

Index: Pointing the Way

Janice P. Longo

University of British Columbia

### Index: Pointing the Way

During an age of information overload, in a state of crisis from being overwhelmed by too much information, we can feel lost in a labyrinth of texts.

Carefully constructed hierarchies of knowledge can crumble and the tree of knowledge can become an unmanageable bramble, a messy “tortuous path” (D’Alembert, as cited in Quaggiotto, 2001). We need a system of navigation, a world map, and we search for a signpost that points the way. We’re looking for an index.

Our word “index” comes to us directly from the Latin “index”, which expresses a basic action; drawing attention to something by pointing to it with a forefinger (Wellisch, 1983). We have an early use of the Latin “index” applied to manuscripts in a letter from Cicero to Atticus, asking him to send some pieces of parchment to make title slips – indices - for scrolls. In Cicero’s personal collection of manuscripts, he would have read and been familiar with the contents of each of them, but would rely on the index to point him to the one that he needs to refer to at a particular time.

Writers and readers developed methods of pointing to significant passages in a text. Cassiodorus, a 6<sup>th</sup> century Latin Church father, lived during a time of turmoil when it was impossible for a young person to attend school (Halporn, 1981). During such periods of cultural decline, texts become scarce, and readers turn to handbooks (Bolter, 2001). Cassiodorus wrote a self-study guide to important classical works, and used a system of marginal symbols to cue the reader to the subject of the selection. These point to passages in the text, and allow the reader to skim to locate the cited passages.

In contrast to Cassiodorus's time, the late 12<sup>th</sup> and following centuries saw an increase in urbanization and the rise of universities (Witty, 1973). Before this time, scholars relied on their memory to index their books, building an "index locorum" in their mind's eye, keyed to the visible surface of the manuscript (Ong, 2003). By the end of the 12<sup>th</sup> century, these indexing schemes began to appear in books. Ralf de Diceto, the 12<sup>th</sup> century scholar and dean of St. Paul's Cathedral used a set of illustrative symbols such as swords and crowns to make this mental indexing visible to the reader (Clanchy, 2012). In the early 13<sup>th</sup> century, Robert Grosseteste was a leading scientist, philosopher and Bishop with a large correspondence and prolific production of commentaries and translations (Thomson, 1934). He developed a system of 400 abstract symbols and placed them in the margins of texts as visible marks of his mental indexing.

During the 13<sup>th</sup> century, there was also an increased need for indexing by preachers, to use in preparing their sermons (Rouse & Rouse, as cited by Sullivan, 1994). This is where we see the first indexes in the modern sense. A list of topics, external to the text, that point to locations in the main document, is seen in the concordances of the bible, made possible by the division of the books of the bible into chapters (Berger, 2006). With chapter and book structure given to the bible, it became possible to organize concordances using an alphabetical structure; however the early attempts at ordering entries didn't follow a strict letter-by-letter to the end of the word alphabetization (Witty, 1965). Entries in the index might be organized by first letter or first syllable, and then randomly or by topic (Wellisch, 1994).

By the late Middle Ages, manuscripts were paginated but the earliest printed books were not. Early indexers cited references by chapter, subheading and paragraph or

by using marginal symbols. This system had the advantage of being portable, because the index could be used for different settings of the text (Wellisch, 1994). Printers soon responded to the demands of readers by supplying indexes with printed books, although the earliest attempts were often not systematically arranged. The index, which had been a tool for finding one's way back to a location in a text, became a tool for finding new information (Blair, 2003). With this change in use of the index, we see the reader become a researcher, and a shift from documents to be read and remembered to documents to be used and consulted).

This shift in attitude is clearly illustrated in the work of Conrad Gessner, the 16<sup>th</sup> century scientist and bibliographer. He complained of a “confusing and harmful abundance of books” (as cited in Blair, 2003) but added to the store with his own prolific writings, and also attempted to catalog all known books in the *Bibliotheca universalis*. He developed techniques for handling large amounts of information, including writing notes on slips of paper so they could be sorted and lightly pasted until the desired arrangement was achieved. He also cut citations from indexes to reuse in his own compilations, advising that “for this purpose, two copies [of the book] are needed” (as cited in Blair, 2003).

By the 17<sup>th</sup> century, subject indexes, complete with cross-references, had developed to have much the same form that we use today (Cornog, 1983). The 18<sup>th</sup> century scientist, Carolus Linnaeus, was faced with a similar problem that had confronted Conrad Gessner. Instead of trying to catalogue all existing books, as Gessner had, Linnaeus attempted to catalogue all known species of plants and animals. Faced with an ever-expanding amount of information, and the need for a flexible method for organizing

his findings, he is credited with created a technology for organizing and retrieving information – the index card (Muller-Wille & Scharf, 2012).

Beyond indexing a single work, a researcher needs to organize and locate information from a wide selection of texts. Nelson (as cited by Bolter, 2001) viewed literature as a “system of interconnected writing”, and the indexers of the Downs Library “conceived the library to be not a repository of manuscripts but one gigantic volume of many pages and many chapters.” (as cited in Ingerman, 1962) In the twentieth century, faced with the needs of researchers and the ever-increasing volume of information, indexers borrowed Gessner’s methods of copying citations onto slips of paper and re-filing them, but Wilson stored the citations as lines of type which saved the expense of resetting all of the type (Cornog, 1983). Index cards were used to catalogue the collections of libraries, but indexers also developed mechanical methods for sorting and retrieving information stored on index cards.

