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FROM DIDEROT'S *ENCYCLOPEDIA* TO WALES'S *WIKIPEDIA*: A BRIEF HISTORY OF COLLECTING AND SHARING KNOWLEDGE

Abstract: Collecting and sharing knowledge are activities which are almost as important as creating knowledge. Yet, the ideas of collecting and sharing knowledge have changed over time, reflecting society's needs. That's why it's necessary to study the evolution of the idea of collecting and sharing knowledge from the first libraries of the Near East during the Bronze Age, used by priests and rulers, through the new concept developed by Pliny the Elder, who wrote the earliest encyclopedic work that has survived to the present in the 1st century AD, and the first encyclopedias, covering a wide range of topics written in the Enlightenment era, all the way to the digital encyclopedias published on CD-ROMs and online encyclopedias like *Wikipedia*.

Keywords: Collecting knowledge, encyclopedia, Encyclopédie, Wikipedia

From collecting texts to collecting knowledge

The idea of collecting knowledge is almost as old as the idea of searching for knowledge. First texts written on papyrus and clay tablets that can be regarded as books appeared in the Near East during the Bronze Age. Collecting these works was of great importance and the first collections were started during the 3rd millennium BC in palaces and temples of Mesopotamia and Syria. In the 2nd millennium BC we can find collections of 'books' in Anatolia and Egypt. Epic poetry, religious texts, and royal decrees and letters were collected alongside administrative documents of various kinds and these first collections were reserved for the use of the elite and priests only.[1]

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[1] G. Woolf, „Approaching the ancient library", in: *Ancient Libraries*, ed. J. Konig, K. Oikonomopoulou, G. Woolf, Cambridge University Press, Cambridge 2013, 9–10.

Sharing knowledge with the public would not start until the Hellenistic period (somewhat). During this time, we can find rich and powerful men around the Mediterranean sponsoring the public display of large collections of books. The library was not even open for the public as it is today. Historians could use it for research, but the library was considered a public institution because publicity was essential to the process of creating it and because it was the property of the city.[2] The idea of collecting books in libraries developed early on and continued through history, but the idea of collecting knowledge in one book has not emerged until the time of Ancient Rome.

The earliest known example of an encyclopedic work that has survived to the present day -is the *Naturalis Historia* (*Natural History*) by Pliny the Elder written in the 1st century AD. The book has 37 chapters which cover topics not only from natural history (which is a broad field on its own) but also from architecture, medicine, geology, and geography.[3] The idea of compiling so much knowledge in one book continued through medieval times in Europe and Asia, the Renaissance, and all the way to the present day. Isidore of Seville (c. 560–636) was a prolific writer of the early Middle Ages whose work covers topics from history, religion, geography, and astronomy. He also wrote the first encyclopedia of the Middle Ages – *Etymologia*.[4] In the medieval Islamic world, scholars worked in libraries and research institutions all around the Abbasid Caliphate. While some did original research or translated works into Arabic, others worked on compiling knowledge. Abu al-Hasan Ali ibn Sahl Rabban al-Tabari published the first Islamic medical encyclopedic work in the middle of the 9th century – *Paradise of Wisdom*. After him, Muhammad ibn Zakariya al-Razi wrote and published two more medical encyclopedias in the 10th century.[5] Chinese people had their own reference works, very similar to Western encyclopedias, called *leishu.* Moreover, the term itself means "classified knowledge".[6]

However, these works were not intended for the public. During this time all books had to be made by hand. Copying an encyclopedia with hundreds of pages was a

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[2] S. Johnstone, A New History of Libraries and Books in the Hellenistic Period, *Classical Antiquity* 33 (2014), 352–354.

[3] Pliny the Elder, *Natural History*, Translated by H. Rackham, W.H.S. Jones, D. Eichholz, Harvard University Press, Cambridge, William Heinemann Ltd, London 1938–1963.

