sented a note of psychological stress in British and European political culture "in the three decades or so after 1850."[153]

The greatest part of the writings taken into consideration especially in the fourth and fifth parts of this contribution were published just at the beginning of that epoch in world history, from 1780 to 1914, which saw the European supremacy replace the poly-centrism that had more clearly characterised the preceding eras.[154] This was an epoch of major European expropriation at the expense of several peoples of the world, and of the consolidation of Western economic and political ascendancy on a global scale. The hierarchisation of both anthropological and civil diversities in the European self-consciousness was the cultural reflection that accompanied such a process. Some key notions aided the strengthening of the awareness of the superiority of a white, Christian, male, capitalist and industrial Europe. Race, in its strongest biological meaning, was one of them. Progress and economic growth were others. Backwardness or incapacity to progress, and later on underdevelopment, were the mirror ideas that contributed to the schematisation of a new conceptual arrangement of the world and of global history. The evolution of the European, particularly of the Enlightenment, image of a once potent and awesome rival as the Chinese empire during nearly one hundred years may offer a useful insight into such a transformation. To think back over its most significant passages helps us better understand how the need to interiorise as well as categorise historical and civil global diversities was a major driving force in European intellectual history.

[153] S. Collini/D. Winch/J. Burrow, *That Noble Science of Politics. A Study in Nineteenth Century Intellectual History*, Cambridge 1983, p. 203.
[154] C. A. Bayly, *The Birth of the Modern World,* Cambridge 2004.

Encyclopedias

Ulrich Johannes Schneider

Since the inception of printing in Europe in the fifteenth century, encyclopedias have become popular and widespread all over the continent. During the eighteenth century, dictionaries and other knowledge-communicating books constituted a major part of the book market, thereby defining everyday knowledge, including information about the entire world that was cultivated by periodicals and travel logs. Encyclopedias, from the very beginning, have been a varied genre owing to the assorted knowledge produced for different books, which depends on the subject, the target audience, the scope, and the price. General encyclopedias could amount to several volumes, sometimes more than ten, while more specific dictionaries usually comprised only one or two volumes. During the eighteenth century, many encyclopedic works were adapted for different audiences, resulting in many books being translated. This distribution of encyclopedias helped to build the European culture of knowledge we witness today, in which encyclopedias are still a major source of information.

1. Encyclopedias on the European book market

In the eighteenth century, encyclopedias were produced in all shapes and sizes for every area of knowledge, ranging from science to philosophy and from economy to politics. Publishers catered to a European-wide audience which wanted short, comprehensive texts written in an easy way that promoted general understanding. The most extensive encyclopedia ever produced during the Age of Enlightenment is Johann Heinrich Zedler's *Universal-Lexicon* – published from 1732 to 1754 in 68 volumes containing around 284,000 entries – which names 33 areas of knowledge on its title page. For most of those subject areas special encyclopedias had been produced earlier. From 1751, Denis Diderot and Jean le Rond d'Alembert used the encyclopedic genre for their enlightened philosophy and published the most influential encyclopedia Europe has ever known, the *Dictionnaire raisonné des Arts et des Sciences*, which comprises some 72,000 entries in 17 volumes (text only, later extended by 11 volumes with engravings). In addition to these great

works which are still a recognized part of European intellectual history there exist hundreds of smaller encyclopedic books. For most of these works, large or small, the most commonly used languages were French, German and English. Quite often there were several editions, translations and other forms shaping a transnational exchange of ideas.

The history of this form of knowledge production, that was designed by and for a reading audience, is not easy to recapitulate. Certainly, some key concepts are well known like the criticism of prejudices, the emphasis on utility, the overall invitation to judge by comparison. There seems to be a seemingly limitless curiosity for everything occurring in the realm of ideas, politics and sciences. However, it is difficult to say whether encyclopedic works actually express key concepts and if so, how they do it. Ever since the seminal book by Robert Collison[1] forty years ago, research into encyclopedias progressed mostly by case studies. In addition, some exhibition catalogues[2] and websites[3] have also expanded upon this analysis. What remains to be investigated is the scope of the encyclopedic enterprises spanning over all of Europe, focusing especially on the publishers and editors. A perspective of European book production, with regard to encyclopedias of the eighteenth century, is still lacking.[4] So it remains an open question whether a book history devoted to encyclopedic literature will confirm the generally held image of an 'Enlightened' era, or rather differentiate the eighteenth-century attempts to make sense of total curiosity and an expressed will for education.

Publishing is a business, and making money was a major reason why publishers tried to satisfy the demand for encyclopedias in Amsterdam or Basle, in Leipzig or London, in Lyon or Paris. Besides the will to know and to spread specific information, publishers acted upon the general desire for facts, background knowledge and a defendable opinion. Judging by the subject range of encyclopedias, this was not only true of people living in cities, but also those living in the countryside as well as at provincial and royal courts and among craftsmen. Publishers maintained their businesses by providing information of interest for their

[1] R. L. Collison, *Encyclopaedias: Their history throughout the ages*, 2nd ed., New York 1966.

[2] *Tous les savoirs du monde. Encyclopédies et bibliothèques de Sumer au XXIe siècle*, ed. by R. Schaer, Paris 1996; *Seine Welt wissen. Enzyklopädien in der Frühen Neuzeit*, ed. by U. J. Schneider, Darmstadt 2006.

3 Cf. http://www.enzyklopaedie.ch; http://www.pierre-marteau.com; http://www.1675–1725.historicum.net

[4] Cf. the collection of essays *Enzyklopädien, Lexika und Wörterbücher im 18. Jahrhundert*, ed. by C. Zelle, Wolfenbüttel 1998 (Das 18. Jahrhundert 22,1).

readers. It is safe to say that in general most encyclopedic works did not inform their readers about sciences, but rather handed down knowledge which could be put into practice. Hence, there existed special encyclopedic dictionaries for physicians alongside medical articles for those who had not studied medicine. Furthermore, in law, economics, and politics encyclopedias communicated knowledge in a way that offered intelligent compilations for constantly growing and diverse audiences.

