of knowledge may have a larger chance of becoming influential.

In this context it is important to note that bodies and images of knowledge as well as their institutional and social embedding are not fixed for all time. They may change in reaction to a variety of factors. One such factor is translation itself, as new texts become imported through translations. A translation not only needs to find a place in the existing knowledge system, it also constitutes a potential for changes in that system. In translation movements, new texts may induce changes that are favorable for the coming into being, the quality, and the reception of further translations, thus amplifying change. It is also important to note that translations are usually only a part of broader cultural encounters which may alter the institutional and social conditions for the generation and transmission of knowledge by a variety of means. These may include political and military pressure which may then stimulate further translation, as was the case in late nineteenth and early twentieth-century China. These considerations may illustrate the pertinence of the question of character and intensity of the interaction between source and target cultures for the success of a translation in all of its aspects ranging from its faithfulness to the source to its influence in the target culture.

How Stevin Came to Be Translated into Chinese

Like virtually all European science that was transferred to China in the seventeenth and early eighteenth centuries, Stevin was brought to China by the Jesuits. How did this knowledge transfer come about?[6] The Jesuits represented by far the largest portion of missionaries in China throughout the time of their mission. With their education as well as their modes of defending, consolidating, and propagat-

[6] There is a broad literature on the transmission of European scientific knowledge to China in the early modern period. See, e.g., Engelfriet, *Euclid in China*; Standaert, *Handbook of Christianity in China*; Elman, *On Their Own Terms*; Damerow, Renn & Schemmel, "Transformation of Mechanical Knowledge"; and Schemmel, "Transmission of Scientific Knowledge." The next few paragraphs are taken from the latter publication with only slight modifications.

ing their faith they were well prepared to spread scientific knowledge within and outside of Europe. Shortly after the formation of the order in the first half of the sixteenth century, the Jesuits became the intellectual bridgehead of the Catholic Church in its struggle against Protestantism and a major tool for its own spiritual renovation. The Jesuits propagated an integrated Christian worldview in which natural philosophy was of outstanding importance as an ancillary science of theology. To disseminate knowledge and faith, and to educate the next generation, they established a growing network of schools and colleges which stretched across Europe. The pursuit of the mathematical sciences, which consisted of the quadrivium arithmetics, geometry, music, and astronomy, and included practical sciences such as optics, geography, and mechanics, became the speciality of the Jesuit order, even though its place in natural philosophy remained controversial within the Church and even within the order itself. While the proponents of a thorough mathematical education had only limited success in shaping the colleges' curricula, they were able to establish a Jesuit tradition of science education through informal seminars and specialized academies.[7]

While the Jesuits were thus well equipped to spread scientific knowledge, their actual strategic use of science in China, which brought about the transmission of scientific knowledge, can only be understood as a reaction to Chinese culture. In fact, nowhere in the world did the Jesuits make such systematic use of science to support their mission as they did in China where they were confronted with a highly developed, self-contained, and stable cultural system.

Two aspects of the strategy for Christianization that the Jesuits adopted in this environment were crucial for the transfer of scientific knowledge to come about: evangelization from the top down and accommodation to Chinese culture:

Evangelization from the top down. The Jesuits tried to convert members of the ruling class, ideally the emperor himself, in the hope that the subjects would then follow his example. While this strategy may have been inspired by European and Japanese precedents, it also paralleled the hierarchical structure of Chinese society.[8] Now, the ruling class of imperial China was at the same time its intellectual elite, a fact ensured for centuries by a tough examination system for selecting prospective bureaucrats. The Jesuits' main targets for conversion were thus highly educated scholar-officials.

Accommodation to Chinese culture. Besides India, China was the only country

[7] On the Jesuits' growing network of schools and colleges, see Krayer, *Mathematik im Studienplan der Jesuiten*, 7; on the Jesuits' limited success in shaping the colleges' curricula, see Krayer, *Mathematik im Studienplan der Jesuiten*, 24-42.

[8] On the Japanese precedent, see Gernet, *China and the Christian Impact*, 16.

in which the missionaries made every attempt to adapt to the indigenous culture. The Jesuits learned the Chinese language and writing system and adapted to the lifestyle of Chinese scholars. In the first years of the mission, Matteo Ricci (1552-1610), one of the founding fathers of the Jesuit mission in China, had adopted a Buddhist lifestyle but soon realized that this would lead at best to Christianity achieving a position on a par with Buddhism and Taoism, which, from the viewpoint of orthodox Confucianism, would always remain potentially heterodox. In order to become the dominant faith, Christianity had to take on Confucianism.

The missionary effort in China thus led to the encounter of two intellectual elites, each representing a culture with a highly elaborate knowledge system and advanced technology. It was against this background that the wide-spread habit of colonialists and missionaries to impress indigenous peoples with all kinds of gadgets developed into a systematic use of scientific knowledge to attract the learned Chinese's attention and convince them of the high level of European civilization. In this development, corresponding traits between the two cultures further enhanced the transmission of knowledge, which, in the course of the mission, took place in three contexts: personal contacts between Jesuits and Chinese scholars, expert services rendered by Jesuits on commission by the Chinese state, and later Jesuits' private tutoring of the Chinese Emperor. In all three contexts, the Chinese side did not act as passive receiver, but rather prompted or requested the transfer of knowledge with an agenda of its own. Through the presentation of European technical and scientific achievements, the Jesuits hoped to arouse the interest of a broader group of scholar-officials, and eventually of the imperial court. The Jesuits' expertise in mathematical and practical matters paralleled a growing concern for such matters among Confucian scholars towards the end of the Ming 明 dynasty (1368-1644). Serving a state that was becoming increasingly dysfunctional, they more than once interpreted the neo-Confucian term *shixue* 實學, which may be translated as 'solid studies', in the sense of practical studies which they pursued with the aim of improving statecraft. Together with the Jesuits, but also on their own, they published books on surveying, geography, water control, military technology, mechanical devices, and astronomy. But also works of 'pure' mathematics were praised as a necessary basis for mastering practical affairs, as the preface to the *Jihe yuanben* 幾何原本 (1607), the Chinese translation of the first six books of Euclid's *Elements* from 1607 exemplifies.