[4] J. C. Martin, „Isidore of Seville", in *The Oxford Guide to the Historical Reception of Augustine Volume 2,* ed. K. Pollmann, Oxford University Press, Oxford 2013, 1193.

[5] A. A. Velajati, *Istorija kulture i civilizacije islama i Irana*, Centar za religijske nauke Kom, Beograd 2016, 330 –331.

[6] G. Lehner, *China in European Encyclopaedias, 1700–1850*, Brill, Leiden 2011, 46.

long and costly process. This means that, besides the priests and scholars who made books, only royalty could hold them in their hands. However, that changed during the Renaissance with the invention and spreading of the printing press. The printing press started to spread across Europe by the middle of the 15th century. Between 1450 and 1500, the price of books fell by two-thirds. This meant that a lot more people could buy books which lead to a cultural, political, and economic revolution.[7]

The publishing of encyclopedias continued during this time. One of the most famous examples is *Pseudodoxia Epidemica or Enquiries into very many received tenets and commonly presumed truths* by Thomas Browne. In the preface *To the reader* the author states why people need to collect knowledge and also uses the word *encyclopedia* for the first time in English:

*Would Truth dispense, we could be content, with Plato that Knowledge were but Remembrance; that Intellectual acquisition were but reminiscential evocation, and new Impressions but the colourishing of old stamps which stood pale in the soul before. For what is worse, knowledge is made by oblivion, and to purchase a clear and warrantable body of Truth, we must forget and part with much we know. Our tender Enquiries taking up Learning at large, and together with true and assured notions, receiving many, wherein our reviewing judgments do find no satisfaction. And therefore in this **Encyclopedie** and round of Knowledge, like the great and exemplary wheels of Heaven, we must observe two Circles: that while we are daily carried about, and whirled on by the swing and rapt of the one, we may maintain a natural and proper course, in the slow and sober wheel of the other. And this we shall more readily perform, if we timely survey our knowledge (...)[8]*

A new kind of encyclopedia

However, a revolutionary way of thinking about encyclopedias and their use emerged during the Enlightenment. In France in the 18th century Denis Diderot and Jean le Rond d'Alembert started one of the most ambitious and famous scientific projects of the century. Along with a group of like-minded individuals, they started working on *Encyclopédie, ou Dictionnaire raisonné des sciences, des arts et des métiers* (*Encyclopedia, or a*

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[7] J. Dittmar, Information Technology and Economic Change: The Impact of The Printing Press, *The Quarterly Journal of Economics* 126/3 (2011), 1134.

[8] T. Brown, *Pseudodoxia Epidemica or Enquiries into very many received tenets and commonly presumed truths 4th Edition*, Edward Dod, London 1658, a2.

Systematic Dictionary of the Sciences, Arts, and Crafts) known simply as *Encyclopédie (Encyclopedia)*. The first volume of this revolutionary work was published in 1751. Even though encyclopedias existed for a long time, when they were compiled authors tended to focus on one or a couple of fields of study. In contrast, Diderot and d'Alembert's *Encyclopédie* was as a collection of all Western thinking – it dealt with science, philosophy, religion, crafts, art.[9]

However, the *Encyclopédie* did not only contain articles. A big part were the illustrations published in it. The illustrations also covered a wide range of topics like architecture (Figure 1) and crafts (Figure 2) as well as the sciences like anatomy (Figure 3).

The goal of the *Encyclopédie* was not just to collect knowledge. It was also to rationally organize it because the *Encyclopédie* was structured like a dictionary. This idea is best illustrated by the Figure 4. In the *Sanctuary of Truth,* we find the personification of Truth covered by a veil and surrounded by light which symbolizes the Enlightenment. At her right side are Reason and Philosophy, who are removing the veil. Philosophy is lifting it, while Science is tearing it, symbolizing the scientific explanation of nature by analyzing empirical facts. Kneeling at Truth's feet is Theology, bathed in the same light illuminating Truth. On the right side of Theology are Memory, Ancient History, Modern History, Written History, and Time, who act like pillars of the rational procedures of science. Below them are Geometry, Astrology, and Physics, and below them are Optics, Botany, Chemistry, and Agriculture. At the bottom are the representations of Professionals and Craftsmen, social entities responsible for the general dissemination of science among society. These are the sciences, but to the left of Truth is Imagination, whose function is to beautify and crown Truth. Below is Poetry in its different genres: Epic, Dramatic, Satirical, and Pastoral. These are followed by the arts of imitation: Music, Painting, Sculpture, and Architecture.[10]