Accordingly, the genre of encyclopedic literature can be outlined as follows: an encyclopedia is a book that preserves specialized knowledge while answering specific questions by being partitioned into small units. Moreover, these books are for general readership, not for experts.

1.1. Encyclopedic knowledge

There are three major areas of knowledge central to books and periodicals serving the distribution of knowledge: historical knowledge of politics, geography, religion, commerce; biographical knowledge on important individuals past and present; and practical knowledge about the environment, crafts, sciences, etc. In all three areas, the eighteenth-century publishers, together with the authors and editors, could rely on a large variety of information already presented in other books.

Overall, encyclopedic books are mixed products that provide a map and at the same time define the path to follow. They give intellectual orientation to their readers while depicting all there is to know about the specific subject matter. This was accomplished by either compiling texts alphabetically – for which there are early examples from the era of print – or by employing a more systematic approach that could guide the reader where to search and what to select.[5] Either way, encyclopedic books executed practices rather than followed programs outlined in prefaces and editor's announcements.[6] In the eighteenth century, the success of the encyclopedic genre was still mainly due to the old-fashioned humanistic methods of extracting knowledge from books in order to produce new publications using of course more modern technologies for typography and layout.

It is also important to know that the very term 'encyclopedia' was rarely used before the eighteenth century. The preface to Zedler's *Universal-Lexicon* (1732) names many other terms once used that can be associated with what today is called an encyclopedia: 'Theatrum,' 'The-

[5] Cf. Nanus Mirabellius, *Polyanthea*, Venedig 1507.

[6] R. Darnton, Philosophers trim the tree of knowledge. The epistemological strategy of the Encyclopédie, in: id., *The Great Cat Massacre and other episodes in French Cultural History*, New York 1984, pp. 191–213.

saurus,' 'Polyanthea,' 'Library,' 'Museum,' 'Archive,' 'Palace,' 'Pandecta,' 'Mirror,' 'Polymathia,' 'Theatre,' 'Stage,' 'Treasure House,' 'Armory,' 'Garden,' and 'Mass.' Zedler speculates in the *Universal-Lexicon* that these titles were used because they attracted attention, more so than "the mere word dictionary or lexicon".[7] Until the eighteenth century the title 'encyclopedia' was the exception, not the rule.[8]

These terms were utilized for several reasons. For example, the title 'library' was applied early on to characterize an encyclopedic endeavor, that is transferring knowledge from existing books into new ones. Authors using the title 'library' include Konrad Gessner in the sixteenth century as well as Barthémely d'Herbelot de Molainville, Johann Georg Schiele and Tobias Lohner in the seventeenth century.[9] In the eighteenth century, both the *Haushaltungs-Bibliothek* by Julius Bernhard Rohr and the *Musikalische Bibliothek* by Johann Gottfried Walther use this term.[10] Furthermore, other related terms place emphasis on the selecting, collecting or treasure-building of knowledge. In this fashion, compilations have been named *florilegia* (picking flowers) or *gemma gemmarum* (precious stones). In addition to the word 'treasure,' 'museum' or 'cabinet of rarities' are further terms of the language of collecting, and the word 'treasury' itself is not uncommon, especially in the German context, from Ramelli's *Schatzkammer mechanischer Künste* (1620; first as *Le diverse et artificiose Machine,* 1588)[11] to Savary's *Schatz-Kammer der Kauffmannschaft* (1741; first as *Dictionnaire Universel de Commerce*, 1723).[12]

[7] J. H. Zedler (ed.), *Großes vollständiges Universal-Lexicon Aller Wissenschaften und Künste, welche bißhero durch menschlichen Verstand und Witz erfunden und verbessert worden* [...], 68 vols., Halle and Leipzig, 1732 – 1754, vol. 1 (1732), p. 1 sq.

[8] Paul Scaliger's work of 1559 (*Encyclopaediae, seu orbis disciplinarum [...] epistemon) is a collection of essays; in Mario de Bignoni's Encyclopaedia seu scientia universalis* (Cologne 1663) the term is used for a sermon collection.

[9] B. d'Herbelot de Molainville, *Bibliothèque Orientale*, Paris 1697; J. G. Schiele, *Bibliotheca Enucleata seu Artifodina artium ac scientiarium omnium*, Vienna 1679; T. Lohner, *Instructissima bibliotheca manualis*, 4 vols., Dillingen 1681.

[10] J. B. Rohr, *Compendieuse Haußhaltungs-Bibliotheck*, Leipzig 1716; J. G. Walther, *Musicalisches Lexicon oder Musicalische Bibliothec*, Leipzig 1732; see also J. J. Speidel, *Bibliotheca Juridica Universalis*, Nuremberg 1728; B. Martin, *Bibliotheca technologica or, a Philological Library of Literary Arts and Sciences*, London 1737; C. Nettelbladt, *Schwedische Bibliothec*, Stockholm 1728 – 1736.

[11] A. Ramelli, *Le diverse e artificiose macchine*, Paris 1588; German version as *Schatzkammer mechanischer Künste*, Leipzig 1620.

[12] J. Savary des Bruslons, *Dictionnaire universel de commerce*, Paris 1723, Amsterdam 1726, 3 vols. Paris 1748; German as *Allgemeine Schatzkammer der Kauffmannschaft oder vollständiges Lexicon aller Handlungen und Gewerbe*, 5 vols., Leipzig 1741–1743.

