

‘Note-Taking and the Organization of Knowledge’

Affiliation

Angus Vine
Division of Literature and Languages, University of Stirling
Stirling, UK
angus.vine@stir.ac.uk
+ 44 (0) 1786 466208

1. Synonyms

2. Related Topics

Manuscript culture; material culture; observation; reading; commonplacing; humanism; memory; paper; taxonomy; merchantry

3. Introduction

Note-taking was an essential prerequisite to both knowledge and textual production in early modern Europe. Highly codified, widely theorized and commonly taught in schools and universities, methods of note-taking were shared by scholars and students across the continent. At the local level, though, those methods varied considerably, as individuals adapted them to suit their own intellectual interests and devised their own often ingenious material practices to organize the notes that they took from their reading, the observations that they made and the knowledge that they otherwise collected and gathered. From commonplace books and diaries, to records of experiments and ledgers and accounts, manuscript culture was essential to the early modern organization of knowledge.

4.1 Paper Technology

Historians generally agree that there were three principal schemes for the organization of knowledge in the early modern world: (i) alphabetical order; (ii) systematic order; and (iii) miscellaneous order (Blair 2004, 2007; see also Daston 1992 and Burke 2000, pp. 81–115). For note-taking culture, these frameworks served a crucial

memorial purpose, allowing users to find items that they had previously copied and observed or read, and then put them to use. Scholars widely understood that if collections of knowledge were not ordered and arranged in one of these ways, they would quickly become redundant, and the work would have to be redone. As Gottfried Wilhelm Leibniz confessed in a letter of March 1693 to Guillaume de l'Hôpital, 'After having done something, I forget it almost entirely within a few months, and rather than searching for it amid a chaos of jottings that I do not have the leisure to arrange and mark with headings, I am obliged to do the work all over again' (translated and cited in O'Hara 1998, p. 160). A few years earlier Charles Sorel, the French historiographer royal, had voiced a similar concern in his *Supplément des traitez de la connoissance des bons livres* (1673): 'What a strange misfortune is it to have so many goods that, not knowing which to use, one uses none at all' (Sorel 1981, p. 7). To avoid this kind of information overload (see Blair 2010), and the consequent stasis that Sorel and Leibniz both recognized, scholars commonly adopted one or more of alphabetical, systematic and miscellaneous order.

What that meant in practice was that individuals started to use a whole series of material strategies to make their notes usable as well as voluminous (and that meant organized too). Most common were various forms of docket, label and heading, the *rubriques* that Leibniz admitted to neglecting. However, these strategies also included more specific finding technologies. These ranged from tabs, which would protrude from the leaves of manuscript books in a manner akin to modern file dividers, as used by the seventeenth-century Kentish virtuoso Henry Oxinden in his notebooks (Vine 2017), to the multicoloured strings and folders with which Robert Boyle experimented to organize his loose notes (Hunter 1998; Yeo 2010). They also included indexes, which began to be observed first in print and then in manuscript culture, and symbolic, numeric and alphabetical keys of varying degrees of complexity (Knight 2009).

A more elaborate device, but one designed with the same purpose in mind, was the box described by Richard Holdsworth, master of Emmanuel College, Cambridge in the 1630s and 1640s, in his 'Directions for a Student in the Universitie'. 'I was told of one,' Holdsworth wrote, 'who [...] caused a box to be made with as many partitions as he could have had heads in his booke, so that writing his

Collection in any bit of paper, he might without more trouble throwe it in to its Topick, & look over each divisiō on occasion' (Holdsworth 1961, p. 651). Topically ordered and modeled on the textual disposition of commonplace books, this box was evidently an early form of filing cabinet. A comparable example was the slip closet, or 'Ark of Studies', designed by Thomas Harrison, the son of a London merchant and an otherwise little known member of Samuel Hartlib's circle, in the 1640s. Harrison's closet was intended to be 'a repository, by means of which it is proposed that all the things one has read, heard, or thought can be more speedily arranged, and more readily used' (Malcolm 2004, p. 206). By the end of the seventeenth century, such devices had become common, as more and more scholars abandoned bound notebooks and turned to loose notes, slips and file cards instead (Cevolini 2016). Furniture also therefore started to be designed with the organization and storage of loose notes in mind: writing desks, for example, began to be built with pigeonholes designed explicitly for sorting documents (usually in alphabetical order). Harrison's invention itself also became more widely known through the German polymath Vincent Placcius's inclusion of a description of it in his influential manual on excerpting *De arte excerptendi* (1689).