The *Encyclopédie* was revolutionary in the sense that it was an organized collection of human knowledge as a whole rather than a collection of knowledge in one field, e.g. medicine. Diderot explained the idea and purpose of an all-encompassing encyclopedia like this:

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[9] M. Fetz, „Negotiating boundaries: Encyclopédie, romanticism, and the construction of science", *História, Ciências, Saúde – Manguinhos* 24/ 3 (2016), 648.

[10] Fetz, Negotiating boundaries: Encyclopédie, romanticism, and the construction of science, 648–649.

Indeed, the goal of an encyclopedia is to assemble all the knowledge scattered on the surface of the Earth, to expose the general system to the men with whom we live & to transmit it to the men who will come after us, so that the works of centuries past is not useless to the centuries which follow, that our descendants, by becoming more learned, may become more virtuous & happier & that we do not die without having merited being part of the human race. [11,12]

This is perhaps the most important innovation. The *Encyclopédie* was not written so that scholars have a neat compilation of knowledge. It was written so that people could get information about a wide range of topics. It also covered important political and religious topics, which is why some refer to it as the embodiment of the ideas of the Enlightenment. It was a synthesis of the philosophical, scientific, and critical spirit that characterized the period.[13] However, even though it was written for all the people, only the upper class could afford it. The first edition consisted of 28 volumes and the price for the entire collection was 1.140 livres.[14] But the *Encyclopédie* was very popular with those who could afford it. The mistress of Louis XV, Madame de Pompadour, was of big support to the project and such a big fan that a copy of the *Encyclopédie* is shown in her portrait done by Maurice Quentin de La Tour (Figure 5). The project was well known even outside of France, as were the editors. Diderot became a close friend of Catherine the Great and even moved to Russia, where he, at one point, started meeting with and talking to Catherine daily.[15]

The ideas of sharing knowledge and all-encompassing encyclopedias spread to other countries. England already had an encyclopedia similar to Diderot's – *Cyclopædia, or an Universal Dictionary of Arts and Sciences* (1721). The author's goal is stated at the front page as the subtitle reads:

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[11] The authors own translation. The original text in French goes as follows: *En effet, le but d'une Encyclopédie est de rassembler les connoissances éparses sur la surface de la terre; d'en exposer le système général aux hommes avec qui nous vivons, & de le transmettre aux hommes qui viendront après nous; afin que les travaux des siecles passés n'aient pas été des travaux inutiles pour les siecles qui succéderont; que nos neveux, devenant plus instruits, deviennent en même tems plus vertueux & plus heureux, & que nous ne mourions pas sans avoir bien mérité du genre humain.*

[12] *Encyclopédie, ou Dictionnaire raisonné des sciences, des arts et des métiers Tome 5*, ed. D. Diderot et J. d'Alembert, Diderot et d'Alembert, Paris 1755.

[13] Fetz, Negotiating boundaries: Encyclopédie, romanticism, and the construction of science, 648.

[14] J. Lough, *The Encyclopédie*, Slatkine Reprints, Geneva 1983, 59.

[15] A. M. Wilson, *Diderot*, Oxford University Press, New York 1972, 632.

