Printing and Book Culture in Middle Period and Early Modern China: Rethinking the Chinese Experience with European Comparisons

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Introduction

The importance of the book and literary production in Chinese culture and history is widely perceived and acknowledged. In fact, probably few cultures in the world have enjoyed such a long history of printing as China. During the seventh or eighth century, at the latest, the Chinese invented xylography to reproduce text from cutting written characters on woodblocks.[1] In the eyes of many Chinese scholars, the invention of printing has ranked as one of their country's greatest contributions to the history of human beings.[2] Francis Bacon's famous words on printing, along with that on the two other inventions of gunpowder and the compass, are frequently quoted:

> [These three inventions] have changed the whole face and condition of things throughout the world in literature, in warfare, and in navigation.[3]

Despite the debate over the assertion that a country can invent something, this piece of cultural self-congratulation does contain a fair amount of truth on the centrality of China in the discovery of printing and in the development of the book in the world.

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1 Barrett (2008a) argues that printing was invented by the late seventh century. While in another book (2008b) he goes further to claim that it was Empress Wu (625–705) who actually discovered the technology of printing. Cynthia J. Brokaw suggests that printing was probably invented sometime in the eighth century; cf. Brokaw 2007, 253. Our still sparse knowledge about the early history of printing in China is enriched by works such as Carter 1955; Zhang Xiumin 1958, esp. 27-63; Zhang Xiumin 1989, 10-22; Drège 1991, 77-112.

2 Zhang Xiumin 1989; Cao Zhi 1993; Su Bai 1999.

3 Bacon 1994, Bk. 1, aphorism 129 and 131.

The particular value of learning and the mastery of the written word in premodern China is also attested in the fact that from the Song 宋 dynasty (960–1279) onward, literacy and education, measured by the civil service examinations, were gateways to political authority, social status, and economic welfare.[4] It is not surprising to observe that there is a long tradition of book study in China. The origin of this tradition, according to many modern scholars on book history, can be traced back to the cataloguing efforts of Liu Xiang 劉向 (ca. 79–6 BC).[5] The lasting passion for books in China is reaffirmed throughout Chinese history in the rich store of catalogues and bibliographies produced both by government command, such as the famous *Siku quanshu zongmu tiyao* 四庫全書總目提要 (Annotated General Catalogue of the Complete Library of the Four Treasuries) compiled at the end of the eighteenth century, and by individual bibliophiles and book collectors. Over the centuries a range of techniques was developed to evaluate texts through analysis of formatting and layout, calligraphy of characters, and paper quality. Together with the bibliographic tradition, this interest in authentication eventually developed to the modern discipline of "*Banben xue*" 版本學 (Study of editions) in the late-nineteenth and early-twentieth centuries.[6]

Through the first decades of the twentieth century, Chinese and Japanese scholars produced a host of insightful studies on the origin and historical development of printing, paper production, bookbinding, publishing, and the physical evolution of Chinese books in traditional China.[7] Much of such Chinese and Japanese scholarship has then attracted the attention of scholars in the West and it has also been synthesized for a Western audience.[8] Entering the second half of the century, scholars in the West began to expand their attention to the social, economic, intellectual and cultural aspects of Chinese book history: There has been a growing scholarly interest in exploring the social and intellectual impact of the spread of printing, the commercial aspects of both printing and production, the influence of the printing industry on local and national

4 For detailed discussions on the issue, see among others, Elman 1991; Chow 1996; De Weerdt 2007.

5 Cao Zhi 1993, 52; Inoue Susumu 2002, 20f.

6 On *banben xue*, see the profound study by Chang Bide 1977.

7 Ye Dehui's *Shulin qinghua* 書林清話 and *Shulin yuhua* 書林餘話, published in 1911 and 1923, respectively, established the groundwork for later studies. See also Wang Guowei 1936, vols. 34-35; Nagasawa Kikuya 1982; Zhang Xiumin 1958. For a fuller bibliography of scholarships on these topics, see Tsuen-hsuin Tsien 1985, 406-430.

8 Carter 1955; Wu 1943; Twitchett 1983; Edgren 1984).

cultural identities, as well as the changing effects that the proliferation of imprints exerted on learning and knowledge transmission.[9]

These new approaches to the study of printing and book culture in China are evidently inspired by the large corpus of debates and bibliographies on the European book and print culture, designated as the "*history of the book*" (*histoire du livre*).[10] For sure, historians of Chinese printing and book culture stand much to gain from their European counterparts' methodology of focusing on specific causal factors, genres of printing, and cultural milieu. However, the adoption of new methods should not obscure the differences between China and Europe. Studies on printing and book culture in China are inevitably shaped by specifically Chinese social, political, economic, cultural, and technological conditions. Although both European and Chinese printing drastically increased the production of multiple copies of texts and illustrations, the technology and economics involved in the use of woodblock (China) versus moveable metal type (Europe) were very different. Those and many contextual differences notwithstanding, there are also considerable similarities between the two – from enthusiasm for printed books, for educational use, to fears of subversion of textual quality. To concentrate only on broad generalizations about the development of printing and its impact on book culture is to risk ignoring the multiple and sometimes contradictory trends that printing and books fostered.

Certainly the cluster of very fine studies by Pan Jixing 潘吉星 and Han Qi 韓琦 and Michela Bussotti on various aspects of printing in China and Europe laid an important foundation for our understanding of the rich similarities and contradictories within the two contexts.[11] Yet there have been only very few attempts to synthesize these issues through an examination of printing and book culture in China with European comparisons. Based on a comparative investigation of issues such as printing technology, economic considerations, attitudes towards calligraphy, motivations for printing, language, as well as reading traditions and cultural attitudes in both China and Western Europe, this paper endeavors to probe into the specific issues that distinguish the history

9 Rather than attempting an exhaustive listing of the most important works, I refer to two lucid but thorough bibliographical articles by Brokaw (2007) and Reed (2007), respectively, and the references therein, as well as Michela Bussotti's (1998) collection of the recent studies in Western languages and Meyer-Fong's (2007) comprehensive introduction to the field. Studies will be cited below, as they relate to the discussion at hand.

10 On the development of the "history of the book" in Europe, see among others, Egger 1880; Barbier 2012; Chartier 1987; Eisenstein 1979, 1983; Raven (2007.

11 Pan Jixing 1997; Han Qi and Migaila [Michela Bussotti] 2008.

of printing and book culture in China in the middle period and early modernity, roughly from the Song through the Qing 清 (1644–1911). On the other hand, this examination shall also demonstrate that a comprehensive comparison situated within Chinese and European contexts can help not only assert the independence of the study printing and book culture, but also provide a new way of appreciating their enormous impact on issues such as history of literacy, changes in transmission of knowledge, and literary production.