Edge-notched or McBee cards have a series of holes around the outside edge and an area in the centre of the card for a citation. Each hole around the edge corresponds to an index term. For example, cards for a collection of documents about indexing technologies might have holes corresponding to “index cards”, “alphabetical” and “manuscript” as well as other subjects. If a document is relevant for that index term, the indexer notches the card at the edge. A researcher can retrieve all of the documents relevant to “index cards” by placing all of the cards in a stack, with the beveled corners aligned, and placing a spike through the hole that corresponds to “index cards”. When the spike is lifted, the cards that have been notched at the “index cards” hole fall out (Cornog, 1983). The system is limited by the number of holes around the edge of the

cards, and was most useful to individual researchers who maintained their own index system (Anderson, 1953).

The subject headings for an index are called a thesaurus. An indexing system depends on the choices of subject heading that the indexer makes. Until the 1950s, indexers used pre-coordinated subject headings such as those developed by the Library of Congress, which contain terms such as “English Literature – 18<sup>th</sup> Century – Bibliographies”(Cornog, 1983). A problem with the pre-coordinated index is that it pre-supposes a division of knowledge that might not be relevant to a researcher’s needs. Taube developed a system of coordinate indexing, which would use separate index terms for “English” “Literature” “18<sup>th</sup> century” and “bibliographies”, with the thesaurus of terms coming directly from the documents to be indexed. This lets the researcher have the flexibility to select and coordinate the terms for her search but relies on a mechanical system for retrieving the citations.

Termatrix index cards could help in this sort of keyword search. Termatrix cards have a set of locations corresponding to each document in the collection. A card is created for each keyword that is likely to be useful to a researcher. If a document contains information about that keyword topic, the corresponding hole in that card is punched. The researcher locates documents relevant to her research by selecting the keyword cards, placing them in a stack (order is not important, but the orientation of the cards is), and looking for spots where light shines through. These spots indicate a document that match all of the keywords in the search. The search can be broadened or narrowed depending on the number of results returned. When the researcher has finished her search, the cards are returned to alphabetical order (Ingerman, 1962).

We have seen the advance of new indexing techniques as the amount of information in books has increased, and as the use of books has changed. A sobering thought is the observation that some of those who are helping to advance the techniques of indexing are those, such as Grosseteste, Gessner and Linnaeus who are doing the most to increase the need for it.

## References

- Anderson, G. L. (1953). The McBee Keysort System for Mechanically Sorting Folklore Data. *Journal of American Folklore*, 340-343.
- Berger, J. (2006). Indexation, memory, power and representations at the beginning of the 12th century: The rediscovery of pages from the tables to the Liber de Honoribus, the first Cartulary of the Collegiate Church of St Julian of Auvergne (Brioude). *The Indexer*, 25(2), 95-99.
- Blair, A. (2003). Reading strategies for coping with information overload ca. 1550-1700. *Journal of the History of Ideas*, 64(1), 11-28.
- Bolter, J. D. (2001). *Writing space: Computers, hypertext, and the remediation of print* [2<sup>nd</sup> edition]. Mahwah, NJ: Lawrence Erlbaum.
- Clanchy, M. T. (2012). *From memory to written record: England 1066-1307*. John Wiley & Sons.
- Cornog, M. (1983). A history of indexing technology. *The Indexer*, 13(3), 152-157.
- Halporn, J. W. (1981). Methods of Reference in Cassiodorus. *Journal of Library History*, 71-91.
- Ingerman, E. (1962). A new method of indexing manuscripts. *The American Archivist*, 25(3), 331-340.
- Müller-Wille, S., & Charmantier, I. (2012). Natural history and information overload: The case of Linnaeus. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 43(1), 4-15.



Ong, W. J. (2003). *Orality and Literacy*. Routledge. Retrieved 31 May 2015, from

<<http://www.mylibrary.com?ID=1960>>

Quaggiotto, M. (2010, October). Images of knowledge. Interfaces for knowledge access in an epistemic transition. In Second International Workshop on Knowledge Federation, Dubrovnik, Croatia. Retrieved from <http://ceur-ws.org/Vol-822/MQ.pdf>

Sullivan, L. E. (1994). [Review of the *book Authentic Witnesses: Approaches to Medieval Texts and Manuscripts*, by M. A Rouse & R. H. Rouse]. *The Library Quarterly: Information, Community, Policy*, 64, 216-218.

Thomson, S. H. (1934). Grosseteste's Topical Concordance of the Bible and the Fathers.

*Speculum*, 9(02), 139-144.

Wellisch, H. H. (1983). 'Index': the word, its history, meanings and usages ". *The Indexer*, 13(3),

147-151.

Wellisch, H. H. (1994). Incunabula indexes. *Indexer*, 19, 3-12.

Witty, F. J. (1965). Early Indexing Techniques: A Study of Several Book Indexes of the

Fourteenth, Fifteenth, and Early Sixteenth Centuries. *The library quarterly*, 141-148.

Witty, F. J. (1973). The beginnings of indexing and abstracting: some notes towards a history of

indexing and abstracting in Antiquity and the Middle Ages. *The indexer*, 8(4), 193-198.