In the case of the book containing translations from Stevin, the *Yuanxi qiqi tushuo luzui* 遠西奇器圖說錄最 (*A Record of Selected Illustrations and Descriptions of Remarkable Machines from the Far West*, in the following *Qiqi tushuo* for short), the initiative again seems to have come from the Chinese side. The book

was co-authored by the Chinese scholar-official Wang Zheng 王徵 (1571-1644) and the German Jesuit Johannes Schreck (1576-1630) and was first published in 1627.

Ricci understood early on the importance of scientific expertise for the Jesuit mission in China, especially in astronomy, and called on his European home base to send more missionaries trained in the sciences. Schreck, a German who had latinized his name to Terrentius, had had a broad interest in the sciences long before he became a member of the Jesuit order in 1611, and was one of those sent to China in delayed response to Ricci's call. He travelled with Nicolas Trigault (1577-1628) on the latter's return trip to China and arrived there in 1619. One of his central tasks was to assist the Chinese in reforming their calendar. Wang was a scholar from Shaanxi Province who had long been interested in engineering. He had come to Beijing in order to take the imperial examination. There he made contact with the Jesuits to whom he explained his interest in western machines. Among these Jesuits was Schreck.[9]

If we trust the story told in the preface written by the book's Chinese author, Wang, he himself had urged his Jesuit co-author to cooperate with him. But while Wang was mainly interested in machine drawings and the practical side of engineering, it was Schreck who insisted that a thourough understanding of machines had to be based on more fundamental knowledge, e.g., knowledge about proportions (*bili* 比例) and knowledge about the principles of the natural things (*wuzhili* 物之理). So while the impetus to compile a book on machines came from a Chinese scholar, it was a Jesuit who insisted that the book had to contain theoretical mechanics as well.[10]

The *Qiqi tushuo* is therefore not the translation of a work by Stevin or of any other European book. It is a compilation of bits and pieces of several books, augmented with introductions and additional explanations for the Chinese reader. The procedure of translation by which it was produced resembled the one followed in earlier centuries when Buddhist texts were rendered into Chinese. This meant a two-step procedure of translation: a Jesuit explained the original text in spoken

[9] For biographical accounts on Wang and Schreck (in Chinese), see Zhang et al., *Chuanbo yu huitong*, vol. I, 50-82. For Wang, see also Ren, "Wang Zheng." For Schreck, see also Zettl, *Johannes Schreck-Terrentius*; Walravens, "Riccis Nachfolger," 87-92; and further literature given in Walravens, "Vorwort," 40.

[10] For an early account on the *Qiqi tushuo* and a discussion of the preface, in particular, see Jäger, "Buch von den wunderbaren Maschinen"; and Walravens, "Vorwort," in which Jägers's translation of the preface into German is reproduced. A full reproduction of the *Qiqi tushuo* is contained in Zhang et al., *Chuanbo yu huitong*, vol. II (see 14-25 for Wang's preface and 19 for the quoted terms).

Chinese (orally interpreted, *kouyi* 口譯) and a Chinese scholar wrote it down in literary Chinese (received or transmitted with the brush, *bishou* 筆受 or *bishu* 筆述). The next section gives a short overview of the content of the book and explains what parts of Stevin's work it contains.

The Translations in the Qiqi Tushuo

The *Qiqi tushuo* is divided into three chapters (See table).[11] The first chapter contains a long introduction to the properties and practical use of mechanics, which is either called the "art of force" (*liyi* 力藝) or the "science of weights" (*zhongxue* 重學). The sources on which it is based are largely unknown.[12] The introduction actually announces a partition of the work into four thematic chapters dealing with the explanation of, respectively, 1) weight, 2) devices, 3) force, and 4) motion. Only the first two items of this list seem to have been realized, item 1) as the second part of the first chapter and item 2) as the second chapter.

Chapter	**Contents**	**Parts of Stevin's work used**
Chapter 1: Introduction and 61 sections	cosmology, natural place, center of gravity, specific gravity, weight of bodies in water	*The Elements of the Art of Weighing* (Book I, Def. 2, 4, 5, 6, Postulates 2, 3, 5, Book II, Prop. 1–4, 6, 14, 15); *The Practice of Weighing* (Prop. 1); *The Elements of Hydrostatics* (Def. 2, Postulate 6, Prop. 2–11, 21, 22)
Chapter 2: 92 sections	balance, steelyard, lever, pulley, wheel, helix (including inclined plane)	*The Elements of the Art of Weighing* (Book I, Def. 11, 12, 14, Prop. 1-5, 19); *The Practice of Weighing* (Prop. 3?, 4?, 7, 9)
Chapter 3	machine drawings	—

Figure 16.1. Contents of the Qiqi tushuo

The second part of the first chapter consists of a sequence of 61 sections. It starts with cosmological considerations on the natural places of bodies, proceeds to centers of gravity, and ends in a long sequence of sections on specific gravity and the weight of bodies in water. The part on centers of gravity contains a lot

[11] The following analysis is based on joint work in the framework of a cooperation project of the Institute for the History of the Natural Sciences at the Chinese Academy of Sciences and the Max Planck Institute for the History of Science. Results of this cooperation were first comprehensively published in Zhang et al., *Chuanbo yu huitong*, see, in particular, vol. I, 92-119.

[12] See the discussion in Jäger, "Buch von den wunderbaren Maschinen," 84-5; and in Zhang et al., *Chuanbo yu huitong*, vol. I, 95.

of material from Stevin's *Elements of the Art of Weighing* and a bit from *The Practice of Weighing*. The part on specific gravity and the weight of bodies in water contains material from *The Elements of Hydrostatics*.

The second chapter, which consists of 92 sections, treats the following six simple machines or "main types of devices" (*qi zhi zonglei* 器之總類) as they are called in the text:[13] the balance, the steelyard, the lever, the pulley, the wheel, and the screw, in the context of which the inclined plane is also discussed. The part on the steelyard contains material from *The Elements of the Art of Weighing*, the part on the lever a little material from *The Practice of Weighing*, and the part on the inclined plane contains material from *The Elements of the Art of Weighing*. In addition to Stevin, the first two chapters contain material from Guidobaldo dal Monte (1545-1607), Federico Commandino (1509-1575), Giovanni Battista Benedetti (1530-1590), and possibly others such as Niccolò Tartaglia (1499/1500-1557). The third chapter, finally, presents machine drawings with explanations. It does not contain any material from Stevin, but material from, among others, Agostino Ramelli (1531-1600) and Heinrich Zeising (d.1613).