Other note-takers used the resources of manuscript itself to organize their knowledge. *Mise-en-page* and the physical space of manuscript leaves were the keys here. At its simplest, this involved compilers ruling boxes in manuscript books to create customized compartments for particular items: the paper equivalents of pigeonholes. This practice responded specifically to the twin challenges of organizing notes when they were first taken and finding them in the future. *Mise-en-page* was, in this way, connected directly to mnemonic function. Moreover, this was the case for both specialized collections of notes such as the idiosyncratic books of remembrance kept by the mid-seventeenth-century English noblewoman Elizabeth Isham (Ezell 2011) and much more widespread textual productions such as commonplace books. Just as Isham's compartments stored information and countered the fallibility of the human memory, so also did commonplace book divisions. Their headings (or 'heads' as they were known at the time) were copied at the top of each leaf and provided topical indexes to the material gathered. Their purpose, moreover, was similarly multiple: to bring together material from diverse sources on the same

topics, to enable compilers to find that material in the future and thereby also to generate new composite knowledge (textual and otherwise).

An increasingly prevalent variant of this commonplace method was the practice of allocating different sections of a single manuscript book to different subjects—what one recent scholar has called ‘casting off blanks’ (Gibson 2010; see also Sarasti-Wilenius 2009 and Vine 2017). This practice was particularly common amongst those compilers who wanted to avoid the topical restrictiveness of the traditional humanist commonplace book, but still sought some kind of related generic classification or taxonomy for their miscellaneous notes. A compiler who adopted this method would estimate in advance how many texts or items he or she might copy in the future and on what subjects, and then allocate the space accordingly. At its most basic, this resulted in the widespread phenomenon of the reversed manuscript, in which notes of different order were entered from either end of a manuscript book. But it could also result in much more complex textual organization: in single volumes, bound or unbound, of miscellaneous knowledge carefully filed in multiple generic sections. Those sections may not now be immediately visible to the eye; compilers did not necessarily mark them explicitly with dividers or headings. But they can be deduced from the material gathered and the progress of copy (that is to say, the order in which that material was entered).

Another important weapon in the note-taker’s armory was the paper slip. These narrow strips of paper allowed compilers to sort items before copying them into manuscript books. They were especially important, therefore, for the compilation of alphabetically organized collections such as dictionaries (Considine 2015). (For obvious reasons, alphabetical order posed particular difficulties for early modern manuscript and print culture alike.) Scholars who used them in this lexicographical way included the Swiss bibliographer and physician Conrad Gesner and the Italian natural philosopher Ulisse Aldrovandi (Kraemer and Zedelmaier 2014; Kraemer 2014). The Flemish cartographer and geographer Abraham Ortelius was another example; indeed, his dictionary of ancient place names, the ‘*Synonymia geographica*’ (c. 1587; now Museum Plantin-Moretus, MS 285), constitutes one of the more ingenious examples of this practice. For in Ortelius’s case, the use of slips allowed him not only to produce an alphabetically ordered collection, but also to

accommodate future additions—something that was especially useful for a recuperative project such as the ‘Synonymia’. Ortelius likely took his inspiration from Gesner’s famous discussion of indexing in the *Pandectae* (1548) and his method largely followed that recommended by the Swiss physician. First of all, Ortelius prepared the book itself: before entering anything in it, he ruled all of its leaves with three vertical lines to create narrow inner and outer margins and two much more substantial text-blocks. He then copied the place names (with their modern equivalents) on scissor cut paper slips, evidently over a considerable period of time. What sets his dictionary apart, however, is what he did next, and the way in which he affixed those slips in his manuscript book. In the first instance, he pasted his slips in the right-hand columns of the rectos alone, thus leaving considerable space for place names that he would inevitably identify in the future, and therefore also enabling him to maintain alphabetical organization as and when he made those additions. New place names were then pasted in the left-hand columns and on the versos, and they were keyed to their rightful place in the text with a series of hand-drawn lines.

Ortelius’s slips and Oxinden’s tabs are both examples of what historians of science have started to call paper technologies (Te Heesen 2005; Hess and Mendelsohn 2013; Charmantier and Müller-Wille 2014; Kraemer 2014). But so, too, is the commonplace book: a volume whose structure and layout were designed explicitly to operate as a device to organize notes, support the memory and generate new knowledge. And the same goes for the myriad other manuscripts—account books, ledgers, recipe collections, inventories, notebooks, miscellanies, anthologies, shop-books, day-books, hodgepodes, *zibaldoni*, diaries—that early modern men and women used in similar fashion to document their experiences, gather their observations and record their reading. Paper technology, in other words, was essential to the organization of knowledge.