Technology of Printing and Economic Preference

Until the advent of modern typography in the twentieth century, woodblock printing (xylography) had been the principal vehicle of traditional Chinese printing, dominating the world of Chinese publishing for over eleven centuries. Although woodblock printing was not the only technology available to early modern Chinese printers, as printing with moveable type was invented as early as the mid-eleventh century, moveable-type printing was not widely used in China, while woodblock printing remained the preferred method.[12] Among the many reasons that gave rise to this preference, the first and perhaps most obvious one is the nature of the Chinese characters. In any extensive Chinese text, at least several thousands of characters are needed, so that for printing several types are demanded for each character, for the common ones even more than twenty thousand. Consequently, for the printing of large works, a font of up to 400,000 Chinese types is not unusual.[13] This number presents a clear contrast to an alphabetical language, of which a complete set of fonts, including upper- and lower-case letters, numerals and signs, is composed of no more than one hundred types. No wonder that this limited number of alphabets "enabled Europe to exploit the benefits of moveable type", while the woodblock printing remained predominant in traditional Chinese publication.[14]

This distinct difference in written Chinese and European languages led to a series of differences pertaining to the printing technology. Because of the vast number of types needed, moveable-type printing means a tremendous capital investment in making or purchasing types. The fact that moveable types can be

12 Tsien 1985, 201ff; Zhang Xiumin 1989, 663-668.

13 Over 200,000 bronze types were produced by the Imperial Printing Workshop of the Qing to print the *Gujin tushu jicheng* 古今圖書集成 in 1725 and more than 250,000 wooden types for printing the *Wuyingdian juzhenban congshu* 文英殿聚珍版叢書 in 1733. In the early nineteenth century, a private printer even used more than 400,000 bronze types for his business.

14 Goody 1987, 56.

re-used is an advantage in the long run, yet very few printers in pre-modern China could afford such a long-term investment, since most print shops operated on a small scale. The vast financial burdens that the use of moveable types posed on printers is further enhanced through the process of typesetting and distributing. As Rudolf Hirsch and David McKitterick have cogently pointed out, setting the type for one sheet in early modern Europe required a full day's work on the part of a skilled compositor.[15] New print runs would require the same initial investment in time and resources since each page of the whole text needed to be reset, a laborious and expensive work.[16] After the runs were complete, the types needed to be redistributed into the cases where it was stored for future service, a work not less easier or time-consuming than typesetting. Therefore, Shen Kua 沈括 (1031–1095), one of the first practitioners of moveable-type printing in the world, concluded that though using moveable types was marvelously quick for printing hundreds or thousands copies, it would be neither simple nor easy if only two or three copies were to be printed.[17] Understandably, these factors posed further burdens on printers, making moveable types financially less practical and attractive to Chinese printers than to their European counterparts. This is perhaps also the reason why the majority of extant moveable-type printed works in pre-modern China were produced by the Chinese government, which, unlike a private printer, was able to supply the large capital needed for the huge number of fonts and the laborious type-setting.

With woodblock printing, the issue is somewhat different. The technique of inking and rubbing was largely the same in both moveable-type printing and woodblock printing and their costs were also relatively constant. The initial engraving of woodblocks accounted for the greatest expenditure in the whole printing process. This, however, might not be too burdensome, because carving a woodblock from a hand-written manuscript in early modern China required only cheap materials, and great manual skill was not a prerequisite for block carving either. Though literacy was desirable and literati carvers were in demand for the production of fine imprints, given the nature of the technology, nevertheless, it was not essential: what the carver needed to do was simply to carve the wood around the character shape.[18] The minimal requirement of skill

15 Hirsch 1974; McKitterick 2003.

16 Tsien 1985, 220f.

17 *Mengxi bitan* 18.117. For a translation of the text, see Carter 1955, 212f; Tsien 1985, 201f.

18 From the Song throughout the Qing, there was a clear stratification of woodblock carvers, among which literati carvers, who received certain education and had longer apprenticeship,

led to a proliferation of labor supply and consequently this pool of carvers stimulated decreases in their payment. The low wage of these woodblock carvers, as well as their efficiency, astonished Walter Henry Medhurst (1796–1857), a missionary sent by the London Missionary Society to promote the spread of evangelical Protestantism in China. In his 1838 account of Chinese printing Medhurst noted that, over the course of a year, a good carver could cut on average 100 characters per day. He then commented:

> A Londoner engraver was surprised when he learned, that what could cost sixty or eighty shillings in England might be accomplished by a Chinese workman for half-a-crown [i. e., 2.5 shillings].[19]

Relying on statistics from the late sixteenth century, Kai-wing Chow estimated that for a whole day work of carving, a woodblock carver could earn only 20 to 35 cash, approximately the same to the price for 0.5 kilo of pork meat.[20] The cheap cost of labor for carving was equally striking to Charles Gutzlaff (1803–1851), a contemporary of Medhurst, as he concluded:

> For all common work, the Chinese mode of xylography or stereotyping appears to be the cheapest and much to be preferred.[21]

It is probably because of such low costs of woodblock carving in China that when William Milne (1875–1822), the missionary-printer predecessor to Medhurst, was seeking funds in the 1810s to print the Chinese version of his *On the Explanation of the Epistle of Paul to the Ephesians* in China, he explained in a separate composition why printing this book with woodblocks would be far cheaper than with Western-style moveable type:

> The expense of preparing a set of good blocks for it will amount, I suppose, to £50 sterling at least. [...] The expense of printing it with the defective font of moveable

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stood at the top of the rank. A famous group of these literati carvers are the Huangs 黃 of She county 歙縣, Anhui province, as between the mid-sixteenth and mid-seventeenth centuries hundreds of them gained fame and fortune by means of their fine and delicate carving. Cf. Bussotti 2001, 275-279.

19 Medhurst 1838, 113. His figure is confirmed by Lucille Chia, as she has observed personally that a well-trained block carver in modern China can carve about 10 characters in 50 minutes, that is about 100 characters in a ten-hour workday; cf. Chia, 2002, 333, note 52.

20 Chow 2004, 34, table 1.1; Zhou Qirong [Kai-wing Chow] 2010, 10 and 14. In his analysis of the costs of printing local histories in late-sixteenth-century China, Joseph Dennis (2010, 195) observes that a woodblock carver can carve 204 characters a day, and his wage was about 15 cash per hundred characters.