From this overview it can be seen that none of Stevin's works was translated as a whole but that parts were selected, rearranged, and combined with other material to yield a new work. As a rule, each section in the first two chapters of the *Qiqi tushuo* consists of a head paragraph presenting a more or less concise statement and a body paragraph which either paraphrases the statement in more detail, or adds a numerical example, or discusses cases related to the one the head paragraph has introduced. It happens quite often in the *Qiqi tushuo* that information from different paragraphs of Stevin's work is integrated into a single section. The contrary also happens: information from one paragraph of Stevin can be scattered throughout two or more paragraphs in the *Qiqi tushuo*.

Before we discuss concrete examples of translated passages, we have to ask which editions of Stevin's texts the selective translations were based on. It has usually been assumed that Stevin's book *Tomus quartus mathematicorum hypomnematum de statica*, which appeared in 1605, served as the original.[14] The volume contains in five books the Latin translations of Stevin's works from 1586: *The Elements of the Art of Weighing*, Books I and II; *The Practice of Weighing*; *The Elements of Hydrostatics*; and the *Preamble of the Practice of Hydrostatics*. It furthermore contains *Appendices and Supplements on the Art of Weighing*. It thus contains all three works that have been identified as sources of the *Qiqi tushuo*.

[13] See Zhang et al., *Chuanbo yu huitong*, vol. II, 87.

[14] See Jäger, "Buch von den wunderbaren Maschinen," 82; and Zhang et al., *Chuanbo yu huitong*, vol. I, 94. The Latin translation was done by Willebrord van Roijen Snell (1580-1626).

The book is in the Latin collection of works by Stevin found in the catalogue of the Beitang Library. The thousands of books the Jesuits brought to China were collected and preserved in this library at the beginning of the eighteenth century.[15]

While it is thus very plausible that the translations were indeed based on this source, it is important to mention that Dutch editions of all three relevant books by Stevin are also found in the Beitang Library, and that Schreck was most probably able to read them.[16] Due to the fact that the Chinese text is often only loosely connected to its source, the question of what edition served as a basis for the translations may even turn out to be impossible to answer. It may also have been the case that the authors of the *Qiqi tushuo* consulted both Latin and Dutch editions.

The Steelyard and the Law of the Lever

To understand better the kinds of transformation Stevin's work underwent in the process of its translation into Chinese, we focus now on a few sections in the second chapter of the *Qiqi tushuo*. This chapter is structured very similarly to Stevin's *Practice of Weighing*, which also discusses the same devices in nearly the same order. Besides drawings of balances and levers, and some numerical examples, however, nothing else has been taken from that particular work. The Chinese sections based on Stevin draw rather from his *Elements of the Art of Weighing*, which has a completely different structure. The discussion of a few sections on the steelyard which lead up to what appears to be the first explicit formulation of the law of the lever in Chinese literature may serve as an illustration.

The first section in the *Qiqi tushuo* on the steelyard is section 16 of the second chapter. It explains the difference between a steelyard and a balance, the device discussed in the preceding sections. Nothing similar is found in Stevin's work.

Section 17, then, is based on Definitions 8 and 11 of Book I of *The Elements of the Art of Weighing* and parts of the Explanation of Definition 11. Source and target texts may be compared by translating both into English. Definitions 8 and 11 of Book I of *The Elements of the Art of Weighing* read as follows:

Definition 8. The beam being divided by the centre line of gravity at which the two gravities are *of equal apparent weight*, we call the part's arms.

[15] See entry no. 2872 in the *Catalogue de la bibliothèque du Pé-t'ang*: Verhaeren, *Catalogue*, 841.

[16] Stevin, *Beghinselen des waterwichts*, *Beghinselen der weeghconst*, and *Weeghdaet*. Entry nos. 4070-2 in the *Catalogue de la bibliothèque du Pé-t'ang*: Verhaeren, *Catalogue*, 1195-6. See Zhang et al., *Chuanbo yu huitong*, vol. I, 94.

Definition 11. And the two gravities are said to be *of equal apparent weight*.[17]

These definitions are part of a long series of definitions that build one upon the other. In this series it also happens that a term that is only later defined comes up in an earlier definition. This is the case here with the term *equal apparent weight*. The situation to be considered is that of a mathematical, i.e. weightless, beam at each of whose two ends a weight is attached. The point of suspension of the beam is chosen so that the beam is horizontal. Definition 11 then states that in this case the two heavy bodies are said to be of equal apparent weight. This is the term defined in this section, which is why above it has been italicized. *To be of equal apparent weight* is the expression that the editors of *The Principal Works of Simon Stevin* chose to translate Stevin's neologism *evestaltwichtich*. The Latin has *situ aequilibris*, which may be translated as *to be of equal weight according to position*. The idea that is to be conveyed by these terms is that the two weights may be different but have an equal effect on both sides of the beam so that the beam is horizontal. Owing to a combination of their weight and their position on the beam they thus appear to be equal.[18] Let us now see what became of the definition in Chinese. In its English translation, the first paragraph of section 17 of the second chapter of the *Qiqi tushuo* reads:

There are two different weights. On the left and on the right they are suspended from the beam of a steelyard. When the beam is *level* (*zhun* 準) with the horizon then the two weights are said to be *level-equal* (*zhundeng* 準等).[19]

The section starts with an explanation of the situation: two different weights suspended at the left and the right arms of the beam of a steelyard. In accordance with the overall structure of the text, the Chinese text immediately refers to the in-

[17] Stevin, *Principal Works*, 103, these and subsequent italics are mine. In the following we use the English translations given in Stevin, *Principal Works*. The Dutch text has: "VIII. Bepaling. Wesende den Balck ghedeelt met de swaerheyts middellini daer de twee swaerheden *eu-estaltwichtich* an sijn, wy noemen de deelen Ermen. [...] XI. Bepaling. Ende die twee swaerheden noemen wy *Evestaltwichtighe*" (Stevin, *Principal Works*, 104). The Latin text has: "8 Definitio. Iuga a pendula gravitatis diametro divisi partes, ex quibus pondera *situ æquilibria* dependent, Radii appellantur. [...] 11 Definitio. Dicta autem pondera *situ æquilibria* dicimus" (Stevin, *Statica*, 7-8).