Containing the Definitions of the Terms, and Accounts of the Things Signify'd Thereby, in the Several Arts, both Liberal and Mechanical, and the Several Sciences, Human and Divine: the Figures, Kinds, Properties, Productions, Preparations, and Uses, of Things Natural and Artificial; the Rise, Progress, and State of Things Ecclesiastical, Civil, Military, and Commercial: with the Several Systems, Sects, Opinions, etc; among Philosophers, Divines, Mathematicians, Physicians, Antiquaries, Criticks, etc.: The Whole Intended as a Course of Ancient and Modern Learning.[16]

Even though the *Cyclopædia* was an inspiration for the *Encyclopédie,* and its predecessor, it was not nearly as popular. However, as a response to Diderot's *Encyclopedia*, a few years after it was published, the first volume of *Encyclopædia Britannica* was published in England.

Of course, one could argue that this encyclopedia was even more important than Diderot's, as it continued to be published and the 15th edition published in 2010 contained a total of 32 volumes featuring 32,640 pages. Indeed, the practice of publishing encyclopedias, both about one academic discipline and covering a range of topics and disciplines, continued through the 18th and 19th century all the way to the present. Yet, with the emergence of new technology in the 20th and 21st century, there came a new concept of encyclopedic work.

Modern encyclopedias

With time, the price of printing and publishing went down, so by the 20th century almost anyone could afford to buy an encyclopedia. However, due to advances in technology, a new digital encyclopedia came to the market; pricewise, it was even more acceptable than printed encyclopedias, as it did not require funds for printing. Encyclopedias started to be sold on CD-ROMs and DVDs and the most notable example of this was *Encarta*, a digital multimedia encyclopedia published by Microsoft from 1993 to 2009. In 2008, prior to its cancellation, *Encarta Premium* (the complete version) consisted of more than 62,000 articles, numerous photos and illustrations, music clips, videos, interactive content, timelines, and maps.[17] Later on, *Encarta* was also published on the In-

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[16] *Cyclopædia, or an Universal Dictionary of Arts and Sciences Volume 1*, ed. E. Chambers, E. Chambers, London 1728.

[17] E. Clemenz, *Improving English writing middle school students by using Microsoft Encarta integration - based learning* (Bachelor's thesis, Teacher Training and Education Faculty of Slamet Riyadi University, 2015), 15.

ternet, but it could not keep up with its biggest rival, which eventually drove it out of business.

That competitor was *Wikipedia*, a new kind of Internet encyclopedia. *Wikipedia* was conceived as a feeder project to *Nupedia* – an English-language Web-based encyclopedia, whose articles were written by volunteer contributors with appropriate subject matter expertise, reviewed by expert editors before publication, and licensed as free content, founded by Jimmy Wales. The idea behind *Nupedia* was that academically qualified volunteers write articles about their areas of study or act as peer reviewers of articles. The fact that only expert volunteers wrote for the encyclopedia meant that expanding it took quite some time. In fact, *Nupedia* was launched in 2000 and only produced twenty-five articles by the end of the year. Therefore *Wikipedia* was introduced in 2001 as a way to produce content for *Nupedia*.[18]

Wikipedia has a completely different generating process. Unlike the classical encyclopedia which has paid professionals working on it or *Nupedia* which has volunteering professionals as contributors, *Wikipedia* operates as an interactive platform in which users can easily alter the content without endorsement from the website administrators. This open approach means that content is created much faster; within its first year, *Wikipedia* had 20,000 articles.[19] This is an astonishing 79,900% increase compared to *Nupedia's* first year. Not surprisingly, *Nupedia* was soon shut down and *Wikipedia* took over.

Creating an encyclopedia takes a lot of time and manpower. Diderot's *Encyclopedia* was compiled by various laymen and professionals. Famous philosophers and writers like Voltaire and Guillaume Thomas François Raynal worked side by side with craftsmen, physicians, scientists, explorers, lawyers, professors, and others, both famous, or not so famous.[20] According to *Encyclopedia Britannica's* corporate Website,[21] they have a staff as well as numerous contributors. However, manpower is where *Wikipedia* trumps any other similar project.