4.2 Humanist Origins

Most of these material practices can, in one way or another, be traced back to humanist methods of note-taking and reading (Yeo 2014). Early sixteenth-century humanist pedagogues such as Desiderius Erasmus, Philip Melanchthon and Juan Luís Vives made commonplaceing an essential part of their pedagogical programs and a

cornerstone of the budding scholar's progress. Students across Europe were enjoined to read with a notebook at hand. That notebook was their commonplace book and it was the place where they would record proverbs, *sententiae* and otherwise noteworthy passages that they came across in their reading. While there was some variation in what pedagogues recommended their pupils to copy, the method prescribed was broadly the same. Vives's advice in his *De ratione studii puerilis ad Carolum Montioium Guilielmi filium* (1523), an educational treatise framed as a letter to the young nobleman Charles Blount, is typical. Vives recommended that his seven-year-old charge should take a blank paper-book (an unbound manuscript book) and divide it into a series of topics, or *nidos* (birds' nests) as he put it in the original Latin. Into those nests, the Spanish humanist added, his student should then copy vocabulary, idioms, formulae, *sententiae*, proverbs and finally whatever seemed noteworthy to him or his teacher (Vives 1555, sig. a4v).

For the original humanists, this method of reading and note-taking was primarily a question of rhetoric. They believed that the commonplace method was the ideal organizational means to collect and marshal notes, and thereby generate the copiousness that was considered the hallmark of eloquent discourse in the early modern world. As Erasmus argued in his *De copia* (1512), the work which contained his own most systematic guidelines to commonplacing, commonplace books enabled readers to acquire and organize a sufficient supply of examples to produce their own copious discourse (Erasmus 1978, p. 636). The *De copia* itself illustrated the point: Erasmus's work was at once a defence of the commonplace method and a demonstration of the eloquence and *copia* that it could produce. However, if the method's origins were linguistic, pedagogues quickly recognized its potential for organizing knowledge much more broadly and soon extended its remit from words (*verba*) to things (*res*) as well. Vives, for example, in a subsequent work *De disciplinis* (1531), recommended expanding commonplace books from lists of *sententiae* to collections that also included lists of famous men, remarkable cities and animals, vegetables and minerals (Vives 1555, sig. P6v), while Melanchthon went even further and, in a series of textbooks in which he advocated the method, actually prioritized *res* over *verba*.

Of course, the extent to which note-takers actually followed the advice of the likes of Erasmus, Vives and Melanchthon is hard to say. There is no doubt that the humanist method was both influential and popular. Numerous literary and natural philosophical works attest to this. Works such as Michel de Montaigne's *Essais* (1580, 1588, 1595) and Jean Bodin's *Universae naturae theatrum* (1596), and for that matter also Shakespeare's plays, all of which were in one way or another constructed from the texts of previous writers, would have been impossible without the organization and support of some sort of commonplace book (Blair 1992, 2004). However, the surviving manuscript evidence tells a slightly different story. Umpteen manuscripts speak of compilers beginning with the best of intentions, following the guidelines prescribed by the likes of Erasmus, but soon abandoning them in favour of more miscellaneous order, and apparently tiring of what was undoubtedly an onerous method of taking and organizing notes. Indeed, it is not unusual to find manuscripts prepared as commonplace books with topical headings and grids, but with few actual commonplaces (and sometimes none) copied into them.

4.3 New Manuscript Models

By the seventeenth century, perhaps in response to this, some voices had begun to argue for a reform of the commonplace method and for new models of note-taking. The statesman, lawyer and natural philosopher Sir Francis Bacon was perhaps the best known of these. In his *Of the Proficiency and Advancement of Learning* (1605), for example, Bacon expressed considerable disquiet at what commonplacing had become, complaining 'that of the *Methodes of Commonplaces*, that I haue seen, there is none of any sufficient woorth, all of them carying meerely the face of a *Schoole*, and not of a *World*' (Bacon 2000, p. 118). And yet he did not reject commonplacing outright: indeed, as Peter Beal has argued, he remained the 'outstanding' seventeenth-century advocate 'for the usefulness of commonplace books in general' (Beal 1993, p. 138). Rather, what he sought was a new, more practical method, liberated from the narrowly rhetorical context of the pedagogues, and an approach more clearly directed at practical knowledge and the world. His own surviving notebooks, the *Promus of Formularies and Elegancies* (c. 1595) and the *Commentarius solutus* (1608) (British Library, Harley MS 7017, and Additional MS 27278 respectively), model what such a method might have looked like in practice.