[18] For a discussion of the term *evenstaltwichtigheid*, its different translations, and their relation to the medieval concept of *gravitas secundum situm*, see Stevin, *Principal Works*, 38.

[19] This and the following translations from Chinese are mine and are based on the joint project work mentioned in note 11. Markings in italics are mine. The Chinese text has: " 有兩重不同. 左右繫于等之橫梁. 橫梁與地平準, 則兩重名橫準等" (Zhang et al., *Chuanbo yu huitong*, vol. II, 91).

strument, the steelyard, which is not mentioned explicitly in the original definition but only in an explanatory note. The Chinese text further loses a bit of generality when it demands the two weights to be unequal although the definition works for equal and unequal weights. The text then proceeds to explain that, when the beam is level with the horizon, the two weights are said to be *level-equal*.

The expression *level-equal* is the retranslation into English of the Chinese term *zhundeng* 準等. The *zhun* 準 may mean *water-level*, but also *to regulate*, *to adjust*, or *to measure*, and, by implication, also means *a standard*. But since it is used in the defining sentence itself to describe the horizontal position of the beam (marked in italics in our English translation), I prefer here to translate it as *level*. *Deng* 等 is the usual term for 'being equal'.[20]

In the Dutch and Latin texts there follow two paragraphs of explanation which culminate in the following statement:

> It is essential that this term *equality of apparent weight* be understood, and be distinguished from the equality of proper weights, since the latter is quite a different thing from the former. In fact, to give an example, the weight hanging at the shorter side of a steelyard is sometimes ten times heavier than the other weight, and yet they seem to have the same weight, but this is not actually so, but only in appearence.[21]

The Chinese has a much shorter explanation which first gives a numerical example and then, too, points to the difference between being of equal weight and the term defined in the section (the letters *a* and *e* refer to two weights attached to the two sides of a balanced beam depicted in an accompanying drawing):

> Suppose *a* to be one *Jin*, suspended at the right; *e* to be four *Jin*, suspended at the left. The beam is level (*ping* 平) on both (sides). The two weights are said to be *level-equal*. For it is a 'being equal' different from 'being equal to each other'.[22]

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[20] For a discussion of the Chinese neologism *zhundeng* 準等, see further Xiao & Zhang, "Mechanical Knowledge," 82.

[21] Stevin, *Principal Works*, 105. The Dutch text has: "Dese *Euestaltwichticheydt* dient nootsaeckelick verstaen, ende onderscheyden vande Eueneyghenwichticheydt, anghesien dit al wat anders is als dat, want om by voorbeelt daer af te spreken, tghewicht ande cortste sijde des onsels hanghende, is somtijts thienmael swaerder als tander, nochtan hebben sy een ghelaet van euewichticheyt, maer ten is niet eyghen, dan alleenlick na de ghestalt" (Stevin, *Principal Works*, 104). The Latin text has: "Ista ex *situ æquilibritas* necessario notanda, &, quia diversæsunt, ab æquiponderitate dirimenda. Nam, exempli causa, pondus ex minore radio in statera dependens nonnunquam decuplum est ad alterum, æqualem tamen gravitatem præseferunt, sed specie tantum non proprie, & tantummodo propter situm" (Stevin, *Statica*, 8).

[22] The Chinese text has: " 假如a一斤, 繫于右; e四斤, 繫于左. 橫梁兩平. 兩重名橫準等. 蓋別于相等之等也" (Zhang et al., *Chuanbo yu huitong*, vol. II, 91).

After a section which is not derived from Stevin, section 19 of the second chapter of the *Qiqi tushuo* formulates a central principle. The text is based on that of Theorem 1 of Book I of *The Elements of the Art of Weighing*, which reads:

Theorem 1. Proposition 1. Given two gravities of *equal apparent weight*, the heavier has to the lighter the same ratio as the longer arm to the shorter.[23]

This is Stevin's formulation of the law of the lever. The corresponding section 19 of the second chapter of the *Qiqi tushuo* opens with a statement which has no counterpart in Stevin's text:

This section is the foundation of the science of weight. All methods make use of it.[24]

This may be understood as compensating for the flat structure of the Chinese text by explicitly mentioning the importance of the following statement. The text continues:

When there are two suspended weights which are *level-equal*, then the ratio of the greater weight to the smaller weight is as the ratio of the longer arm of the steelyard's beam to the shorter arm. Moreover (this holds) for the reciprocal ratios.[25]

The first sentence of this passage may be considered a successful rendering of the law of the lever in Chinese. To my knowledge it is the earliest general formulation of this law in the Chinese literature.[26]

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[23] Stevin, *Principal Works*, 117. The Dutch text has: "I. Vertooch. I. Voorstel. Wesende twee eu-estaltwichtighe swaerheden, de swaerste heeft sulcken reden tot de lichtste, als den langsten erm tot den cortsten" (Stevin, *Principal Works*, 116). The Latin text has: "1 Theorema. 1 Propositio. Duarum gravitatum *situ æquilibrium* ponderosior illam rationem habet ad leviorem, quae longioris radii est, ad breviorem" (Stevin, *Statica*, 12).

[24] The Chinese text has: " 此款乃重學之根本也, 諸法皆取用于此" (Zhang et al., *Chuanbo yu huitong*, vol. II, 91).

[25] The Chinese text has: " 有兩係重是準等者, 其大重與小重之比例就橫等梁長節與短節之比例. 又橫互相比例" (Zhang et al., *Chuanbo yu huitong*, vol. II, 91-2).

[26] See also Xiao & Zhang, "Mechanical Knowledge," 79. In the *Suanfa tongzong* 算法統宗 (*General Source of Computational Methods*) of 1592, a compilation of mathematical problems, two of which deal with the steelyard, an earlier use of the law of the lever can be found. There is no general statement of this law, however; see Xiao, "Knowledge about the Lever," 167. Furthermore, there is a section in the so-called *Mohist Canon* from around 300 BCE which has sometimes been interpreted as containing the law of the lever; see, in particular, Needham, *Physics*, 22-3. The section obviously deals with phenomena related to the lever principle, however, no corresponding law is mathematically formulated; see the discussion in Renn & Schemmel, "Mechanics in the Mohist Canon."