Wikipedia's policy is that anyone can edit it and, not surprisingly, the number of editors who work on it for free is higher than that of any other encyclopedia. As of late

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[18] S. Chen, Self-governing online communities in web 2.0: privacy, anonymity and accountability in Wikipedia, *Albany Law Journal of Science and Technology* 20 (2010), 421–422.

[19] Chen, Self-governing online communities in web 2.0: privacy, anonymity and accountability in Wikipedia, 422.

[20] Lough, *The Encyclopédie*, 39–48.

[21] http://corporate.britannica.com

2009 there have been 10,000,000 registered editors who contributed in varying degrees, but the number is even higher today.[22] With the entire community working on it, it is obvious that *Wikipedia* can be regarded as the biggest encyclopedia ever. That is, indeed, the goal of the site as the unofficial motto of the project, as stated by the co-founder Jimmy Wales, is: *Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing*.[23] Of course, the utopian dream of everyone having access to all human knowledge is far from fruition, but the number of articles being published on *Wikipedia* is rising at an astonishing pace (Figure 6). Even though it is not quite there yet, *Wikipedia* has been one of the top 10 visited websites for a couple of years now.[24]

Yet the way in which it operates has been the topic of a lot of criticism, especially from the academic world. It does not have peer reviewing and anyone can edit it, which is why some people question the quality of the articles. Michael Gorman, former president of the American Library Association, stated that "a professor who encourages the use of *Wikipedia* is the intellectual equivalent of a dietician who recommends a steady diet of *BigMacs* with everything". Some even stated that *Wikipedia* does not have a future as it cannot function, due to it being entirely volunteer based, without a staff of editors. Eric Goldman, a professor of law at Santa Clara University, stated a couple of times that *Wikipedia* will fail because of its openness. However, none of his predictions have been accurate so far.[25]

The problem was solved by putting *Neutrality* as the official policy and placing the responsibility of checking if what you are reading is correct on the user. *Wikipedia* lists the sources of information, which means that it uses references the readers can see while reading a *Wikipedia* article and decide for themselves if it is a reliable source. Despite the references, some are still skeptical and claim that, because of its openness, *Wikipedia* is very vulnerable, and anyone can edit it. However, a study published in *Nature*

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[22] P. Konieczny, Wikipedia: community or social movement?, *Interface : a journal for and about social movements* 1/2 (2009), 214.

[23] R. Miller,"Wikimedia Founder Jimmy Wales Responds", *Slashdot*, 28th of July 2004.

[24] Konieczny, Wikipedia: community or social movement?, 213.

[25] D. Jemielniak and E. Aibar, Bridging the Gap Between Wikipedia and Academia, *Journal of the association for information science and technology* 67/7 (2016), 1773.

magazine in 2005 showed that it had the same number of serious errors as the *Encyclopedia Britannica*.[26]

A new way of collecting and sharing knowledge

There is absolutely no doubt that *Wikipedia* challenges the established model of distribution of knowledge. It denies the traditional authority of academia as does the Internet in general. However, there is also no doubt that the website is important for our society today and, in time, its role is only going to get bigger. Yet, as the history of collecting and sharing knowledge shows, *Wikipedia* is just the newest trend.

People have been collecting knowledge for millenniums now. The way it was done and for what purpose has changed over time. In the beginning, texts were collected in palaces and temples so that the rulers and priests had access to them – thus the library was born. After that, scholars started collecting as much knowledge as they could from a field of study in one text – thus the encyclopedia was born. After that, with more and more people getting educated, encyclopedias which cover a wide range of topics emerged – thus the all-encompassing encyclopedia was born. All these forms of collecting and sharing knowledge continued to this day, but in the 21st century the Internet gave rise to a new kind of collection of knowledge – the Internet encyclopedia.