21 Gutzlaff 1838, 149.

> characters which we possess, would amount, I think, to much more than four times that sum; for these are, as you will see, three different sizes of letter, which would require as many different sized of character. This would necessarily be very expensive. On the Chinese mode, the different sizes of character are all cut on the same block, by the same hand, with the same ease, and at nearly the same price. But indeed, in our circumstances, and with our views of the subject, we are fully satisfied that the Chinese method of printing [woodblock] is the most suitable to their language, and best adapted to our purposes.[22]

Accordingly, these differences affected the structure and organization of book industry in Europe and in China in a variety of ways. In most cases, a European printer was imperative to print as many copies as might possibly be hoped to sell, since the relatively high initial investment in the type and large costs of skilled labor for typesetting could only be recovered if enough copies were sold. Only when copies were printed in large quantity could the average capital and time for each copy be reduced to a practical and economic level. But this would also mean that a printer had to bear the costs of storage and the risk of low sales. Because this speculative overproduction was the only strategy by which a profit could be made, printers in early modern Europe were often bankrupted by the risky economics of their businesses if no sufficient returns for the invested capitals could be achieved.[23] Unlike plates of set type, woodblocks did not require new investment once they were carved and they, if properly preserved and repaired, could be used over and over again to produce up to 40,000 copies.[24] As long as the printer had access to the appropriate wood and ink, he could print as many or as few copies he could afford or he felt the market for it could bear. If more copies were demanded, he could take out the blocks at any later date and print off the original blocks. Thus a printer in early modern China, in contrast to their European contemporaries, "avoided the unnecessary holding of printed books in stock and tying up capital"[25] and therefore enjoyed more flexibility and financial security. This advantage for Chinese printers was succinctly concluded by Matteo Ricci (1552–1660):

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22 Milne 1824, 97f, quoted in McDermott 2006, 22.

23 For a detailed case study of the financial difficulties of the great Basel printer Johannes Oporinus, see Steinmann 1969, 189-190.

24 McDermott 2006, 20-21. There are numerous Chinese records of the transmission of printing blocks from generation to generation. See Chia 2002, 217 and 360, note 111, for cases of books printed by publishers using blocks bought or inherited from others.

25 Tsien 1985, 221.

> "[W]ith this method [woodblock printing], the printer and the author are not obliged to produce here and now an excessively large edition of a book, but are able to print a book in smaller or larger lots sufficient to meet the demand at the time.[26]

Furthermore, the very fact that woodblock carving, unlike typesetting, is mostly a one-time job allowed for greater mobility of woodblock carvers and decentralization in the organization of the printing industry. Sometimes woodblocks were transported over considerable distances from carver(s) to the publisher or from one publisher to another, but more often, carvers travelled.[27] In fact, many Chinese woodblock carvers from the eleventh century onward were journeymen.[28] When the demand for their labor in a single location was decreasing or intermittent, or if other places had a shortage of carvers with the necessary skills for quality work, a carver might travel, with an easily portable set of tools, to other locations.[29] The range of their movement was amazingly extensive. For example, many plays and drama miscellanies printed in Nanjing in Jiangsu in the sixteenth and seventeenth centuries were carved by one or more of the Huang 黃 clan from She county 歙縣 in Anhui.[30] A mid-sixteenth century carver from Suzhou 蘇州 in Jiangsu even travelled to a monastery at Mountain Wutai 五台山 off in southern Shanxi to carve the blocks for the publication of the monastery's sutras.[31]

Printing in China, primarily by woodblock, presented different "affordances" from metal moveable type used for printing in Europe.[32] In Europe, a surviving copy can suggest that, depending on the context, at least three hundred or five hundred or one thousand other copies were printed at the same time, with only small variations in the form of stop-press corrections or cancels. According

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26 Gallagher 1953, 21.

27 Out of financial considerations, commercial publishers might prefer using a set of already carved blocks, on which they then recorded their names elsewhere, to making investment in new blocks. For instance, the Zhan family's Yizhai 詹氏旸齋 printed the *Liang Han juanyan* (Critique on Excerpts of the *Han Histories*) in 1587; in 1608 the Cuiqingtang 翠慶堂 used the same blocks to reprint this work and merely substituted its name in the cartouche. Cf. Chia 2002, 219, figure 48.

28 Rawski 1985, 21-22; Zhang Xiumin 1989, 733 and 746.

29 Inoue Susumu 2002, 206. For tools used for woodblock carving, see Tsien 1985, 196-200, esp. fig. 1135.

30 Zhang Xiumin 1989, 748-749; Chia 2002, 166.

31 Zhang Xiumin 1989, 746.

32 The term stems form from Sellen and Harper 2002, 17-18. I borrow this term here to designate the features that are facilitated and more difficult by the physical properties of an object or process.

to Lucien Febvre and Henri-Jean Martin, the average size of European editions was between one thousand and fifteen hundred copies.[33] The number of books printed in Europe may impress historians of the Chinese book, as about 80,000 new books were printed in Europe from 1501 to 1550, and over 620,000 from 1751 to 1800. But we need to bear in mind that in most cases there was a considerable speculative overproduction, so that it is not impossible that in early modern Europe, as one historian of the book has wisely argued, "most have never been read".[34] In contrast, the nature and economy of woodblock printing make it hardly possible to estimate the number of printed books in pre-modern China. Because of the simplicity and flexibility of woodblock printing, the size of the run of Chinese books could be easily adjusted to the availability of capital and changing demands. With a set of woodblocks, a printer could produce as few as just tens of copies or as many as several thousands, according to different market demand. Additional copies of earlier publications might also be produced later by using old woodblocks. With the help of extant bibliographies, it is possible to arrive at a rough amount of titles or editions of certain books, as Lucille Chia has profoundly expounded in her study of commercial imprints produced in Jianyang 建陽 in northern Fujian from the eleventh to seventeenth centuries. Yet, due to the scarcity of data available, we cannot count how many copies of each edition were printed, nor are we able to identify how many rounds of reprint each title had.[35]

Calligraphy

Another significant factor that affected the Chinese preference for woodblock printing over moveable-type printing is the exceptional high value that Chinese educated elites have attached to calligraphy.[36] The early makers of printed books, both in China and in Europe, felt themselves under great pressure to imitate existing manuscript books, adapting their standards as convincingly as possible to the production of printing.[37] But the aesthetic preferences surrounding the development of books, in particular concerning appreciation of calligraphy, was quite different. At the beginning of printed books in Europe, the effort

33 Febvre and Martin 1997, 216-218.
34 Amory 1996, 51.
35 Chia 2001, 69, chart 1a and 1b.
36 The English word "calligraphy" derives from the Greek word "kalligraphia", meaning "beautiful writing".
37 Graff 1987, 11; Heyer 1988, 150-151.

to duplicate the calligraphy of exquisite manuscript books went so far that even insignificant variations in the forms of letters and their connections in words were cast in type. However, these features were abandoned in the interests of economy. The European printing quickly induced an expectation of legibility and simplicity and its processes accordingly developed a set of requirements centering on simplification, uniformity, and standardization.[38] Although some typefaces could be very beautiful, they could not transcend the mechanical dullness resulting from frequent repetition of identical forms. But for most readers, they did not feel any loss in the dulling of the aesthetic impact that typography inevitably induced. Since standardization, routinization, and tendencies toward dull uniformity were already present in the nature of most alphabetic scripts, so there was no notable wrench when handwritten pages were superseded by typography in Europe. In general, despite a brief initial phase of continuing influence, the links between calligraphy and the printed book in the West were rather easily broken when printing intervened.