Within the realm of natural philosophy, ever since Pliny (natural philosopher, 1st century AD) and the ancient tradition marked by his work, the term 'historia' is commonly used for describing structured knowledge.[13] Concepts, such as 'theater' and its related titles, for example, used in the sixteenth-century works of Theodor Zwinger and Abraham Ortelius as well as the seventeenth-century publications by Jan Jonston and Paul Freher,[14] to which can be added works in anatomy (*theatrum anatomicum*) and mechanics (*theatrum machinarum*). The term 'theater' evokes a feeling of gazing around or a stage on which knowledge is displayed, and hence illustrates aptly the character of encyclopedias. However, these rather baroque terms like 'history' or 'theater' have largely disappeared by the eighteenth century.[15]

In addition, the eighteenth century has an abundance of works in alphabetical order which do not claim to develop their subject matter systematically but make it accessible via a list of concepts and words, accordingly called 'dictionary,' 'lexicon' or 'Wörterbuch.' Taken out of the languages themselves, knowledge appears as dispersed and part of any ordinary use of speech. These encyclopedias usually cross-reference their vocabulary by giving translations for professional terms – for example, 'phlébotomie,' see 'blood letting,' or 'saignée' – or redirect Latin names to the vernacular expression – 'Medicus,' see 'doctor,' or 'Arzt.'

Alphabetically organized books did not only provide an alternative display of knowledge compared to a systematic way, they are very common when larger encyclopedias combine different areas of knowledge. Multidisciplinary encyclopedias are for that very reason always organized alphabetically. Quite often words that have several meanings are placed into separate entries. Alphabetically organized encyclopedias proceed from word to concept with almost every lemma, thereby limit-

[13] A. Seifert, *Cognitio historica. Die Geschichte als Namengeberin der frühneuzeitlichen Empirie*, Berlin 1976; cf. also Seifert, Der enzyklopädische Gedanke von der Renaissance bis zu Leibniz, in: *Leibniz et la Renaissance*, ed. by A. Heinekamp, Wiesbaden 1983, pp. 113–124.

[14] T. Zwinger, *Theatrum humanae vitae*, Bale 1586; A. Ortelius, *Theatrum orbis terrarum*, Antwerp 1591; J. Jonston, *Theatrum universalis de avibus*, Frankfurt 1650; P. Freher, *Theatrum virorum eruditione clarorum*, Nuremberg 1688.

[15] Cf. G. Rogg, *Encyclopaedia Oder: Schaubühne curieuser Vorstellungen von vielerlei Art außgebildeter Kupfer-Figuren*, Augsburg 1726; M. Valentini, *Amphitheatrum zootomicum*, Frankfurt 1720; J. Leupold, *Theatrum Machinarum Generale*, Leipzig 1724 sqq.; J. M. Beyer, *Theatrum Machinarum Molarium, Oder Schau-Platz der Mühlen-Bau-Kunst*, Leipzig 1735 – 1788; J. Rey, *Historia Insectorum*, London 1711; E. Albin, *Insectorum Angliae naturalis historia*, London 1731; J. T. Klein, *Historiae avium prodromus*, Lübeck 1750; A. J. Rösel von Rosenhof, *Historia naturalis ranarum*, Nuremberg 1758.

ing the professional use of words within specialized areas of expertise. General encyclopedias tend to leave behind the learned cultures of academies and universities by the very use they make of the alphabet. They present knowledge through the commonly spoken language and the vernacular vocabulary. This may explain the relative success of dictionaries of economy when it comes to translations: the European knowledge about farming, cooking and eating was most likely the first general knowledge shared beyond the walls of erudition and scholarly enterprises.

It is important to note, in this context, that eighteenth-century encyclopedias had a problem with how to design and arrange entries: how long should they be and how strict should the system of cross-references be observed etc.? – which was different from the problem within the scholarly world, mainly concerned with the hierarchy of disciplines. Communicating knowledge in dictionary form was a task in itself difficult to perform, which required a lot of editorial rules. The practical problems of text economy, i. e. of presenting knowledge in the form of bits and pieces to allow for short and easy to understand entries most likely played a greater role in designing an encyclopedia, than the need for terminological consistency.

1.2. A pragmatic definition of encyclopedias

Encyclopedias have a nonrestrictive function within the book culture of the eighteenth century owing to the fact that they are not only limited to the circles of the learned. Yet there are works which in their strictly physical forms belong to the world of libraries and academies, printed in the folio or quarto format. Modern publications for use in the everyday world tend to be published in octavo format or even smaller ones, at a more affordable price. Whatever the format, encyclopedias are a special genre of books by virtue of their inner organization of text in the form of articles that aim to satisfy the reader. At any rate, they are meant for being used. Accordingly, there are three main features of encyclopedias which stem from this assumption.

1) *Encyclopedias open up areas of knowledge, and offer an orientation in them.* The encyclopedias of the eighteenth century are created according to a long tradition of knowledge ordered by topical, bibliographical or disciplinary principles.[16] They define their own expertise not so much be what is announced on the title page but how the vocabulary in the inside is organized. They do occasionally regroup disciplines and areas of knowledge.[17]

2) *Encyclopedias save knowledge by compiling already published material.* They are inscribed in a constant editing process of the European knowledge in printed form, which is further communicated by being translated into other languages. In this way, knowledge is made ready for new uses.

3) *Encyclopedias present knowledge for the active reader.* They contain entries which allow for quick consultation. Since they are arranged for – and depend on – easy usage, encyclopedias differ fundamentally from treatises and narrative works, which order text chronologically or historically. Strictly speaking, encyclopedias are not read, but checked.