But the proof that follows in Stevin's text is omitted in the Chinese translation. Stevin attempts, in the tradition of Archimedes to derive the law of the lever from the state of equilibrium by making use of the concept of center of gravity. Although the Chinese text introduces the concept of center of gravity (*zhongzhixin* 重之心 or *zhongxin* 重心) in the first chapter, no use of it is made in the context under discussion.[27] Instead, a great number of examples are given in the form of problems, many of them numerical. One, two or more weights are suspended from the beam, while the beam is considered either weightless or having weight itself. In different sections, different quantities, such as a counterweight or the length of a lever arm, are either given or sought after. Many of these problems are found as examples to Problems 1, 2, 3, and 4 of Stevin's *Elements of the Art of Weighing*, but several are not.

One may get the impression that the wealth of examples provided in the Chinese text somehow serves to confer stability to the knowledge represented by the law of the lever, just as the proof does in the European context. In the sections on bodies in water in the first chapter of the *Qiqi tushuo* we can observe a similar structure: while all the proofs to the theorems are omitted, there is a wealth of additional examples running through all possible variations of given and sought-after quantities. While the deductive structure is not reproduced in the Chinese translation, the consistency of terminology is still preserved. Thus, when it comes to the discussion of the inclined plane and Stevin's text refers to the property of being of *equal apparent weight*, (*euestaltwichtich*, *æquilibris situ*), the Chinese consistently renders this term to *level-equalo* (*zhundeng* 準等). Accordingly, section 77 of the second chapter of *Qiqi tushuo* reads:

> There is a standing triangle. Its base is level (*ping* 平) to the ground. The right adjoining (side) is half the left adjoining (side). There is further one sphere on each adjoining (side), suspended from a hook (so that the cord is) level (*ping* 平) (with respect to the sides). But the right sphere is half the left sphere. Necessarily the two spheres are *level-equal*.[28]

[27] The terms are used starting from section 7 of the first chapter of the *Qiqi tushuo*, see Zhang et al., *Chuanbo yu huitong*, vol. II, 56 ff.

[28] The Chinese text has: " 有立三角形. 其底與地平. 右交橫半于左交. 每交上亦各有一球, 平係于鉤. 但右球橫半于左球. 必定兩球橫準等" (Zhang et al., *Chuanbo yu huitong*, vol. II, 116). The source passages are from *The Elements of the Art of Weighing*, Book I, Theorem 11 (Proposition 19), and Corollaries 1 and 2 (Stevin, *Principal Works*, 174-8).

Factors of success and failure

To conclude, let us come back to the factors that may be considered to condition the success or failure of a translation and discuss them in the context of the concrete example at hand. From the beginning we excluded the possibility that phonological and morphosyntactic peculiarities of the Chinese language played a decisive role in determining the success or failure of the translation. In fact, we did not encounter a single case in which the Chinese language turned out to be incapable, because of its structure, to represent a particular proposition. The transformations Stevin's text underwent in its transfer to China must have been caused by other factors.

The semantic resources of Chinese were potentially much more challenged by the task of representing the knowledge of early modern European theoretical mechanics. Many terms did not exist and had to be created. An example is Stevin's neologism of *equality of apparent weight* (*evenstaltwichtigheid*, *situ aequilibritas*) which was successfully and consistently rendered to *level-equality* (*zhundeng* 準等) in the Chinese text. For the creation of this and other terms of theoretical mechanics and Western natural philosophy it was instrumental, of course, that the Chinese language not only offered terms from everyday discourse about the physical environment, but also more specialized terminology related to natural philosophy, technology, and mathematics. Thus, there were, for instance, terms for the steelyard (*dengzi* 等子) and for triangles (*sanjiaoxing* 三角形). (The latter term appears to have been introduced shortly before the composition of the *Qiqi tushuno*, but other terms were available, such as *guitian* 圭田, used for triangular fields in the *Jiu zhang suan shu* 九章算術 [*Nine Chapters of Arithmetical Techniques*]).[29]

The semantic resources of late-Ming literary Chinese clearly reflect the historical presence of particular specialized bodies of knowledge in China which, to some extent, matched those of early modern Europe. Indeed, the existence of a certain vocabulary on its own would not ensure a succesful translation. What is decisive is shared knowledge and shared knowledge structures, of whose presence the vocabulary is indicative. Overlaps of two cultures' bodies of knowledge may have origins of different types. Part of this overlap may originate from aspects of cognition which do not vary between cultures. Thus, the insight that heavy bodies fall downwards is most probably arrived at by individuals in any society. No knowledge transfer between societies has to be invoked to explain the ubiquity

[29] For the term *sanjiaoxing*, see Engelfriet, *Euclid in China*, 160; for the term *guitian*, see Chemla & Guo, *Les Neuf Chapitres*, 768.

of this knowledge, which is due to the cultural-independency of certain fundamental aspects of our physical environment. Other parts of the shared body of knowledge may originate in earlier cross-cultural exchange that led to a transfer of external representations of knowledge such as instruments or written texts. The steelyard is a candidate for such transfer, although the history of its spread over Eurasia has not yet conclusively been dealt with. Mathematical knowledge is also known to have travelled all over the Eurasian continent. In this context it is important to note that similar knowledge structures do not presuppose wholesale adoption but may reflect parallel developments on the basis of similar conditions. Thus, the widespread presence of the steelyard in Europe as well as in China inevitably promoted knowledge about the dependence of the effect of a weight on its position—in both societies. This is a shared knowledge structure the translators of Stevin into Chinese could build upon.[30]

The most obvious transformation of Stevin's text in its transfer to the Chinese context relates to the different images of knowledge in source and target cultures: the overall arrangement and presentation of knowledge. It is true that the particular way the knowledge is presented in the *Qiqi tushuo* will in general be due to the special circumstances of the translation project. Thus, the fact that the book starts with cosmological foundations of natural philosophy, proceeds to mathematical mechanics, and ends with a chapter on engineering need not represent a traditional way of presenting knowledge either in China or in the West. It may rather reflect what the European author considered appropriate for a Chinese audience (and probably for his missionary effort).[31] Nevertheless, the changes do reflect differences in the two cultures' images of knowledge, for instance concerning the role of explicit deductive structuring. While Stevin's text is usually explicitly structured into *definitions* and *explanations*, and into *postulates* and *propositions*, which are either *theorems* or *problems*, no part of this structure has been explicitly carried over to the Chinese text. The Chinese text strings together one section after the other, regardless of whether its purpose is the explanation of a term or the statement of a propostion. The deductive organization of knowledge by means of definitions, axioms, theorems, and proofs was a central aspect of science in the European tradition. Stevin's work is only one out of a multitude which display this structure. Taking Euclid's *Elements* as its paradigm, the tradition was

[30] On the history of the steelyard in China, see Guo, *Quanheng duliang*; see also Renn & Schemmel, *Waagen und Wissen*. For various examples of the transfer of mathematical knowledge within Eurasia, see Dold-Samplonius et al., *From China to Paris*.