When we take a look at the parallel experience in China, we can discern a much deeper and far more enduring relationship of calligraphy to the printed book. Calligraphy, "the art of writing", played a formative role in Chinese civilization, where the past is treated as a source of cultural authority and legitimacy. Already during the late Eastern Han 東漢 dynasty (25–220), calligraphic forms began to be regarded as the most venerated art form and the ultimate sign of gentlemanly cultivation in China.[39] The artistic considerations kept alive by the society's broad involvement with calligraphy as premier art found expression also in the design of printed books. Moveable types, especially in the early stages of its development, did not always fulfill this aesthetic requirement, whereas printing from woodblocks made a great variety of typographical changes possible, and were able to lend a personality and an individuality to the page, which fonts of uniform type could not equal. Because woodblocks are carved by placing handwritten manuscript face down on the block, practically anything that the calligrapher writes can be transferred precisely to the block and, depending on the skill of the carver, can then be printed as written.[40] As a result, almost all the idiosyncratic and stylistic variations of the calligrapher's hand could be reproduced in woodblock printing.

38 Mote and Chu 1989, 11.

39 Nylan 1999, 17.

40 Tsien 1985, 197 offers a succinct yet vivid description of the preparation of blocks for printing.

It should also be noted that printing in China began in one of the great ages of calligraphy. Although the great Tang 唐 (618–907) masters such as Ouyang Xun 歐陽詢 (557–641) and Yan Zhenqing 顏真卿 (709–785) did not themselves, insofar as we know, write out texts for carving on printing blocks, calligrapher-copyists used rubbings of monumental inscriptions executed by these masters as models to produce texts for blocks. Together with Zhao Mengfu 趙孟頫 (1254–1322), whose calligraphy is famous for being soft, feminine, and charming, these great calligraphers, whose models were followed in varied ways, dominated the Chinese printing until the end of the fifteenth century.[41] With a vast expansion in the quantity of printing after the mid-sixteenth century, an era that marked the ascendance of imprints, late Ming 明 (1368–1644) printers began using homogenized styles loosely designated "Song style" (*Songti* 宋體) scripts.[42] This was supposedly based on the calligraphic style of some imprints of the Song dynasty, but with repeated application to woodblocks by ordinary craftsmen, it had transmogrified into the rigid, mechanical, nondescript calligraphy which came to be called "craftsmen style" (*jiangti* 匠體).[43] Each stroke in a character functioned as a reproducible part within what Lothar Ledderose has aptly termed "the module system" of Chinese script and art.[44]

The wide use of the "craftsmen style" characters allowed the publisher to squeeze more characters onto the surface of a woodblock and the severe restriction it placed on the range of a scribe's strokes and carver's cuts further lowered costs. Both consequences greatly reduced the range of carving skills and therefore cut costs.[45] These "craftsmen style" characters present a broad trend toward dull standardization of Chinese script, showing a high degree of overall uniformity, as in the mechanically produced fonts of Western alphabets. Nonetheless, individualistic liveliness and expressiveness of calligraphies waned because the mediocre and box-like "craftsmen style" paid little attention to the dynamic interplay in the original brushstroke order and style of the calligraphy. Predictably, the eyes of literati readers, who regarded calligraphy as an im-

41 Tsien 1985, 184. Nylan 1999, 17. For a number of finely printed books showing various degrees of Zhao's impact on book design in the early Ming, see Mote and Chu 1989, 113-122.

42 Tsien 1985, 375.

43 Wu 1943, 250-251; Mote and Chu 1989, 169. But Zhang Xiumin (1989, 508) argues that the scripts in the late Ming imprints are not identical to the authentic "Song style" and such scripts should be better called "Ming style" (*Mingti* 明體 or *Mingchaoti* 明朝體). Zhang's terminology is also supported by Martin Heijra (2006, 15).

44 Ledderose 2000, 16-18 and 139-161.

45 Chia 2002, 11, 38, and 197.

portant art form that demonstrates the writer's virtuous disposition, were not pleased. Bemoaning the use of such dull brushstroke and its lamentable impact on the quality of the scripts found in late Ming imprints, the devoted late Qing scholar Qian Yong 錢泳 (1759–1844) lamented:

> Since the mid-Ming scribes [for woodblock carving] used square-like strokes, which were neither *Yanti* 顏體 (style of Yan Zhenqing) nor *Outi* 歐體 (style of Ouyang Xun), and [the characters] transmogrified into non-scripts.[46]

The most evident result of the wide-spread use of the "craftsmen style" as the principle calligraphic style for the scripts of the imprints was a widening gap between pre-1500 books employing an older calligraphic style and those later printed with "craftsmen style" scripts, and even a much wider gap between manuscripts and imprints. Accompanying such developments in the late Ming, however, was a backhanded acknowledgement among the educated readers of the specific value of elegant calligraphy. It is thus interesting to find that some late Ming printers, in contrast to most of their counterparts who produced large numbers of cheap and shoddy imprints, tried in various ways to escape these trends. In an attempt to bridge the gap between the printed and the written word, some publishers consciously imitated the high standards of treasured books of the Song and Yuan 元 dynasties (1271–1368) by using *xieke* 寫刻 (carved as written) – that is, carving printing blocks by faithfully emulating the author's handwritings in grass, running, or standard script.[47] Despite the unavoidable slight jaggedness of the printed characters that resulted from cutting through wood with a knife, scripts in *xieke* versions vividly approached the flowing brushstroke of the handwritten counterpart. All the idiosyncratic and stylistic variations of the calligrapher's hand could then be duplicated in printing. Although *xieke* was not new to Ming printers, this trend was taken up since the mid-Ming with a new enthusiasm.

More commonly, however, the dullness of the "craftsmen style" was counteracted by introducing more distinctive calligraphic styles for certain sections set off from the main text, such as the cover page, the preface, marginal comments, and the publishers' colophons and notices.[48] For title pages the calligrapher might adopt clerical (*lishu* 隸書) or seal script (*zhuanshu* 篆書) to give a

46 *Lüyuan conghua* 12.15a-15b.

47 Mote and Chu 1989, 169. *Shulin qinghua: fu Shulin yuhua* 7.2b-3a notes that *xieke* was already used during the Yuan to imitate the calligraphy of Zhao Mengfu.