Together these features make up a definition of encyclopedias as a widespread genre of the eighteenth century, and can be summarized accordingly: In a pragmatic sense, encyclopedias are knowledge machines aiming at the orientation of the reader, providing condensed information and allowing for easy usage.[18]

2. Encyclopedic forms of knowledge

The pragmatic definition of encyclopedias as 'knowledge machines' is constructed in a way to make them work in the hands of their readers by being set to work regardless of what kind of knowledge they are dedicated to. The book production of the eighteenth century knows a great variety of encyclopedic products for different areas of knowledge. In the Age of Enlightenment, all kinds of knowledge could be placed into an encyclopedia, as observed in the universal encyclopedias in England, Germany and France: Chambers' *Cyclopedia* (2 vols., 1728), Zedler's *Universal-Lexicon* (68 vols., 1732–1754) and Diderot's *Encyclopédie* (17 vols., 1751–1764). These general works stand out from encyclopedias with narrower and more specialized subjects because of their concern for a broad range of useful knowledge.

[16] Cf. P. Burke, *Social History of Knowledge*, London 1997; German as *Papier und Marktgeschrei. Die Geburt der Wissensgesellschaft*, Berlin 2001; U. Jochum, *Kleine Bibliotheksgeschichte*, Stuttgart ^{2}1999.

[17] A. Serrai, *La storia della bibliografia*, 11 vols., Rome 1988 – 2001, vol. 4 (1993), pp. 5–271.

[18] Cf. U. J. Schneider, Bücher als Wissensmaschinen, in: Barocke Bücherwelten, ed. by W. Oechslin, Basle 2007, engl.: Books as knowledge machines, in: *Intellectual News* 16 (2010), pp. 48–54.

2.1. Biographical knowledge

In the eighteenth century, gathering information about scholars and other authors was no longer arranged as specialized bibliographies, but often presented in a dictionary format. There are four editions of Christian Gottlieb Jöcher's *Gelehrten-Lexikon* (Leipzig: 1715, 1726, 1733, 1751) with 60,000 biographical articles in the last edition, published as *Allgemeines Gelehrtenlexikon* (4 vols.). Jöcher already could rely on many other dictionaries and similar sources, which he lists in the beginning of his work. Among them there are works from different countries and with different sets of people (scholars, discoverers, poets, scientists, learned women etc.), compiled by authors as diverse as Erdmann Uhse (*Leben der berühmtesten Kirchen-Lehrer*, Leipzig: 1710), Georg Christian Lehms (*Teutschlands Galante Poetinnen*, Frankfurt: 1715), Johann Friedrich Gauhe (*Genealogisch-historisches Adels-Lexicon*, Leipzig: 1719), Johann Jacob Schmauß (*Ausführliches Heiligen-Lexicon*, Köln and Frankfurt: 1719, 1720), Filippo Bonanni (*Verzeichnis der geist- und weltlichen Ritter-Orden*, Nürnberg: 1720), and Johann Gottfried Hering (*Compendieuses Kirchen- und Ketzer-Lexicon*, Schneeberg: 1731).

In France there was Louis Moréri's *Grand Dictionnaire Historique* (1 ed., 1 vol., Lyon: 1674; last edition, 10 vols., Paris: 1759), which was essentially filled with names of individuals and noble families from the ancient to present times. Johann Heinrich Zedler's *Vollständiges Universal-Lexicon* included more than 120,000 biographical articles and included, after 1737, also persons still living.

2.2. Geographical Knowledge

Concerning geography, the eighteenth-century reader could receive very detailed information, for example, by a dictionary of mountains (Johann Gottfried Gregorii, *Die curieuse Orographia*, Frankfurt: 1715) or more general ones from the monumental work by Antoine Augustin Bruzen de la Martinière, the *Historisch-politisch-geographischer Atlas der gantzen Welt* (first in French 1726–1738; then in German, 13 vols., Leipzig: 1744–1749), including about 150,000 articles. Geographical knowledge was also provided through dictionaries of commerce, like the ones published by the French merchant family Savary.[19] These dictionaries provided the traveling salesman with exact information about practical things: the geographical situation of a city, how to get there, where to find the marketplace, how to address the locals, what local customs to

[19] See above note 12.

observe, where nice restaurants are, how to find help in legal matters, as well as many other important facts concerning opening days of the market, exchange rates, currencies, city government, etc. In this context, understanding means knowing about a place and how to behave in order to avoid confrontation. The text of the dictionary presents the knowledge of the place it describes as if one were to go there.

Geographical knowledge often evolves over long stretches of time. While dictionaries of commerce, and dictionary articles inspired by them, must use only the most recent information in order to be useful, the technique of compiling quite often leads to the circulation of very old pieces of information. What is certainly true for the first half of the eighteenth century is that works of earlier centuries were used extensively, as is evident from many quotes from the sixteenth-century Russian travels of Olearius or the seventeenth-century travels to China by Jesuits. In the eighteenth century, there was no global knowledge which could be gathered instantly and in a general fashion. As a result, knowledge was reconstructed out of many single bits of information, which were by no means concurrent. What is reliable and what is new often did not match. This is why the encyclopedic production of knowledge about cultures outside of Western Europe was generally incoherent, even sometimes within the same work.

2.3. General knowledge

Many dictionaries were devoted to collecting the most recent data from the worlds of science, geography and biography. In Germany, they bore the name of 'Konversationslexikon,' (conversational dictionaries) which was first put on the market by the Leipzig publisher Johann Heinrich Gleditsch in 1706 (*Reales Staats-, Zeitungs- und Conversationslexicon*) and republished nearly every two years for a period of more than a hundred years. The last editions appeared in the beginning of the nineteenth century. The commercial success of the conversational dictionaries coincided with the rapidly growing consumption of journals and newspapers, especially in Germany. Often the reader searched encyclopedias for background information on what news he or she happened to acquire through the new media.

Most 'Konversationslexika' were printed in the small octavo format. However, quarto and sometimes folio editions, which catered for more academic needs, were also used. Some examples are the five volumes of the *Allgemeine Historische Lexikon* by Johann Franz Budde (Leipzig: 1709–1714) with approximately 30,000 entries, and the *Historisch- und Geographische Allgemeine Lexicon* by Jacob Christoff Iselin (Basle:

1726) with around 40,000 entries. The Amsterdam and Paris editions of Moréri's *Dictionnaire Historique* in the eighteenth century were also printed in the folio format.