Bacon took his inspiration for this reform from mercantile culture (Vine 2010). In the *Commentarius solutus*, a review of his business and affairs, which he conducted over the course of a single week in July 1608, he described his proposed new method. Rather than keeping multiple commonplace books under multiple heads, he suggested that note-takers use just two books: one in which they would record notes as and when they occurred, and the other in which they would then re-order and re-record the most important of these. The first of these books he compared to ‘a Marchants wast booke where to enter all maner of remembrance of matter, fourme business study’; the second he likened to ‘the marchants leggie booke, wherin those thinges (which deserue it) and are sett down in the Comentary breefly [...] be entred to haue Contynuanee’ (Bacon 1608, fols 13v–14r). The waste-book and ledger, Bacon’s analogies, were the mainstays of mercantile record-keeping in early modern Europe. Manuals on bookkeeping from Luca Pacioli’s *Summa de arithmetica, geometria, proportioni & proportionalita* (1494) onwards invariably emphasized their importance for properly kept accounts. Merchants were enjoined to record all their business, however big or small, on a daily basis in their waste-books; they were then instructed to transfer those transactions to their ledgers, where they would be sifted, sorted and recorded in a more orderly fashion as debits and credits.

Bacon was certainly not the only writer or scholar to find a useful model for note-taking in this mercantile practice. The Italian Jesuit Francesco Sacchini’s much reprinted manual on reading, *De ratione libros cum profectu legendi libellus* (1614), for example, used the very same analogies to explain his own two-book approach to note-taking (Blair 2004). How far note-takers followed suit is moot, as waste-books, even mercantile waste-books, survive in limited numbers. But that is not really surprising: waste-books were always envisaged as preliminary and not therefore something that compilers would perforce keep. A lack of evidence does not, therefore, necessarily mean that this practice went unadopted. Indeed, we know that at least one group of note-takers in the seventeenth century did take up a similar method. Diarists such as Simonds D’Ewes used bookkeeping in exactly the same way as a prototype for their textual production. What we also know was that in advocating a less restrictive method than that previously recommended, and by modeling new practices of note-taking, Bacon influenced one of the most significant

developments in manuscript culture across the seventeenth century: the shift to looser notes and more miscellaneous order.

Crucially, though, that shift did not spell the end for the commonplace mindset. Indeed, the contrary was the case, as commonplacing continued to be essential for the organization of knowledge long after the commonplace book itself, as a material text, had been rejected as overly determined and too restrictive. New methods of commonplacing continued to be developed, as John Locke's *Méthode nouvelle de dresser des recueils* (1686) illustrates, and compilers well into the eighteenth century proceeded with organizing their knowledge in comparable fashion. Note-taking, in other words, continued to be essential to the organization of knowledge, especially at the level of the individual, long after the era of the humanist pedagogues. Moreover, however much its material practices evolved, that relationship between spatial disposition, mnemonic management and the organization of ideas, which those pedagogues had done so much to articulate, remained fundamental.

5. Cross-References

Rhetoric; Art of Memory; Experimental Notes and Journals; Reading Practices; Commerce and Merchants

6. References

Bacon F (1608) *Commentarius solutus*. British Library, Additional MS 27278

Bacon F (2000) *The advancement of learning*, ed. by Kiernan M. Clarendon Press, Oxford (Oxford Francis Bacon, 4)

Beal P (1993) Notions in garrison: the seventeenth-century commonplace book. In: Hill W S (ed) *New ways of looking at old texts: papers of the Renaissance English Text Society, 1985–1991*. Medieval & Renaissance Texts & Studies, Binghamton, NY, pp 131–47

Blair A (1992) Humanist methods in natural philosophy: the commonplace book. *Journal of the History of Ideas* 53:541–551

Blair A (2004) Note taking as an art of transmission. *Critical Inquiry* 31:85–107

Blair A (2007) Organizations of knowledge. In: Hankins J (ed) *The Cambridge companion to Renaissance philosophy*. Cambridge University Press, Cambridge, pp 287–303

Blair A (2010) *Too much to know: managing scholarly information before the modern age*. Yale University Press, New Haven and London