48 Tsien 1985, 225.

touch of antique elegance. The remaining front-matter often used the cursive running (*xingshu* 行書) or grass scripts (*caoshu* 草書). Prefaces or forewords were usually signed by their authors, the presumption being that the personal calligraphy reproduced there was a facsimile of the original handwriting, though this implicit assumption was not infrequently inaccurate or false as publishers sometimes intended to deceive.[49] These sections executed in personal calligraphy were expected to lend flavor and add credibility and marketability to the books by satisfying the aesthetic desire of late Ming literati readers, even in fraudulent ways. The persistent inclination to draw upon the personalizing presence of fine calligraphy in printed books, not the mechanized and mediocre printing scripts, transmitted to later readers a continuous aesthetic sensibility for the elegance of individual handwritten calligraphy. Moreover, the use of these varieties of calligraphies, as Lucille Chia aptly argues, implied that the individual belonged to the educated elite with the learning and aesthetic cultivation to decipher and appreciate these more sophisticated styles.[50]

This strong Chinese insistence on calligraphy may grant us some insights into some East-West differences in printing aesthetics. In Europe, the "typographic aesthetic" developed because of the use of type.[51] For a particular printer, type was pre-established given, which he could work with but could not make adjustments to.[52] In China, on the contrary, the particular attention that the Chinese literati reader paid to distinctive and personalized calligraphy militated against the development of a set of aesthetics for evaluating the look of an imprint different from that of a manuscript. Chinese woodblock printed books in fact never broke away from the model of handwritten manuscripts, as European books did. The traditional Chinese view had always been that the finest imprint was the one that most closely approximated, largely through elegant

49 Not infrequently, a publisher would hire someone to compose a false writing by simulating the calligraphy of renowned scholars. A typical example is the preface to the 1623 edition of the *Nanyou gao* 南游稿 (Draft of the Travel to the South) by Chen Zhaoji 陳兆基 (fl. 1620s), an obscure person from Putian, Fujian province. Although the preface bears a signature of the established scholar Zhu Zhifan 朱之蕃 (1546–1624), who had been first in the palace examinations in 1595, an observation of its content and calligraphic style suggests that this attribution is probably spurious. See Mote and Chu 1989, 188, for a detailed account on the authenticity of this preface.

50 Chia 2002, 200.

51 Heijra 2006, 18.

52 For some of the European relationships between the type designer, punch cutter, and type, see Southall 1997.

calligraphy, a beautiful manuscript. No wonder that Chinese publishers preferred woodblocks, since they could be carved individually for each publication.

Language

The reading traditions and book cultures in the European high Middle Ages and in pre-1600 China shared many things in common. Books had appeared hundreds of years prior to this point; educated people were already familiar with books and recognized them as a kind of commodity, but the vast majority of the common people remained illiterate. In the mid-fifteenth century, book content in Europe was largely made up of standardized texts, mostly laws and religious literature, and Latin was the only official language of the Church and of learning in general. Although the extent of functional literacy in vernacular languages was increasing, Latin was still regarded as the most suitable language for serious purposes and remained the dominant written language. Eric Havelock thus observes:

> While these vernaculars became the tongues of the common people, Latin remained the international language of the educated, which meant to a major extent the officialdom of the Church. [...] Any member of the governing class reserved his vernacular, whatever it was, for oral use only. He had a second language as his literacy language and devoted to this alone the prestige of inscription.[53]

After the Reformation and the development of the press advanced by Gutenberg, Latin gradually lost its hegemony to a variety of vernacular languages (such as German and English). Indeed, the introduction of printing was very closely related to the religious reformation in Europe. The Bible in the vernacular, as Eisenstein has pointed out, was more than a pure linguistic translation, since it allowed the emancipation of the suppressed native languages and the national consciousness of the people who spoke these languages.[54] The printing technology, acting as "an agent of change", enabled Lutheran Protestant views to be circulated more widely in the form of pamphlets and manifestoes, helped to end the priestly monopoly of learning, and assisted Western Europe to escape the Dark Ages.[55] The spoken languages of Western Europe quickly developed into written languages and Latin, once the *lingua franca*, eventually became a dying script.

53 Havelock 1986, 76.
54 Eisenstein 1979, 358-359.
55 Eisenstein 1979, 306-307.

Texts printed in vernaculars and changes in the educational system made literary accessible to an increasingly larger portion of the population and publishers accordingly also encouraged the growing use of the vernacular. The eclipse of Latin by the written vernaculars and the expansion of national markets promoted printing, while printing again stabilized vocabulary, spelling, grammar, and punctuation of each language, and thus enlarged its use.[56] With the drastic spread of national languages and transformation of the linguistic landscape in Europe, the gap between the popular and elite culture was erased, yet the publishing industry also became forever geographically and linguistically fragmented.

In China, in contrast, the situation was quite different. Although hundreds of various dialects were spoken and some texts were published in written dialects, they never significantly threatened the dominance of the common written language – Literary Chinese (*wenyan wen* 文言文) or Classical Chinese (*guwen* 古文).[57] Confucian canons and their commentaries written in the Literary Chinese were the objects of study of all students. Government officials and local elites of all regions used the same learned language. Nevertheless, this is not to suggest that the Literary Chinese was entirely rigid or it excluded any other forms. It is true that genres linked to the upper registers of classical texts were written in a highly sophisticated and richly colloquial language that made them inaccessible to (or at least difficult for) the poorly or partially educated, yet the lines between different genres of the written language were often not definite and hard. In fact, there was always overlap of written languages: the philosophical conversations of the great Confucian Zhu Xi 朱熹 (1130–1200) were composed in a hybrid, semi-classical language;[58] many of the eighteenth and nineteenth century military romances were written in a simple classical language with occasional vernacular embellishments, while novels in vernacular Chinese were often enriched with pithy phrases and expressions from ancient classics. Because of the relatively consistence in the use of a (by and large) universal language, Chinese publishers, unlike their European counterparts, could imagine selling their imprints nationwide and serving the entire country.

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56 For the development of European national languages and printing, see Eisenstein 1979, 117-118.

57 Works of performance literature in Wu 吳, Minnan 閩南, and Yue 越 dialects in south China are particularly known. During the late nineteenth century, almost all vulgar novels began to be written in dialects, but the majority of texts written in Chinese would have been accessible to a highly literate reader from any region.