For publishers it was not difficult to find authors for their encyclopedias since there was a sufficient number of university teachers and private scholars alike that wanted to record articles in their respective field of expertise into separate entries. This was the case with theologians – such as Johann Hunger (*Biblisches Real-Lexicon*, Chemnitz: 1715), Augustin Calmet (*Dictionnaire historique* [...] *de la Bible*, Paris: 1728), and physicians including Christoph von Hellwig (*Lexicon medico-chymicum*, Frankfurt and Leipzig: 1711), Johann Philipp Burggrav (*Lexicon medicum universale,* Frankfurt: 1733), and Steven Blankaart (*Lexicon medicum renovatum*, Leiden: 1735).

Today it is not entirely obvious if theological, medical or juridical dictionaries are aimed more at a professional audience or the general reader. This also holds true for many botanic dictionaries, for example the French work by Nicolas Lemery, *Dictionnaire des Drogues simples* (1698), translated into German as *Vollständiges Materialien-Lexicon* (Leipzig: 1721) or the nature prints by the Erfurt pharmacist Johann Hieronymus Kniphof (*Lebendig Officinal-Kräuter-Buch*, Erfurt: 1733). Another example is the lavishly printed plant book by Johann Wilhelm Weinmann (*Phytanthoza-Iconographia*, 4 vols., Regensburg: 1737), which cannot be easily allotted a specific place in the market given the fact that it was the first time hundreds of illustrations were printed in color. Knowledge was, in one way or the other, made available in a form accessible to everyone.

Nevertheless, some dictionaries were designed clearly for use in schools or universities, like Benjamin Hederich's *Gründliches Lexicon Mythologicum* (Leipzig: 1724) or Christian Wolff's *Mathematisches Lexicon* (Leipzig: 1716). Others exhibited more practical knowledge for ready use, as is the case with all dictionaries of economy. A good example is the French bestseller by Noël Chomel, *Dictionnaire oeconomique*, first published in 1709 and translated in German, as well as in other languages, as the *Vollständiges Oeconomisch- und Physikalisches Lexicon* (Leipzig: 1750).[20] A great many other self-help books in dictionary format dealt with knowledge ranging from nature to agriculture,and cooking to farm management, which in turn were reprinted, revised, enlarged, and translated many times. Alongside these popular works were other authors: Gottlieb Siegmund Corvinus (*Nutzbares, galantes*

[20] On Chomel see M. Herren und I. Prodöhl, Kapern mit Orangenblüten – die globale Welt der Enzyklopädie, in: *Seine Welt wissen* (see above note 2), pp. 42–53.

und curiöses Frauenzimmer-Lexicon, Leipzig: 1739), Georg Heinrich Zincke (*Allgemeines oeconomisches Lexicon*, Leipzig: 1744), Jacques Savary des Bruslons (*Dictionnaire Universel de Commerce*, Paris: 1750). Books with quite different titles like the *Philosophisches Lexicon* by Johann Georg Walch (Leipzig: 1733) turned out to be written with a focus on practical matters, including clothes and eating.

English dictionaries tended to be more practical in their aims, from the general sort like the *Lexicon Technicum* by John Harris (London: 1704; 2 ed., 1710) to the more specific ones like *The Gardener's Dictionary* by Philipp Miller (1731, 8 editions until 1790, translated into Dutch, French, and German as *Das englische Gartenbuch*, Nürnberg: 1750). Complementing the conversational dictionary, the Leipzig publisher Gleditsch put a quite successful dictionary on the market, the *Curieuse und reale Natur-, Kunst-, Berg-, Gewerk-, und Handlungs-Lexicon* (Leipzig: 1712) with many revised editions throughout the century.

The aforementioned encyclopedias represent only a small selection of a vast range of encyclopedic works produced in the eighteenth century, even if only alphabetically organized books before 1750 are analyzed.[21] After that date, during the second half of the eighteenth century, an explosion of printed knowledge books makes it a good deal more difficult to keep track of the production. Furthermore, there were other books of a similar genre, for instance, the dictionaries for language and literature that were produced and used ever since academies were founded in the late seventeenth century. Some examples are Bastiano de Rossi (*Vocabolario degli Accademici della Crusca*, Venice: 1680), *Le Dictionnaire de l'Académie françoise* (Paris: 1694), Antoine Furetière (*Dictionnaire universel*, The Hague: 1701), and Nathan Bailey (*The Universal Etymological English Dictionary*, London: 1731). In addition, there were dictionaries translated into two or three languages, which helped cultural knowledge of the eighteenth century to transgress national boundaries.

3. Producing global knowledge

Ephraim Chambers' *Cyclopedia* was first published in 1728 following several years of work by a diligent compiler who was – and still is – largely unknown. The second edition appeared in London in 1750 titled *An Universal Dictionary of Arts and Sciences*. The frontispiece reveals

[21] For an extensive sample of pre-1750 encyclopedia see *Seine Welt wissen* (above note 2), Darmstadt 2006.

the encyclopedic intentions of the work: using an engraving by Sébastien LeClerc from the late seventeenth century, all disciplines are shown to form an academy. Chambers underlines his systematic design in his preface where he also differentiates the key term 'knowledge' into a long list of disciplines. The book is laid out alphabetically and incorporates all sorts of knowledge – from mathematics and natural philosophy, to history and theology – amounting to around 2,500 (unnumbered) pages with about 20,000 entries.

Chambers serves as a kind of model for the encyclopedic production of the eighteenth century, which is seen in the fact that his work was planned to be translated into French by the encyclopedists Diderot. What is typical in Chambers, as well as characterizes the whole genre, is the implicit claims to be up to date, reliable, and easy to understand. In turn, these aspects also play a role in creating a global perspective of encyclopedic knowledge while integrating information about other people, countries and cultures.