[31] See the discussion in the second section above; see also Damerow & Schoepflin, "Western Sources," 93.

followed up into modern times with prominent early modern exponents such as Tartaglia, Guidobaldo, Galileo (1564-1642), and Newton (1643-1727). There is no corresponding emphasis on deductive structure in the Chinese tradition. Although the deductive structuring of Euclid's *Elements* had been essentially preserved in Ricci and Xu Guangqi's 徐光啟(1562-1633) translation of 1607, it did not become a model for presenting mathematical knowledge. As explained above, the *Qiqi tushuo* followed a different model in which in a sequence of sections are given and sought-after parameters of a problem are varied.

Despite adaption to Chinese knowledge traditions, the impact of the text on the development of Chinese science remained rather restricted. There was no field in the knowledge system of late Ming China that would have allowed the passages from Stevin to become part of a Chinese theoretical mechanics. No mathematical science of labor-saving machines comparable to that in the Western tradition had developed in China. Although the *Qiqi tushuo* was reprinted several times and stirred some interest among Chinese scholars, it did not establish theoretical mechanics as a field of research.[32] The character and intensity of the early modern encounter of the Western knowledge system, mediated by the Jesuits, with the late-Ming early-Qing Chinese knowledge system did not bring about a profound restructuring of the Chinese system. It was only in the course of the twentieth century and under completely different global political conditions that the Chinese knowledge system changed radically and theoretical mechanics was given an active role within this. But by that point, the mechanics of the *Qiqi tushuo* was long outdated; in the more than two hundred years that had passed, classical mechanics and the calculus had developed. The work could only serve as a source of inspiration and terminology for a new translation movement.[33]

Summing up, the early modern Chinese translations of Stevin's work were successful in that they made European mechanical knowledge, such as that contained in the law of the lever, accessible to Chinese scholars. The book which they were part of failed, however, to become the germ of a dynamic field of theoretical mechanics and remained marginal within the Chinese knowledge system.

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[32] On the various editions of the *Qiqi tushuo*, see Zhang, Tian & Liu, "Evolution of Editions"; on its reception, in particular by the Chinese mathematician Mei Wending 梅文鼎 (1633-1721), see Tian & Zhang, "Mei Wending's Commentaries," and Zhang et al., *Chuanbo yu huitong*, 226-67.

[33] On the beginnings of this later development, see Amelung, "Weights and Forces," in particular 198, where it is argued that the *Qiqi tushuo* was influential in shaping the later terminology.

Appendix I

The Circulation of Knowledge between Britain and the Netherlands: Select Political and Historical Translations, 1600-1800

1612	Foxe, *Acts*, English-Dutch
1618	Barnevelt, *Apologia*, Dutch-Latin-English
1619	*Barnevelt Displayed*, Dutch-English
1619	*Arraignment of Barnevelt*, Dutch-English
1620	*Courante out of Italy*, Dutch-English
1622	royal proclamation, English-Dutch
1640	Colepeper, speech, English-Dutch
1643	Crouch, *Parliament*, English-Dutch
1643	*Remonstrance*, English-Dutch
1645	Fairfax, *Letters*, English-Dutch
1649	*Eikon Basilike*, English-Dutch
1652	anon, *Declaration of the Parliament*, English-Dutch
1653	Evans, *Request*, English-Dutch
1653	Sandys, *Relation*, English-Dutch
1656	anon, letter to Cromwell about libels, English-Dutch
1658	anon, *Cromwell's funeral*, English-Dutch
1659	Carrington, *Cromwell*, English-Dutch
1660	Dauncey, *Charles II*, English-Dutch
1661	Lloyd, *Charles II*, English-Dutch
1665	Clarendon, *Oration*, English-Dutch
c. 1667	Clarendon, *Petition*, English-Dutch
1669	Nieuhof, *Gezantschap*, Dutch-English
1670	Knolles, *Turks*, English-Dutch
1670	Rycaut, *Present State of Ottoman Empire*, English-French-Dutch
1672	anon, *Dutch Remonstrance* (concerning de Witt), Dutch-English
1679	Kennet, *Antiquities*, English-Dutch
1682	Gage, *Travels*, English-Dutch

1684	Rycaut, *History of the Turkish Empire*, English-Dutch
1686	Burnet, *Reformation*, English-Dutch, abridged
1687	Cave, *Antiquities*, English-Dutch
1692	Cave, *Christianity*, English-Dutch
1695	Phillips, *Secret History of James and Charles I*, English-Dutch
1695	Temple, *An introduction to the history of England*, English-Dutch
1698	Cave, *Apostles*, English-Dutch
1698	Prideaux, *Mahomet*, English-Dutch
1702	[de la Court] *Interest van Holland*, Dutch-English
1704	Kennet, *Antiquitie*s, English-Dutch
1704	Dapper, *Africa*, Dutch-English
1705	Bosman, *Guinese Kust*, Dutch-English
1723	Prideaux, *Jews*, English-Dutch
1725	Burnet, *Own Time*, English-Dutch
1733	Kaempfer, *Japan*, English-Dutch
1736-7	Boyer, *Anne*, English-Dutch
1743	[de la Court] *Maximen*, Dutch-English
1763	Newton, *Chronology*, English-Dutch
1769-74	Hume, *History*, English-Dutch
1772	Robertson, *Charles V*, English-Dutch
1776	Hess, *Israelites*, English-Dutch
1778	Robertson, *America*, English-Dutch
1779	Robertson, *Scotland*, English-Dutch
1788	Coxe, *Travels*, English-Dutch
1796	Smith, *Wealth*, English-Dutch