Burke P (2000) *A social history of knowledge from Gutenberg to Diderot*. Polity, Cambridge

Cevolini A (2016) Storing expansions: openness and closure in secondary memories. In Cevolini A (ed) *Forgetting machines: knowledge management evolution in early modern Europe*. Brill, Leiden and Boston, pp 155–187

Charmantier I, Müller-Wille S (2014) Worlds of paper: an introduction. *Early Science and Medicine* 19:380–397

Considine, J (2015) Cutting and pasting slips: early modern compilation and information management. *Journal of Medieval and Early Modern Studies* 45:487–504

Daston L (1992) Classifications of knowledge in the age of Louis XIV. In: Rubin D L (ed) *Sun King: the ascendancy of French culture during the reign of Louis XIV*. Folger Shakespeare Library, Washington, DC, pp 207–220

Erasmus D (1978) *De copia/De ratione studii*, transl. by Knott B I, McGregor B. University of Toronto Press, Toronto (Collected works of Erasmus, 24)

Ezell M J M (2011) Elizabeth Isham's books of remembrance and forgetting. *Modern Philology* 109:71–84

Gibson J (2010) Casting off blanks: hidden structures in early modern paper books. In: Daybell J, Hinds P (eds) *Material readings of early modern culture: texts and social practices, 1580–1730*. Palgrave Macmillan, Basingstoke, pp 208–228

Hess V, Mendelsohn J A (2013) Paper technology und Wissenschaftsgeschichte. *NTM Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin* 1:1–10

Holdsworth R (1961) Directions for a student in the universitie. In: Fletcher H F *The intellectual development of John Milton ii. The Cambridge University period 1625–32*. University of Illinois Press, Urbana, pp 623–655

Hunter M (1998) Mapping the mind of Robert Boyle: the evidence of the Boyle papers. In: Hunter M (ed) *Archives of the scientific revolution: the formation and exchange of ideas in seventeenth-century Europe*. Boydell, Woodbridge, pp 121–136

Knight H (2009) Robert Boyle et l'organisation du savoir. In: Dennehy M, Ramond C (eds) *La philosophie naturelle de Robert Boyle*. Vrin, Paris, pp 157–173

Kraemer F (2014) Ulisse Aldrovandi's Pandechnion Epistemonicon and the use of paper technology in Renaissance natural history. *Early Science and Medicine* 19:398–423

Kraemer F, Zedelmaier H (2014) Instruments of invention in Renaissance Europe: the cases of Conrad Gesner and Ulisse Aldrovandi. *Intellectual History Review* 24:321–341

Malcolm N (2004) Thomas Harrison and his “Ark of Studies”: an episode in the history of the organization of knowledge. *The Seventeenth Century* 19:196–232

O'Hara J G (1998) ‘A chaos of jottings that I do not have the leisure to arrange and mark with headings’: Leibniz's manuscript papers and their repository. In Hunter M

(ed) *Archives of the scientific revolution: the formation and exchange of ideas in seventeenth-century Europe*. Boydell, Woodbridge, pp 159–170

Sarasti-Wilenius R (2012) Commonplace books in seventeenth-century Sweden. In: Steiner-Weber A (ed) *Acta conventus neo-latini upsaliensis ii*. Brill, Leiden and Boston, pp 933–942

Sorel C (1981) *Supplément des traités de la connoissance des bons livres*. In: *De la connoissance des bons livres: ou, examen de plusieurs auteurs*, ed. by Béchade H D. Droz, Geneva

Te Heesen A (2005) The notebook: a paper technology. In Latour B, Weibel P (eds) *Making things public: atmospheres of democracy*. ZTM/Center for Art and Media Karlsruhe, Karlsruhe, pp 582–589

Vine A (2010) Commercial commonplacing: Francis Bacon, the waste-book, and the ledger. *English Manuscript Studies 1100–1700* 16:197–218

Vine A (2017) Search and retrieval in seventeenth-century manuscripts: the case of Joseph Hall's miscellany. *Huntington Library Quarterly* 80:325–343

Vine A (2019) *Miscellaneous order: manuscript culture and the early modern organization of knowledge*. Oxford University Press, Oxford

Vives J L (1555) *Opera, in duos distincta tomos*. Nicholas Episcopus, Basel

Yeo R (2010) Loose notes and capacious memory: Robert Boyle's note-taking and its rationale. *Intellectual History Review* 20:335–354

Yeo R (2014) *Notebooks, English virtuosi, and early modern science*. University of Chicago Press, Chicago and London