3.1. Being up to date

Making a distinction between scientific compendia and alphabetically organized encyclopedias produced for the general book market is problematic because both genres intersect. Accordingly, there are academic works that were transformed into popular merchandise as well as works for the general reader that pertain to intellectual studies.[22] Particularly for the latter, ensuring information was up to date as a major concern. Many encyclopedic works like 'Konversationslexika,' as well as dictionaries of economics or commerce, strived to be novel and undertake the task of including current information. In advertising, publishers often promoted their products as being up to date.

Including information gathered from journals and other periodicals was important in providing contemporary details in many dictionaries. In 1742, a longer text on Tsarina Elizabeth I, having come to power only a year before, was inserted into the entry on 'Russia' in Zedler's *Universal-Lexicon*. The dictionary entry goes so far as to present two different versions of the change in the Russian government. According to one version it was the tsarina herself taking the throne, whereas the other version reports a meeting of statesmen who suggested Elizabeth as ruler.[23] The dictionary recommends its readers to suspend any judgment and to observe with caution the political happenings in the foreign country.

Being up to date could also be achieved by editing information from travel books, published notes of diplomats and merchants. In this fashion, a travel report by a French noble woman was made the sole source of a German encyclopedia entry on Spain.[24] Recommendations by merchants were transformed into suggestions for tourists or tips about how to get the best price. General encyclopedias were very close to 'conversational dictionaries' by suggesting the possibility that the reader may be a traveler.

Being up to date does not only characterize the political, economic and cultural content within a well-informed dictionary, it also requires a modern mode of production: the collective of (anonymous) editors. By the eighteenth century, this approach was widely used. Moréri's *Dictionnaire Historique* was transformed in 1674 through numerous editions that were published in Amsterdam and Paris with this mode of an editorial board instead of a single author. Jean LeClerc wrote in 1694 in the preface of an edition of this work that he thought it less important who wrote what, but that whatever was written was correct.[25] All authors and editors of Zedler's gigantic enterprise of the *Universal-Lexicon*, which was printed over 18 years with 284,000 entries on 68,000 folio pages, were and remain anonymous. The French *Encyclopédie*, containing around 72,000 entries, and the first edition of the *Encyclopaedia Britannica* (3 vols., 1768–1771) were still produced according to older models which named the author of the entry as a way

[22] See also I. Tomkowiak, *Populäre Enzyklopädien: Von der Auswahl, Ordnung und Vermittlung des Wissens*, Zürich 2002; S. S. Tschopp, 'Popularisierung gelehrten Wissens im 18. Jahrhundert: Institutionen und Medien', in: *Macht des Wissens*, ed. by R. van Dülmen and S. Rauschenbach, Cologne 2004, pp. 469–489.

[23] U. J. Schneider, Rußland in Zedlers Universal-Lexicon, in: *Die Kenntnis Rußlands im deutschsprachigen Raum im 18. Jahrhundert. Wissenschaft und Publizistik über das Russische Reich*, ed. by Dittmar Dahlmann, Bonn 2006, p. 247–268; U. J. Schneider, 'Das Leben im Lexikon', in: *Gegenworte. Hefte für den Disput über Wissen* 13 (2004), pp. 85–89.

[24] Id., Europa und der Rest der Welt. Zum geographischen Wissen in Zedlers Universal-Lexikon, in: *Allgemeinwissen und Gesellschaft*, ed. by P. Michel and M. Herren, 2005 (Online publication: http://www.enzyklopaedie.ch/kongress/aufsaetze/schneider.pdf).

[25] Avis au lecteur: 'Il ne s'agit pas de savoir ici ce que le Sr. Morery, ou ses Reviseurs ont pensé; leur autorité, considerée en elle même, ne peut être que très-petite; mais de ce qui est veritable, & de ce que l'on trouve dans les pieces authentiques, qu'ils font ordinairement profession de suivre, & et qu'ils marquent à la fin de chaque Article', in: *Le Grand Dictionnaire Historique*, sixième édition, Amsterdam 1964, p. 1).

to sell the writer's 'authority.'[26] Yet all other successful endeavors of the late eighteenth and early nineteenth centuries were based on the Zedler mode of anonymous production.

3.2. Being reliable

Providing reliable texts through a process of collective compiling is crucial for any book focusing on information. The aim is not so much to let the readers know what one individual has written, but rather to sum up conventional wisdom with as much evidence as possible. When Diderot, d'Alembert and Jean-Jacques Rousseau used the *Encyclopédie* to publish their own opinion, this ran counter to the implicit aim of providing a neutral perspective. The fact that some entries in the *Encyclopédie* were much better written than many of their contemporary competitors, has secured their authors a place in the literary history of the eighteenth century, and rightfully so. They were part of the Enlightenment process within European history. However, within the history of the general knowledge the French *Encyclopédie* represents the exception rather than the rule. The most prolific writer of the *Encyclopédie* goes by the name of Louis de Jaucourt who worked mainly as a compiler of information and did not try to be overly original.[27]

In the eighteenth century, information was guaranteed to be reliable by choosing authors who were experts in the subject matter as well as using extensively other books published in the same field. In the case of Zedler's *Universal-Lexicon,* whole dictionaries were copied – at least in the most extreme case – resulting in the philosophical dictionary by Walch, the muscial dictionary by Walther and the pharmaceutical dictionary by Lemery to be duplicated into the greater work more or less unchanged. In general, as the most convenient way to accumulate trusted information, successful encyclopedists always relied on other authorities and produced books from other published works.