Appendix II

Translating "Schilderspracke": Major Differences Between the English and Dutch Editions of Franciscus Junius' *The Painting of the Ancients*

The Painting of the Ancients (1638) (page numbers refer to the 1991 edition)	**De schilderkonst der oude (1641)**
Total number of pages: 306.	*Total number of pages: 351.*
Book I = 70 pp. = 23 %	*Book I = 70 pp. = 20 %*
Book II = 115 pp. = 37 %	*Book II = 132 pp. = 39 %*
Book III = 106 pp. = 40 % *Total number of words: 114,000.*[1]	*Book III = 148 pp. = 41 %* *Total number of words: c. 140,000.*[2]
14. -	6. (+ 9 lines about Heliogabalus.)
20.(§8) -	12.(§8) (The paragraph is longer.)
21. -	13. Want soo wie de werkcen der onvolmaeckter konste met d'alder volmaeckste wil verghelijcken, deselvighe sal bevinden dat den arbeydt soo wel van d'eene als van d'andere altijdt beloont is geweest.
26. following stroke after stroke … studying always by a contiunall practice to enrich their phantasie wiht all kind of perfect images, and desiring	17. manneken nae manneken maekende … want het staet de soodaenighe toe door't oeffenen haerer fantasije de verbeeldinghen

[1] Based on a digitized, searchable edition, URL: http://eebo.chadwyck.com. Last accessed in 2006.

[2] Estimate based on c. 400 words/page x 351 pages.

to have them in such readinesse, that by them they might represent and resemble things absent, with the same facitity others doe exprese things present	van afwesighe ofte oock onsienelicke dinghen sich soo ghemeyn te maecken, dat sy deselvighe altijdt by de handt hadden, om nae't verdachte voorbeeldt der selvigher wat volmaeckts voordts te brenge
26.(§4) (The paragraph's first sentence is longer.)	19.(§4) (The paragraph's last sentence is longer.)
28-29. -	20-21. (A quotation from Cicero of 22 lines, concerning the utility of art and the imagination for soldiers.)
29.6 -	22. (A quotation from Quintilian about Theo Samius.)
31.(§2) (+9 lines on how fantasy takes imitation farther.)	23. -
35.(§5) -	27.(§5) (Additional remark on the quality of inimitable art.)
35. embracing not the vertues themselves, but their neighbour vices: they are puffed up, not stately; starved, not delicate; temerary, not confident; wanton, not delectable; negligent, not plaine	28. -
36.(§6) -	29.(§6) (+11 lines on imitation and disparate parity, 'ongelijke gelÿkheid'.)
38.(§8) not doubting but all reasonable and judicious Readers will not dislike the same digression in Quintilian (this statement is followed by a reference to more literature.)	31.8 -
47. (A quotation from Calamis about chariots.)	39. (A quotation from Aristodemus on wrestlers, that is included in the English edition on p. 48.)

52. -	43. (+ 10 lines quoting St. Basil.)
83.(§2) the picture also of our Lord and God Christ Jesus, made without hands, may bee alledged here in this place as it is related by Damascenus, Cedrenus, and other writers of Ecclesiastical historie (Then follow the example of 'Ananias' towell' and 'our Saviours brasen statue erected by the woman hee had healed of bloody issue' and others.)	76. -
87. -	80. (+4 lines concluding the paragraph with a reference to 'more examples'.)
89. logick	81. dialectica
89. (On Sicyon as 'patria picturae'.)	82. -
93. Canon	86 Canon ofte richt-snoer
99. -	90-91. (The rules of art are explained by a comparison to navigation or 'seyl-konste', the painter is compared to a sailor.)
100 instruments	92 Instrumenten ofte het werck-tuygh
102 emulation	94 Aemulatie naer-ijver ofte naevolghens lust
104. -	97. (+6 lines on simplicity or 'rechte en slechte eenvoudigheid'.)
105. Chrysocolle, Ostrum, Armenium	98. bergh-groen, purpur, blaeuwen azuyr
107. (In the quotation from Quintilian the order is different, not the content.)	99. (In the quotation from Quintilian the order is different, not the content.)

108. -	101. (+10 lines in §2; §3, that discusses the interest of the public, is twice as long as in the English edition.)
113-114. (The order of arguments is different.)	109-110. (The order of arguments is different.)
116-117. -	112. (+8 lines on ‘Amasis’.)
127. -	126. (+20 lines.)
139. (8 lines quoting Prudence on the image of Christ, woven in flags and drawn on shields, and quoting Hieronymus on the sign of the cross worn on helmets.)	143. (9 lines about the etymology of the Dutch word for painting, ‘ons Nederlandsche woord Schilderen’, as derived from ‘schild-cieraet’, the decoration of shields.)
195. invention, proportion, or symmetrie, colour, motion or life, an therein action and passion, disposition or oeconomicall placing, grace	204. inventie, ghelijck-maetigheyd, proportie, symmetrie, analogie, en harmonie, leven, ’t welck in d’actie en passie bestaet; schikinge, dispositie, ordinantie, bevalligheyd (plus an additional explanation of the terms ‘actie’ and ‘passie’.)
197. -	206. (An explanation of the term ‘historie’ as moral-making content of paintings, ‘sede-vormenden inhoud der Schilderyen’; 5 more lines quoting Seneca; additional explanation that pictures of fog can be meaningful; +4 lines quoting Ausonius.)
198. -	207. (A quotation from Horace on artists choosing subject matter according to talent.)
199. -	208. (+15 lines on ‘dommekracht’ Polydamas Scotuffaeus.)
199. -	209-210. (+14 lines on Attila.)