Up until *Wikipedia*, encyclopedias were created by experts for other scholars or the general public. *Wikipedia* took a different path; anybody can become an editor and their mission is to make knowledge completely free. *Wikipedia*'s mission is the same mission Diderot's *Encyclopédie* had, giving people access to knowledge. The original *Encyclopédie* was too expensive, so a regular person could not buy it. Later, the prices of encyclopedias were still high and not everybody could afford one. However, in the 21st century almost everyone has access to the Internet. Everyone can access *Wikipedia* for free, which is possible because editors volunteer and do not need financial compensation for the work they put in.
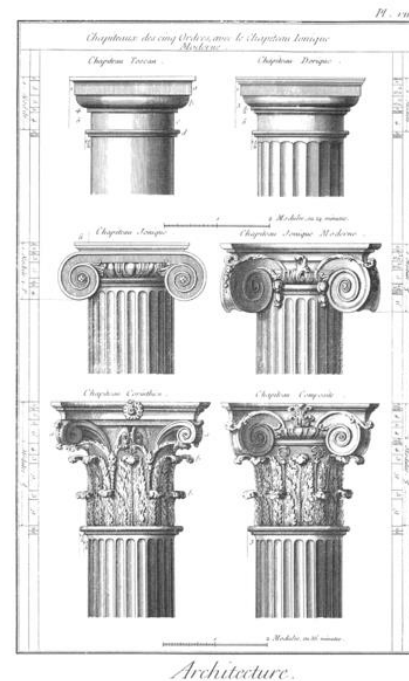
Compiling knowledge has never gone faster, but the real innovation is that the compiling process is open for everyone. On *Wikipedia*, knowledge is free as there is no

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[26] J. Giles, Internet encyclopaedias go head to head, *Nature* Volume 438 Number 7070 (2005), 900–901.

fee to use it. It is available in different languages[27] and anyone can access it at any time (if they have an Internet connection). Diderot's mission of giving people access to information was limited at his time, but the 21st century is a time of connection and communication. His mission is now possible to achieve with the newest innovation in the field of collecting and sharing knowledge – *Wikipedia*

Illustrations

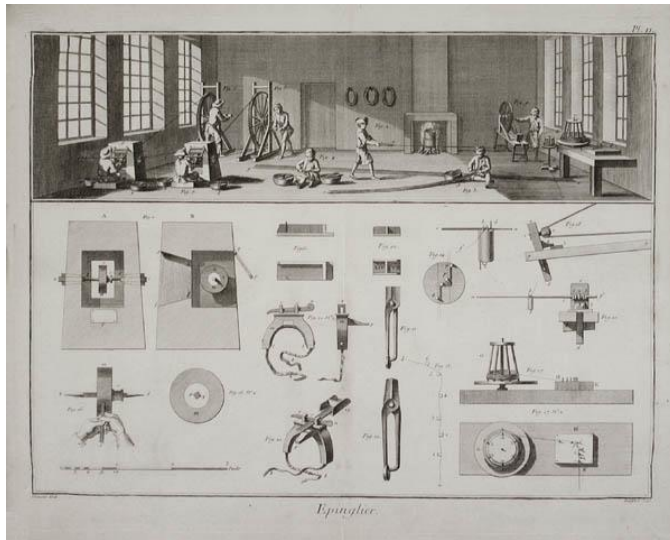Figure 1 – An illustration of the classical order published in the *Encyclopédie*

Figure 2 – An illustration from the *Encyclopédie* of a pin maker's factory and the tools used by pin makers.

Figure 3 – An anatomical ilustration of a human's organs published in the *Encyclopédie.*
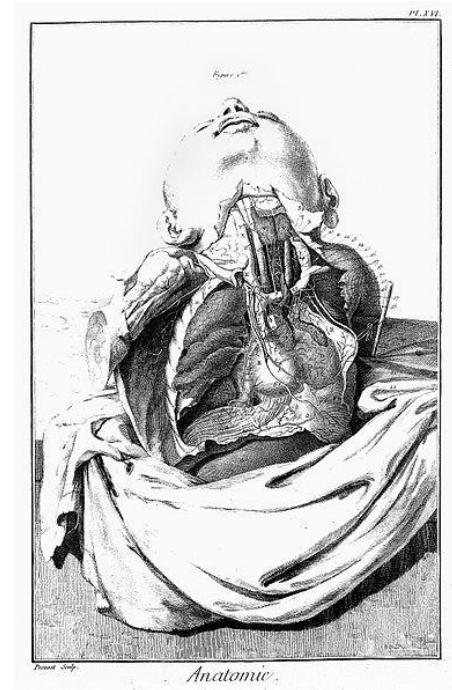
Figure 4 – The frontispiece of the *Encyclopédie* done by Benoît Louis Prévost.