[26] Darnton gives an overview of the sales of the quarto edition of the Encyclopédie, see R. Darnton, *Business of Enlightenment: Publishing History of the Encyclopedie 1775–1800*, Harvard 1979, pp. 395–416; German edition: *Glänzende Geschäfte. Die Verbreitung von Diderots Encyclopédie*, Berlin 1993, p. 221sq. and p. 363.

[27] Cf. P. Blom, *Das vernünftige Ungeheuer. Diderot, d'Alembert, de Jaucourt und die Große Enzyklopädie*, Frankfurt 2005; J. Haechler, *L'Encyclopédie de Diderot et de ... Jaucourt. Essai biographique sur le chevalier Louis de Jaucourt*, Paris 1995.

3.3. Easy to understand

The third challenge for encyclopedic works, besides being up to date and as reliable as possible, is being easy to understand. Technical terms had to be translated into simple concepts used in the common language of the public. While the French version of Robert James' *Medical Dictionary* 1746 uses the word 'saignée' (bloodletting) only in the index, with reference to the technical medical terms 'artériotomie' and 'phlébotomie,' the *Encyclopédie* interchanges the words by cross-referencing the technical terms to 'saignée,' which is the heading of a longer article. When James' book was published in French, Diderot was among the editors and translators. When he later changed the relation between the things and the words, giving preference to the commonly used expressions in the *Encyclopédie* at the expense of the technical terms, he made them secondary starting points for anybody interested in the matter at hand.[28] A similar politics of words is at work in the *Universal-Lexicon* which strives – more obvious in the later volumes than the earlier ones – to rename a whole range of knowledge with German terms. There are around 300,000 cross-references, most from a Latin word to its German equivalent, which is then expanded upon into a more detailed entry.

Being easy to understand does not only require translating or choosing the most common expression, in encyclopedias it also means the editing of texts differently from the source material. Compilation cannot be done by borrowing phrases, but through rewriting. This is especially true for articles on countries, places and peoples which, in the eighteenth century, are really new to the encyclopedic format and have no model to follow. Those texts with historical, cultural, geographical and other information taken from everyday life must be extracted from a vast array of texts. An interesting case is Moréri's *Dictionnaire Historique* which underwent several editions, being constantly enlarged and revised. Early on articles display subheadings, sometimes even standardized subheadings, as can be seen from the entries on 'Africa'[29] and 'America' in the Paris 1725 edition:

> Moréri 1725: Afrique (Vol. I, p. 151-157: 11.5 columnes), Origine des peuples d'Afrique; Ses noms anciens & modernes; Sa figure, ses bornes & sa situation; Sa division; Montagnes, Rivieres, Golfes & Caps de l'Afrique; La qualitez de ce Pays; Moeurs des Africains; Langage des Africains; Gouvernement; Villes d'Afrique les plus considerables;

[28] See above note 20.

[29] See also U. Fendler and S. Greilich, Afrika in deutschen und französischen Enzyklopädien des 18. Jahrhunderts, in: *Das Europa der Aufklärung und die aussereuropäische koloniale* Welt, ed. by H.-J. Lüsebrink, Göttingen 2006, pp. 113–137.

Religion ancienne des Africains; Religion moderne; Conciles d'Afrique; Auteurs qui parlent de l'Afrique;
Moréri 1725: Amerique (Vol. I, p. 374-475: 4 columes) Si les Anciens ont connu l'Amerique; Bornes & situation de l'Amerique; Qualités du pays; Origines des Americains; Moeurs des peuples; La Religion; Auteurs qui parlent de l'Amerique.

Travel reports played a major role in improving geographical and cultural knowledge throughout the eighteenth century. In contemporary private libraries, travel reports could easily constitute a forth or fifth of the whole collection. Owing to the fact that this kind of knowledge was typical for modern general encyclopedias, it is important to underline that there is always a perspective at work when writing about countries and places far removed from the European experience. Surely it is not surprising to see some German villages detailed in longer texts in the *Universal-Lexicon* than faraway cities or capitals. This is simply an expression of the readers' interest and indicative of the way geography is taken into account by the editors and authors. However, when a German entry on France is shorter than the one about Siberia, for example, the reason is that is was far easier to compile the reports written from the many expeditions to this eastern region than it was to rewrite nearly a whole library on France.

In the last instance, information that is easy to understand must also be applicable: the reader should be able to make use of the knowledge provided by a dictionary. The great many dictionaries of economics prove the point, for example, Noël Chomel's influential *Dictionnaire oeconomique*.[30] In 1709, Chomel compiled his expertise as an estate administrator into two folio volumes. Many translations and adaptations followed that highlight that the perspective of the work underwent changes according to language and location. The different forms of Chomel's work localized the knowledge of the original French author. Encyclopedias are means of a cultural transfer that on a global scale, which in terms of real events occurred with the activities of missions and of commerce.[31] On the other hand, understanding global diversity means adapting and distorting the information time after time. Chomel's encyclopedia is a dictionary which explains how to catch fish, how to cook and how to prepare medicine, including the explanations of all the preparations necessary to be successful. It goes on to describe animals

[30] See above note 20; German version *Vollständiges Oeconomisch- und Physikalisches Lexicon*, Leipzig 1750.

[31] Cf. J. Osterhammel, *Die Entzauberung Asiens. Europa und die asiatischen Reiche im 18. Jahrhundert*, Munich 1998.

and plants in detail, and the production of silk as well as present different methods of calculation and preparations for marriage ceremonies. There is hardly an objective administrative point of view, given the fact that opinion on these subjects enter everywhere. This is also true for the many areas of knowledge added to the dictionary in its supplements and adaptations, including articles on theology, political economy, history, geography, law, architecture and etymology; thus, turning it into a dictionary with a pretense to universality.[32]

When it came to translating the fashionable dictionaries concerning housekeeping problems arouse from the very nature of these books to be of practical use. Sometimes there was apparently no time to translate the names of the fish or to determine what kind of fish would be the equivalent in the country for which the edition was prepared. Applicability would have required to relocate the very content of an encyclopedia to the living conditions of the readers.