58 Brokaw 2005b, 222.

On the other hand, the rigorous linguistic requirements of the examination system and official service led to a high premium put on writing in China still exacerbated the gap between the well educated (those with *jinshi* 進士 degrees) and the partially educated (those of *shengyuan* 生員 degrees).[59] The overlap in usage of literary and vernacular in both speech and writing helped to a certain extent to bridge this gap in terms of communication, but there were still a great deal of differences to be observed in different registers of classical Chinese texts. Genres linked to the upper registers of literary writing, such as the Confucian canons, imperial memoranda, and literary works of literati, were mostly written in an archaic, euphuistic parallel prose, or a pure ancient-style prose and would most likely only be comprehensible to the well-educated literati.[60] Thus Chinese authors and publishers, though in comparison to their European counterparts relatively free from concerns about the geographic reach of their products, had to make clear the target readers of each of their printed text and consider the socio-linguistic reach of different genres.[61]

Motivation for Printing

It should not be a surprise to observe that in both China and Europe, printing was the initiative of someone other than the reader. Among the earliest imprints in Europe, a large number were indulgences commissioned by the Roman Church for sale to people who bought them in penance for their sins. Indefinite estimations note that up to one million of such single-sided imprints were produced, though only very few survive.[62] European humanists of the late fourteenth and fifteenth centuries were keenly aware of the loss of ancient literature in the Middle Ages and they started seeking out rare texts in European and Byzantine libraries well before Gutenberg's invention in ca. 1453. Yet after the advent of modern printing, humanists hailed the new technology as means to preserve ancient texts and to prevent future loss of the painstakingly recovered works. Some even lamented in the sixteenth century that if printing had been available to the ancients, their works would not have been lost.[63]

59 Elman 2000, 276-277.
60 Brokaw 2005a, 13.
61 McLaren 2005, 174-175.
62 Needham 1986, 31, records that of the hundred thousand indulgences printed between 1498 and 1500 at the behest of the Benedictines of Montserrat in Catalonia, only six are still extant.
63 Richardson 1998, 141.

Reproduction of ancient texts through printing increased their chance of preservation and reduced the possibility of loss. But other initiatives for printing might have played a more important role in early modern Europe. During the Reformation, the voice of Lutheran Protestants found its outlet in the printing press. Great quantities of pamphlets, broadsheets, and manifestoes were printed and circulated, in an effort to break the solid wall Latin built to enforce one-way indoctrination. Because Latin was the means and the symbol of the Church's domination, Latin and vernaculars (languages spoken in local kingdoms) represented an antagonism between different religious and political forces. The choice of local vernaculars encouraged the consciousness of different peoples and supported the political legitimation and sovereignty of local rulers, so they promoted the use of the vernacular and the production of texts printed in their own languages.[64] The struggle for the acceptance of the vernacular, as has been mentioned above, therefore provided a desirable socio-cultural condition for the development and the proliferation of the local printing press, which then printed literature in vernacular languages and thus reduced the wide use of Latin.

It is true that some of the motivations behind the rise of printing in Renaissance Europe and Song China were quite similar, in particular the desire to recover the loss of ancient books, yet their cultural and political contexts were comparatively different. When printing first appeared in China, it was primarily motivated by the demand for large number of Buddhist sutras and illustrations.[65] Although the method was originally utilized for religious purposes, the technology was soon embraced by the state, who printed large numbers of law codes, orthodox calendars, examination records, dictionaries, and official editions of Confucian texts.[66] Chinese government's participation in printing operated at all levels of the bureaucracy. At the very top were the central compiling and publishing agencies, such as the famous National Academy (*Guozi jian* 國子監) of the Song and the Imperial Printing Office (*Xiushu chu* 修書處) of the Qing, which organized large collecting and printing projects and produced the finest editions of the day: the *Taiping yulan* 太平御覽 (Imperial

64 Eisenstein 1979, 358-359; Havelock 1986, 76.

65 The earliest extant woodblock print in China, for instance, is the Diamond Sutra (*Jingang jing* 金剛經), dated 868. For a detailed study of the Diamond Sutra, see Wood and Barnard 2010.

66 For some speculative observations on the early use of print in China, see Strickmann 1993; Barrett 1997. See also Tsien, 1985, 146-159, for early commercial prints. It is fairly hard to identify how numerous or widespread these works were, because surviving examples of such prints are extremely sparse.

Readings of the Taiping Era), the *Cefu yuangui* 冊府元龜 (Prime Tortoise of the Record Bureau), and the *Gujin tushu jicheng* 古今圖書集成 (Complete Collection of Illustrations and Writings from the Earliest to Current Times), to name just a few.[67] Many imperial princes of the Ming, because of their wealth and access to certain rare editions, produced a number of exquisite imprints. Provincial and prefectural governments also printed standard editions of Confucian classics for government schools, local histories, gazetteers, dictionaries, and imperially sponsored agricultural and medical manuals.[68] From the Song dynasty onwards, printing and publishing of the government functioned as an effort to maintain a kind of educational orthodoxy, so that the Chinese government played a far more active role in the printing industry than did European governments of the sixteenth through nineteenth centuries.

Sometimes government offices at all administrative levels also made decisions that were clearly commercial to print and publish certain popular texts for public sale and profit. During the Ming dynasty, for instance, the Directorate of Ceremonial (*Sili jian* 司禮監) and the Censorate (*Ducha yuan* 都察院) in Beijing and the Imperial University (*Guozi xue* 國子學) in Nanjing all produced their editions of the famous novel *Sanguo yanyi* 三國演義 (Narrative of the Three Kingdoms).[69] At the same time, commercial publishers, as Lucille Chia observes in her study of the commercial publishers in Jianyang, also occasionally did work for government offices and often supplied carvers and printers, although it is not clear if they worked willingly with them.[70]

It should also be noted that the ultimate factor contributing to the growth and development of printing in China is probably the imperial examination system. In fact, the first golden age of print in China, from the late tenth to the early twelfth centuries, was closely linked to the restoration of Confucianism and the institutionalization of the Civil Service Examinations (*keju* 科舉). The revival of Confucian learning and the attraction of political and economic prestige through examinations gave impetus to the flourishing of schools and academies which supplied candidates for the examinations which were based solely on Confucian doctrines. In consequence, the concomitant increase in demand

67 For a detailed study of *Taiping yulan* and *Cefu yuangui*, see Kurz 2007. For a brief examination of the publication of the *Gujin tushu jicheng*, see Zhang Xiumin 1989, 548-550; Ledderose 2000, 140-142.

68 Zhang Xiumin 1989, 559.

69 Zhang Xiumin 1989, 446; Hegel 1998, 133.

70 Chia 2002, 175-180.

for materials necessary for the examinations, including Confucian classics, Confucian philosophical writings, and dictionaries, rose drastically, and it accounted probably for the initiation of the large-scale printing of textbooks by the National Academy and many academies.[71] In addition to basic texts and references published by government agencies and academies, other works such as model examination essays by successful candidates were also increasing in demand. Specific digests of historical and philosophical works, guides to improving one's writing skills, topically arranged encyclopaedias for examinations use also flourished. Even crib editions of all these books, printed in tiny kerchief formats for smuggling into the examination hall, were produced.[72] The publication of these new genres of examination literature eventually gave rise to the expansion of the commercial printing and the growth of commercial printers who stood to profit from this market.[73] In fact, publishing for the examinees, as Kai-wing Chow cogently suggests, was "an important surviving strategy for most Chinese publishers".[74] That printing contributed to the advancement of scholarship and the examination system also promoted the prosperity of printing is attested in Tsien Tsuen-hsuin's observation that the top five provinces which produced the majority of *jinshi* degree holders in the Song printed most of the book during the same period, whereas the one which produced the fewest graduates also printed the least works.[75]