Figure 5 – A close-up of Maurice Quentin de La Tour's portrait of Madame de Pompadour. The first book from the left is the *Encyclopédie*.
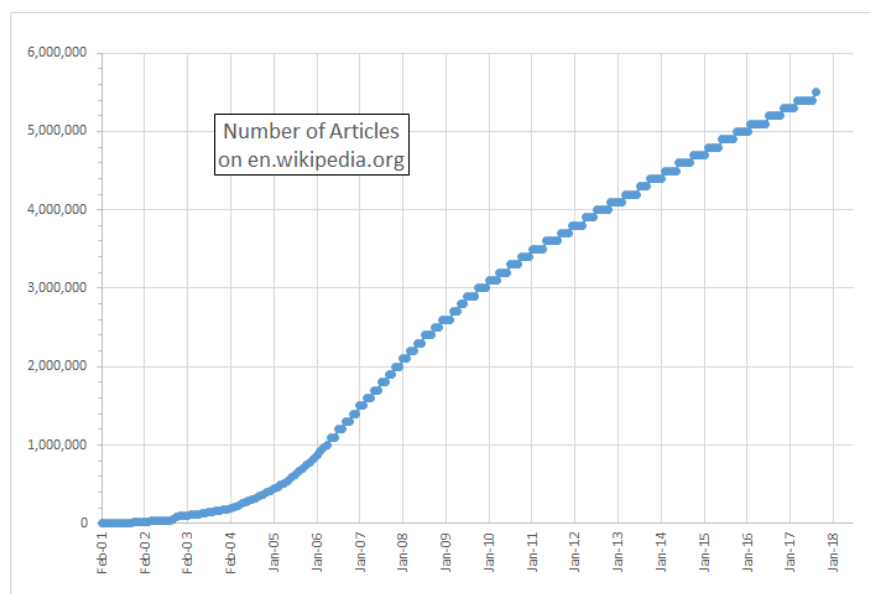
Figure 6 – A graphic showing the number of articles on English edition of Wikipedia. As of May, the 13th 2018 the English edition has 5,648,309 articles.[27] (author: HenkvD; source: Wikimedia Commons)

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[28] Accessed on the 13th of May 2018 via link – https://en.wikipedia.org/wiki/Special:Statistics.

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ОД ДИДРООВЕ *ЕНЦИКЛОПЕДИЈЕ* ДО ВЕЛСОВЕ *ВИКИПЕДИЈЕ*: КРАТКА ИСТОРИЈЕ САКУПЉАЊА И ДЕЉЕЊА ЗНАЊА

Сакупљање и дељење знања су активности подједнако важне као и стварање знања. Ипак, идеје о сакупљању и дељење знања су се мењале током времена, одсликавајући потребе друштва. Зато је потребно проучавати еволуцију идеје о сакупљању и дељењу знања. Та идеја потиче из библиотека Блиског истока из бронзаног доба и којима су управљали свештеници и краљеви, преко новог концепта који је развио Плиније Старији који је у I веку нове ере написао најстарије сачувано енциклопедијско дело и преко првих енциклопедија писаних на разне теме у време Просветљења, све до модерног доба и дигиталних енциклопедија објављених на цедеовима и до интернет енциклопедија попут *Википедије.*

Кључне речи: сакупљање знања, енциклопедије, Енциклопедија, Википедија.