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General definition

Four major elements define an encyclopedia: its subject matter, its scope, its method of organization, and its method of production.

- Encyclopedias can be general, containing articles on topics in many different fields (the english-language *Encyclopædia Britannica* and German *Brockhaus* are well-known examples), ~~Or~~ they can specialize in a particular field (such as an encyclopedia of medicine, philosophy, or law). There are also encyclopedias that cover a wide variety of topics from a particular cultural, ethnic, or national perspective, such as the *Great Soviet Encyclopedia* or *Encyclopedia Judaica*.
- Works of encyclopedic scope aim to convey the important accumulated knowledge for their subject domain. Such works have been envisioned and attempted throughout much of human history, but the term *encyclopedia* was first used to refer to such works in the 16th century. The first general encyclopedias that ~~succeeded~~ in being both authoritative as well as encyclopedic in scope appeared in the 18th century. Every encyclopedic work is, of course, an abridged version of all knowledge, and works vary in the breadth of material and the depth of discussion. The target audience may influence the scope; a children's encyclopedia will be narrower than one for adults.
- Some ^msystematic method of organization is essential to making an

encyclopedia usable as a work of reference. There have historically been two main methods of organizing printed encyclopedias: the alphabetical method (consisting of a number of separate articles, organised in alphabetical order), or organization by hierarchical categories. The former method is today the most common by far, especially for general works. The fluidity of electronic media, however, allows new possibilities for multiple methods of organization of the same content. Further, electronic media offer previously unimaginable capabilities for search, indexing and cross reference. The epigram from Horace on the title page of the 18th-century *Encyclopédie* suggests the importance of the structure of an encyclopedia: "What grace may be added to commonplace matters by the power of order and connection."

The encyclopedia as we recognize it today developed from the dictionary in the 18th century. A dictionary is primarily focused on words and their definition, and typically provides limited information, analysis or background for the word defined. While it may offer a definition, it may leave the reader still lacking in understanding the meaning or importance of a term, and how the term relates to a broader field of knowledge.

To address those needs, an encyclopedia seeks to discuss each subject in more depth and convey the most relevant accumulated

knowledge on that subject, given the overall length of the particular work. An encyclopedia also often includes many maps and illustrations, as well as bibliography and statistics.

Some works titled "dictionaries" are actually more similar to encyclopedias, especially those concerned with a particular field (such as the *Dictionary of the Middle Ages*, the *Dictionary of American naval Fighting Ships*, and *Black's Law Dictionary*). The *Mackquarie Dictionary*, Australia's national dictionary, became an encyclopedic dictionary after its first edition in recognition of the use of proper nouns in common communication, and the words derived from such proper nouns.

Early encyclopedic works

The idea of collecting all of the world's knowledge into a single work was an elusive vision for centuries. Many writers of antiquity (such as Aristotle) attempted to write ^hcomprehensively about all human knowledge. One of the most significant of these early encyclopedists was Pliny the Elder (first century CE), who wrote the *Naturalis Historia* (Natural History), a 37-volume account of the ~~Natural~~ world that was extremely popular in western Europe for much of the Middle Ages.

the first Christian encyclopedia was Cassiodorus' *Institutiones* (560 CE) which inspired St. Isidore of Seville's *Etymologiae* (636) which became the most influential encyclopedia of the Early Middle

Ages. The *Bibliotheca* by the Patriarch Photius (9th century) was the earliest Byzantine work that could be called an encyclopedia. Bartholomeus de Glanvilla's *De proprietatibus rerum* (1240) was the most widely read and quoted encyclopedia in the High Middle Ages while Vincent of Beauvais's *Speculum Majus* (1260) was the most ambitious encyclopedia in the late-medieval period at over 3 million words.

The early Muslim compilations of knowledge in the middle ages included many comprehensive works, and much development of what we now call scientific method, historical method, and citation. Notable works include Abu Bakr al-Razi's encyclopedia of science, the Mutazilite Al-Kindi's prolific output of 270 books, and Ibn Sina's medical encyclopedia, which was a standard reference work for centuries. Also notable are works of universal history (or sociology) from Asharites, al-Tabri, al-Masudi, Ibn Rustah, al-Athir, and Ibn Khaldun, whose *Muqadimah* contains cautions regarding trust in written records that remain wholly applicable today. These scholars had an incalculable influence on methods of research and editing, due in part to the Islamic practice of *isnad* which emphasized fidelity to written record, checking sources, and skeptical inquiry.

The Chinese emperor Cheng-Zu of the Ming Dynasty oversaw the compilation of the *Yongle Encyclopedia*, one of the largest encyclopedias in history, which was completed in 1408 and comprised over 11,000 handwritten volumes, of which only about 400 now survive. In the succeeding dynasty, emperor Qianlong of the Qing Dynasty

personally^l composed 40,000 poems as part of a 4.7 million page library in 4 divisions, including thousands^g of essays. It is instructive to compare his title for this knowledge, *Watching the waves in a Sacred Sea* to a Western-style title for all knowledge.

These works were all hand copied and thus rarely available, beyond wealthy patrons or monastic men of learning: they were expensive, and usually written for those extending knowl^edge rather than those using it (with some exceptions in medicine).