With a rapidly growing urban population since the sixteenth century, printers and publishers also produced various other books to meet the diversified needs of readers who had more leisure and resources at their disposal.[76] Almanacs, daily-use encyclopaedias, maps, and guides for travellers, merchants, and connoisseurs were widely available. Entertainment literature, such as novels and dramas with illustrations in the upper register of the page or full-page illustrations, swelled the commercial book market.[77] Series of lavishly illustrated painting manuals were printed to provide non-elite readers with a device for enhancing cultural capital.[78] Travellers visiting brothels in the cities could ob-

71 Poon 1979, 123, 134, 154, and 170.
72 Chia 2002, 119; Chow 2004, 24.
73 Inoue Susumu 2002, 231-232.
74 Chow 2004, 250.
75 Tsien 1985, 379-380.
76 Inoue Susumu 2002, 226-228.
77 Hegel 1998; Chia 2002, 52-61.
78 The seventeenth and early eighteenth centuries witnessed a series of lavishly printed painting manuals, the most famous of them being the *Lidai minggong huapu* 歷代名公畫譜 (The

tain advice and insider information from guide books known as "Classic of Whoring" (*Piaojing* 嫖經).[79] Erotic albums and pornographic novels, many of them printed in multi-colors, were very popular as well.[80]

Persistence of Manuscript Books

Last but not least, an important feature that is unique to Chinese printing and book culture is the remarkable durability of manuscripts and the extended coexistence of books in both handwritten and printed forms even long after the proliferation of imprints. It is widely acknowledged that the ascendance of imprints in the late sixteenth century did not automatically entail the demise of manuscripts and the thriving manuscript culture doggedly persisted.[81] Certainly this is an issue for historians of the book in the West as well: manuscripts by no means died out after the invention and development of moveable-type printing. But it shall be safe to suggest that although both in China as in Europe printing had become an increasingly welcomed and preferred form in the reproduction and multiplication of all sorts of textual and visual knowledge since the late fifteenth century, yet manuscript books and hand-copied books played a far greater significant role in pre-modern China than in Europe.

Some of the reasons for this persistence of manuscripts in China in the age of print can also be found in Western book culture, but some of them are quite unique to the Chinese experience. Often the first motive for hand-copying was the restricted availability of books. The ongoing general shortage of books, in particular rare editions of literary anthologies, forced many scholars and book collectors to continue to hand-copy texts themselves or to commission copyists work for them. Ye Sheng 葉盛 (1420–1474), for example, the largest book collector in the Yangzi delta of his time, needed over twenty years to complete a full version of the non-historical writings of Sima Guang 司馬光 (1019–1086),

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Manual of Paintings by Famous Masters of Successive Periods) (printed 1603), the *Shizhu zhai shuhuapu* 十竹齋書畫譜 (The Ten Bamboo Studio Manual of Calligraphy and Painting) (printed 1614), and the *Jiezi yuan huazhuan* 芥子園畫傳 (The Mustard Seed Garden Manual of Painting) (printed 1701). For an excellent study of these and other painting manuals, see Park 2012.

79 A study and a translation of such a late Ming "Classic of Whoring", the *Piao du jiguan* 嫖賭機關 (Tricks and Traps in Whoring and Gambling), is provided in He 2013, 261-270.

80 For a selection of these Ming erotic albums and pornographic novels, see van Gulik 2004; and R. Wang 2011.

81 Inoue Susumu 2002; McDermott 2006; Lin 2013.

through making copies from separate editions owned by his friends.[82] In the first half of the Ming, complete copies of the *Songshi* 宋史 (History of the Song) were few, and even as late as 1534, the avid Suzhou collector and painter Qian Gu 錢穀 (1508–1578) found that a copy of it made by the notable Suzhou scholar Shen Zhou 沈周 (1427–1509) was missing thirty-four *juan* 卷. Qian then spent years copying from another incomplete copy in a vain effort to complete his version.[83]

A reader too poor to purchase printed texts might borrow books to copy, if he was lucky to find someone generous enough to lend out his book. This is, however, a rather rare phenomenon. Book collectors repeatedly reminded themselves and their descendants that "to lend books is unfilial", "to loan a book is stupid", or "to lend a book is foolish, while to return a [lent] book is also foolish".[84] The renowned Ming scholar Huang Zongxi 黃宗羲 (1610–1695) thus lamented after decades of trying to visit major private libraries in the Yangzi delta, "people do not easily show their books to others".[85]

In the eyes of many elite scholars and bibliophiles, texts hand-copied through transcription were still the preferred form of the book, because the act of copying was important not just to demonstrate one's commitment to books but also to the process of learning and mastering their contents. The twelfth century Confucian Zhu Xi, for example, lamented that printed books had become almost too readily abundant in his time and such a widespread reliance on imprints led to the neglect of the tradition of memorization through transcription.[86] You Mao 尤袤 (1127–1194), the twelfth-century wealthy collector, insisted that the best way of mastering a text was to make a brush copy of it. In the eyes of many late Ming literati, printed books were for those who did not truly care about books, while the real scholar or true connoisseur of books prided himself on copying them, after editing and collating them.[87]

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82 McDermott 2006, 77.

83 Ji Shuying 1991, 76.

84 The seal of the scholar-official Tang Yaochen 唐堯臣 (*juren* 舉人 1528), for example, reads exactly "to loan a book is unfilial" (借書不孝); the seal of Shi Dajing 施大經 (ca. 1560–1610) also contains the phrase "to loan or sell a book is unfilial" (出借鬻為不孝). Achilles Fang (1950, 156), quoting Ye Dehui's 葉德輝 (1864–1927) *Cangshu shiyue* 藏書十約, notes that "one fool lends a book, another fool returns it" (借書一癡，還書一癡). On these habits of ideas and practice about loaning and sharing books, see Nagasawa Kikuya 1982, 88-92.

85 *Huang Zongxi quanji*, 389.

86 *Zhuzi yulei* 10:10a-10b.