4. The transfer of encyclopedic knowledge

Translations were, and still are, very important for the successful transfer of knowledge within Europe and beyond. Since scholarly communication was still based on Latin as a common language of the learned, such books as the *History of Philosophy* by Thomas Stanley (first printed in English from 1655 to 1661) was translated in 1733 to ensure wide circulation. On the one hand, most encyclopedias in the eighteenth century were generally printed in vernacular languages. Early Latin encyclopedias like J. J. Hofmann's *Lexicon Universale Historico-Geographico-Chronologico-Poetico-Philologicum* (5 vols., Geneva: 1677–1683) are, despite their claim to universality, primarily oriented towards the academic milieu. On the other hand, whatever was sold and purchased at fairs and in bigger cities was profitable only in regional and national markets. Books enabled the formation of a larger readership within the civil societies of modern Europe, but they did so at the price of being made marketable. Their design – small formats without any folios – and layout – small fonts without any extravagant typesetting – was dictated by an economic concern for being simple and therefore useful, as well as the need of providing easily understandable languages.

The encyclopedic works of the eighteenth century are thus multilingual instruments for the transfer of knowledge. As such, they are documents that communicate knowledge beyond all political and cultural boundaries of Europe. Producing encyclopedias were meant, for pub-

[32] See above note 20.

lishers and authors alike, a way to reach an audience possibly beyond their own language. Despite efforts not all projects succeeded.[33] Translations and adaptations were difficult to calculate, as well as the commercial success of new editions and revisions. Existing regional differences – such as between Catholic and Protestant regions or countries, censorship by the State or Church, and many practical obstacles – hindered the free flow of information in the eighteenth century. An example of these complications are the fact there was no Chambers-like *Cyclopedia* in Italian nor a Diderot-like *Encyclopédie* in German.

In terms of the history of books, translation means preparing access for a concrete readership, in turn a group of possible buyers. Hence it not only means translating from one language into another – for instance from the German (or Latin) *History of Philosophy* by Johann Jakob Brucker into the French of the *Encyclopédie* or the French *Lemery* into the German of the *Universal-Lexicon*[34] – but it also means transgressing the limits of technical terminology – like when translating medical truth into therapeutical suggestions.[35] A rather expensive affair in that respect was the translation of the English *Medical Dictionary* by Robert James into French (*Dictionnaire universel de Médecine*, 4 vols., Paris: 1746) with the help of Denis Diderot and other scholars in connection with the Faculty of Medicine in Paris.[36] There are many instances of conflict between the common and the scholarly language. For example, in the *Universal-Lexicon* the entry on 'science' (*Wissenschaft*) is followed by one on 'sciences' (*Wissenschaften*), the former explaining the juridical concept of doing something on purpose, the latter dealing with the disciplines of scientific knowledge in the broad sense of the German term. Through the encyclopedia itself, the readers became familiarized with the fact that 'science' in German is also a juridical concept, and that natural philosophy must be looked up under 'sciences'.

[33] See the case study by B. Rüdiger, Der Ersch-Gruber: Konzeption, Drucklegung und Wirkungsgeschichte der allgemeinen Enzyklopädie der Wissenschaften und Künste, in: *Leipziger Jahrbuch zur Buchgeschichte* 14 (2005), pp. 11–78.

[34] Cf. J. Proust, *Diderot et l'Encyclopédie*, Paris 1962, [2]1982; U. J. Schneider, Die Konstruktion des allgemeinen Wissens in Zedlers Universal-Lexicon, in: *Enzyklopädien in der Frühen Neuzeit*, ed. by T. Stammen, Augsburg 2004, pp. 81–101, here pp. 94–99.

[35] U. J. Schneider, Die Enzyklopädie als Medizin. Aufklärung durch das größte Lexikon des 18. Jahrhunderts, in: *Leipziger Jahrbuch zur Buchgeschichte* 16 (2007), pp. 285–296.

[36] Cf. U. J. Schneider, Über den Körper sprechen in Enzyklopädien, in: *Philosophien des Fleisches. Das Theater der Libertinage zwischen Kunst und Wissenschaft (1680–1750)*, ed. by L. Schwarte, Hildesheim 2008, pp. 163–175.

Encyclopedias function in commonly spoken languages and at the same time have to bridge the gap with the terminology of technical languages. In 1694, when the first dictionary of the French Academy of Sciences came out, it presented the alphabet in two series of articles within two volumes, one offering the literal sense, the other explaining the 'thing' at hand. While some still think the genre of encyclopedias can be divided between books concerned with real things and dictionaries explaining words, historically there is only a gradual difference. The more intense the explanation given in purely linguistic terms, the closer the dictionary comes to explain the thing itself. Vice versa, less strict definitions in an encyclopedia means reporting more on what is said and thought about the subject, than determining what the thing is. The languages of literature and of science overlap many times.

What is new in the eighteenth century is the advent of increasing use of commonly spoken languages into encyclopedic literature, and the resulting difficulties in finding a simple and yet objective language for describing the content. In bridging the two realms of knowledge, the professional one and the more common one, encyclopedic works produced for the first time something comparable to general knowledge. They produced knowledge through a string of terms that were relevant for basic understanding, sometimes went further into more specialized areas, while always keeping their readers in the loop. Outside of schools and universities, knowledge transported by encyclopedias became both practical and beneficial for curious readers who were looking for confirmation of what they already knew and the possibility of extending their horizons. Encyclopedias undertake the task of constantly renewing themselves. What began in the eighteenth century as a new genre of literature, as well as a new market for ideas and products for publishers, became in the nineteenth century a cultural necessity that was manifested in the general multiplication of periodicals and journals, while making encyclopedias indispensable tools of modern culture.