199-200. (The discussion is much shorter.)	210-211. (Two quotations of Seneca on the strange wildness of the unpredictable brain, ‘gantsch seldsaeme vreemde woestigheydt haerer grilligher herssenen’).
206. resupination (Henry Wotton’s term denoting the optical correction applied by Phidias; see above, note 42.)	218. -
220. -	235. (Additional remark on Porcia, Cato’s daughter.)
223-225. (The Dutch needs four pages, while the English needs only two, for discussing the importance of knowledge of different arts and true imitation.)	239-243. (The Dutch needs four pages, while the English needs only two, for discussing the importance of knowledge of different arts and true imitation.)
226. congruence and equalitie	244. Congruentia ofte Aequalitas, dat is, medevoeghlickheyd ofte ghelijckvormigheyd
227. commensuration or commodulation, and sometimes by another name	245. commensus, dat is een afmetinghe, ofte maetvoegellicheyd, ofte gehelijkmaetigheydt
227. (Gellius quoted in English.)	245. (Gellius quoted in Latin.)
227. (Quotations from Quintilian and Seneca on proportion and ‘analogy’.)	245. (+8 lines quoting Pliny; §2 starts with +12 lines on proportion.)
228. tonus and harmoghe	246. tonus en harmoge … om mede te kennen te geven dat d’aller teghenstighste verwen in een goede schilderye steelswijze in malckander moeten versmelten, … ten eynde datmen … een sekere eenstemmigheyd treffen moght.

232. Idea of perfect beauty	250. d'idea, dat is, het onvervalschte voorbeeld van de naturelicke wel geproportioneerde schoonheid
233. they knew that there is ever in the outward lineaments of our face an evident proof of our inward inclinations	252. ghemerckt de reden haerer aendachtigher vlijt die sy aen 't aenghesicht hingen voornaemelich daer in bestond, dat het uytwendighe ghebaer onses wesens door haer marcksaeme naersithgeyd eenighe sekere trecken moght bekomen, uyt welcke men d'inwendighe beweghinghen ende gheneghenheden onses ghemoeds ooghenschijnlick soude konnen afnemen ende verstaen
234. physiognomer	252. Metopocopos [sic] ofte Physiognomers
239. Those … who have sufficiently practiced designing, may not content themselves with this exercise [of looking at sketches]; seeing the practise of designing, though it be a great matter in it selfe, is nothing else but an entrance to some thing that is greater … mathclesse collection of designes by Arundell … doth at this present expose these jewells of art to the publike view in the Academie at Arundell house (total 7 lines).	260. (On art lovers:) hun dunckt dat haeren geest speelen gaat met die des kunstenaars … genoegelijker te werken dan gewerkt te hebben (total 20 lines).
240. corruption	261. verderving ofte ontwording
240-241 (Quotations from Lucian, on 'comixtion and variegation', and from Apuleius.)	261-262. -
242. -	263. (Reference to Hermogenes.)
248. -	269 (+4 lines quoting Ovid on the colors of the rainbow.)

249.(§10) -	269.(§10) (+17 lines on chessboards and acuity perspective.)
251. -	272. (+9 lines on acuity perspective.)
251.(§11) -	273.(§11) (Additional quotation from Seneca.)
252. Arsenicke and Ceruse	274. andere schoone Deernen
253. condition of ornament not in it selfe, but in the things adorned	275. de maetigheid in alle dingen plaetse heeft (After a quote from Quintilian follows a reference to Symacchus.)
253. clearnesse of the glaring colours	275. gloeyenheid
254.(§5) -	276-277. (+26 lines about the corrupting judgment of idle art lovers or 'lieflaffers'.)
255. -	278. (+6 lines quoting Cassiodorus.)
257. action … discobolus	280. actie ofte bedrijvens kracht … schijf-werper, die eertijds discobolus wiert ghenaemt
258. -	281.(§2) (14 lines are added explaining the difference between action and passion)
264. -	289.(§4) (14 lines are added about the importance of the 'living spirit' of art.)
264. -	289-290 (+8 lines referring to Xenophon, *Apomnemoneumata.*)
265. energia, evidence or perspicuity	291. uytdruckelickheyd of duydelickheyd
267-268. -	293. (+7 lines about how 'our present century' does not value anecdotes.)

269. -	294. (A longer passage on the frenzy, or ‘raeslust en ongebondenheyd’, of Scopas’ *Baccha*.)
270-271. -	296-297. (26 lines are added to a quote from Longinus, condemning bad artists as ‘brabbelaars’ and ‘botte-kroesen’ because of their seemingly grand manner, ‘schijn groote handeling’ and brutality, ‘onbeschoftheid’.)
271. disposition	298. dispositie of ordinantie
272. a skilful hand	299. metselaers en timmerlieden
274. -	302. (+19 lines on the importance of the imagination in composition.)
274. continuation	303. self-wesigheid
275. -	304. (+10 lines on the ‘stomme aenspraecke’ of a ‘historische ofte zedevormende inventie’.)
276.(§7) (In 6 lines, first Acron, then Quintilian is quoted.)	305.(§7) (+47 lines at the beginning of the paragraph explain that many figures do not automatically make a good composition, quoting first Quintilian, then Acron.)
278. -	308. (§9) (+6 lines.)
278-279. -	309. (After a quotation from Seneca, Junius needs 1,5 pages to say what the English does in 0,5 page about a cooking metaphor condemning cowardly flies in the kitchen, ‘laffe keucken-vlieghen’, for making tasteless fertilizer and unconnected bits and pieces, ‘onsmaekelijken compost … bondel-loose stucken en brocken’.)

279.(§10) -	310.(§10) (+10 lines at the beginning of the paragraph.)
289. Paraphrase of the first paragraph of the dedicatory epistle in Edmund Spenser's *The Shepherdess' Calendar* (1579), condemning the painting of rough landscape with a comparison to discords in music.	311. The same passage but without the reference to music.
284. (A poem from Philip Sidney's *Arcadia*, III, is quoted literally, cf. *The Complete Works of Sir Philip Sidney,* ed. A. Feuillerat, Cambridge, 1912-1926, Vol. II, p. 26).	315. (Sidney's poem is paraphrased in prose.)
295. -	329. (An additional passage on the artist's judgment as basis for criticism or 'voet van oordelen'.)
296. neat and polished age	329. gauwe ende doorslepen eeuwe
297. height and exellency	331. hoogh-draeghende verhevenheyd
298. statelinesse and magnificence	333. manhaftige stoutmoedigheid
303. (Only 0,5 page is used to speak about images of hunters.)	339-340. (Almost 3 pages for ekphrases of hunters and wrestlers.)
306. copies	344. copijen, afteyckeningen, uytdrucksels, afsetsels, naemaelsels
310. -	349. (The first half of the page is an addition.)
311. -	351. (+14 lines in the book's conclusion.)

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