87 McDermott 2006, 76.

Certain types of texts, for example politically subversive or sexually explicit pieces of fictional writings, were often seen as potentially dangerous or insulting to government censorship, so that many works which were of licentious or scandalous nature circulated for a long time only in manuscript form within a very restricted circle of readership before they were printed. The textual history of the *Jinping mei* 金瓶梅 (Plum in the Golden Vase) is in this regard quite representative. When it first appeared in manuscript in the late sixteenth century, the commercial value of the work was immediately recognized by many, including the celebrated writer Feng Menglong 馮夢龍 (1574–1646). The owner of the manuscript copy, Shen Defu 沈德符 (1578–1642) flatly refused the request of Feng and other friends of his to have it published, mainly because the novel's provocative content made him anxious about the social and political consequences that might ensue.[88] Thus, the novel remained within the relatively small coterie of appreciative readers before it was eventually printed in 1618.[89]

The exceptional high value attached to the art of calligraphy in China further strengthened the preference of Chinese elite for manuscripts over prints. As discussed above, even in the time of the great ascendance of imprints, the persistent manuscript tradition continued to shape the appearance of woodblock imprints with the highly calligraphic styles that grace not only frontispieces and prefaces but also the contents of Chinese books. The aesthetics and appearance of manuscripts have casted great influences on the design of imprints, while printed books also found direct expression in the creation of manuscript books vice versa. A large variety of fine hand-copied facsimiles of earlier printed books, the best of them dubbed *yingsong chao* 影宋鈔 (facsimile of the Song), were made by collectors and connoisseurs in the Ming and early Qing, in particular in the lower Yangzi delta.[90] All these facts aptly suggest a rich manuscript culture in China that has persisted far longer and more pervasively in the world of Chinese books than many of us had suspected. Indeed, throughout the whole late imperial period, Chinese book culture remained largely an imprint but also a manuscript culture.

88 Hanan 1962, 47; Plaks 1987, 55-72.

89 In fact, Shen was not among the first owners of the manuscript copy. Before he acquired a copy of it, the first manuscript copy of the novel had already been freely circulated within known circles of friends, including Yuan Hongdao 袁宏道 (1568–1610), Dong Qichang 董其昌 (1555–1636), and Wang Shizhen 王世貞 (1526–1590); cf. Roy 1986, 51-53.

90 For an extended list of the most famous producers of fine hand-copies in imitation of Song and Yuan imprints, see *Shulin qinghua* 10.13a-17a.

Concluding Remarks and Future Prospects

The preceding discussions give just a few examples of how different technologies and economies of print and different social, cultural, linguistic, and political contexts distinguish the history of printing and book culture in China from that in Europe. Both in China and in Europe, the advent of printing, as Tsien Tsuen-hsuin has persuasively pointed out, "reflect[s] a stage of maturity in the process of civilization", and every step in its development "has been a milestone in the history of humanity".[91] The printed world has since then exerted a tremendous impact on almost all aspects of the social, cultural, economic, and political life of human being. Printing in Europe was invented (or adopted) at a time when significant new religious and cultural movements were underway, including the Reformation, Renaissance humanism, and voyages of discovery. It is thus almost impossible to weigh the impact of printing independently of these events, as each of them emerged from a complex casual nexus. However, the introduction of Gutenberg's revolution to Europe in the middle of the fifteenth century has generally been recognized as a major, if not the most important, turning point in the great transformation of European society from the medieval to the modern age.

For scholars on China, learning about the history of printing and its impact in Europe can offer a valuable counterpoint to the tendency to universalize the Chinese experience. One feasible method is the most direct consequence of printing: the spread of literacy. Using figures of book production (new book titles) per capita to analyze urban ratios in Europe, modern scholars can begin to estimate rates of literacy in early modern Europe. A highly urban and literate environment like Renaissance Venice, for instance, had some 33 percent male literacy and 13 percent female literacy in 1480, while the European average is much lower.[92] Between the sixteenth and seventeenth centuries, literacy rates began to rise rapidly together with the proliferation of printed texts. By 1740s France reached on average 60 percent male literacy in cities,[93] and the Netherlands reached adult literacy rates of about 70 percent by 1800.[94] Certainly measuring literacy in Europe is fraught with factors favoring both overestimates (the

91 Tsien 1985, 360.

92 For Venice figures, see Richardson 1999, 110. For figures for other major European countries in 1500, see Allen 2003, 415, table 2.

93 Houston 1988, 150.

94 Allen 2003, 415.

ability to sign one's name does not necessarily mean he could also read) and underestimates (since writing was probably taught after reading, so more people could read than could write). The study of Chinese literacy rates also poses unique challenges, mainly because no comprehensive data on long-run trends on book production, both in manuscript and in print form, exists for China, nor is there any reliable data for their consumption. Pioneering studies by Lucille Chia and Evelyn S. Rawski have attempted to venture into the question by calculating extant imprints in Jianyang or by estimating literacy in Qing China,[95] still to be fully explored is the extent to which this increase in the production of printed books in China correlated with changes in readership and literacy rates.

The effects of print on the development and growing sophistication of scholarship are relatively well-known in European history. The invention and the spread of printing have been recognized as the most obvious connection between the increasing interest in science and the general movement of Renaissance humanism. Elisabeth Eisenstein has contended that the notions of "medieval" and "modern" can be best understood in terms of the differences between scribal and typographical cultures.[96] The duplicative power of print encouraged textual accuracy and quickened the pace of intellectual change. With the proliferation of printed books, scholars and students found it easier to challenge the traditional notions of authority by extending knowledge of their subjects independently of large book-owning institutions. This in turn brought an increased interest in scholarship and education. Despite greatly different social and cultural settings, the Chinese history shares some similarities. The printing of numerous encyclopaedias (*leishu* 類書) in the sixteenth and seventeenth centuries, as observed by Sakai Tadao 酒井忠夫 (1912–2010), contributed significantly to the spread of knowledge on every social level. In addition to serving as scholarly compendiums for students preparing for the civil service examinations, the encyclopaedias also functioned as repositories and manuals of popular knowledge during the Ming and the Qing. They formed a solid root of a book-oriented atmosphere conductive to the development of public interest in knowledge.[97] It is true that cultural historians and literary scholars have also recently begun to probe into the multifaceted impact of printing on reading habits, literary composition, and knowledge transmission,[98] yet, as has been mentioned above, a

95 Chia 2001; Rawski 1979.
96 Eisenstein 1979, 152.
97 Sakai 1970, 331-341.
98 Inoue Susumu 2011; Y. Wang 2011; He 2013.

number of other materials, which can further broaden our appreciation of the development and impact of Chinese book culture, still remain largely overlooked. Poetry, notebooks, jottings, and correspondences between people can also help facilitate more systematic comprehension of the ways in which the new form of media affected reading experience and literary production.

The topic around the social repercussions of the greater availability of printed texts is another arena that will require further examination. The expansion of printing during the sixteenth and seventeenth centuries had contributed to the unlocking of the rigorous relationship between the state, the educated elite, and the Confucian orthodoxy, an important aspect Kai-wing Chow has recently brought onto the arena.[99] But on the other hand, the use of the printed medium may also have sharpened social distinctions and restricted social mobility, as most printed texts were produced by government officials, local elites, or better-off private printers, all of them were at least partially educated. In this regard, the European experience of the spread of printing and its impact on knowledge transmission and social mobility can certainly shed light on the nature and impacts that printing in pre-modern China involved. More comparative studies are warmly welcome and they will definitely offer new possibilities to arrive at a more nuanced understanding of printing and history of the book in other cultures as well.

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